EURACOM®

180F, 181F, 182F, 180, 181, 182

Installation manual for PABX systems

ACKERMANN
Systems - that connect

Important notes in advance

No personal registration is necessary for operation of your PABX, as your PABX is prepared to be connected via connector directly to the network termination (NTBA) of your network provider. If you operate your PABX with one or more basic accesses, the installation has to be done by a registered expert, specialized for this subject.

Please pay attention for your own safety:

ATTENTION!
Always unplug mains, before opening the PABX.

ATTENTION!
Connect or disconnect all connecting cables of your ISDN PABX only with unplugged 230V mains.

ATTENTION!
Do not make any installations during a thunderstorm. There is the danger of lightning strikes.

ATTENTION!
Be aware of hidden cables and pipes, as eg electricity cables, water or gas pipes while drilling holes for installation.

ATTENTION!
If you intend to install an internal line of your PABX, leaving the building and going to the outside area, you have to prepare a special lightning protection. Consult your dealer for this matter.

ATTENTION!
Equipment may be damaged by electrostatic discharge. Touch a grounded, metallic part (eg water or radiator pipe) directly prior to the installation.

Our contribution to environmental protection

- This instruction manual is printed on chlorine-free paper.
- All plastic parts of your PABX consist of fully recyclable material (PC+ABS-FR).

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By purchasing the Ackermann EURACOM 180F, 181F, 182F or EURACOM 180, 181,182 ISDN PABX, you have decided in favour of a high-quality and future-compatible product. This system provides all the advantages of the digital Euro-ISDN network (DSS1) when connected to a multiple subscriber – or PABX connection while allowing you to continue using existing analog terminal devices.

Thanks to the update capability of this system – either via software in the case of the EURACOM 180F, 181F and 182F or by replacing the program module in the case of the EURACOM 180, 181 and 182 – you can comfortably make use of the features of modern digital communication not only today, but also tomorrow.

And our development work continues. **Which is why the manufacturer reserves the right to change hardware and software specifications, as well as the operating instructions, without prior notice.**

Before you start

Please read this instruction manual carefully, in order to be able to install your PABX correctly. The supply volume of your PABX covers a comprehensive documentation:

- an instruction manual "Installation"
- an instruction manual "Configuration"
- an instruction manual "User"

The instruction manual "Installation" you are reading just now, first only covers the informations you need to install your PABX. You can thus start with the individual configuration of your PABX rather quickly or keep the presettings.

What you should read in any case

Do read the chapter safety instructions (see inner side of cover) and also the isolated safety instructions (with symbols ⚠ and 🔺) in this instruction manual.

Defining the symbols

⚠ **ATTENTION!**
Chapters marked this way indicate possible dangers for persons.

🔺 **ATTENTION!**
Chapters marked this way indicate possible dangers for the system, caused by electrostatic discharge

Check supply volume

Check the supply volume on the basis of your order. The supply volume has to include the following parts in any case:
- EURACOM PABX
- Instruction manual "Installation"
- Instruction manual "Configuration"
- Instruction manual "User"
- CD with PC programmes under the cover of the instruction manual "Configuration".
- S_0 connecting cord
- Cord for connection of PABX / PC
- Adapter 9-pin to 25-pin
- Rawelplugs and screws
- Connectors

Do not throw away the box of your PABX necessarily. If you intend to place your PABX in a different place, you can carry it in the box easily and safely (in case of moving, guarantee). If you still want to throw away the box, please make sure to take it to the appropriate recycling areas.

Connect to mains

► First connect your PABX to the 230V mains after installation and check of all connections and with closed cover.

► Connect your PABX to a separate mains circuit. You thus avoid having a system breakdown, if there is a short circuit, caused by other appliances.

Select place for installation

Install your PABX in a dry and explosion-proof place. The ambient temperature must not exceed the area from 5°C to 40°C. The minimum distance of your PABX to other limitations shall be 10 cm. Install the PABX with the connectors facing downwards to a plane, strong wall.

Do not install your PABX
- near air conditioning units, radiators
- near appliances with illegal radiation
- in wet places or places with direct sunshine
- in an extremely dusty surrounding
- in a place, where it might be exposed to chemicals

Wall mounting

In case of wiring underneath the plasterwork, mount your PABX in such a way, that the corresponding cables run through the clamp area openings of the underside. You can screw your PABX to a wall on three fixing points as follows:

► Remove the clamp area cover of the PABX. In order to do this, grip the cover lid with both thumbs on the top edge and press the lid towards the front.
► Mark fixing hole P1 on the corresponding wall, drill hole, insert rawlplug and insert screw.
► Hang PABX onto the screw, adjust horizontally and mark fixing points P2 and P3. Remove PABX again.
► Drill holes for fixing points P2 and P3 and insert dowels.
► Hang PABX onto screw P1 and fasten it with screws P2 and P3.
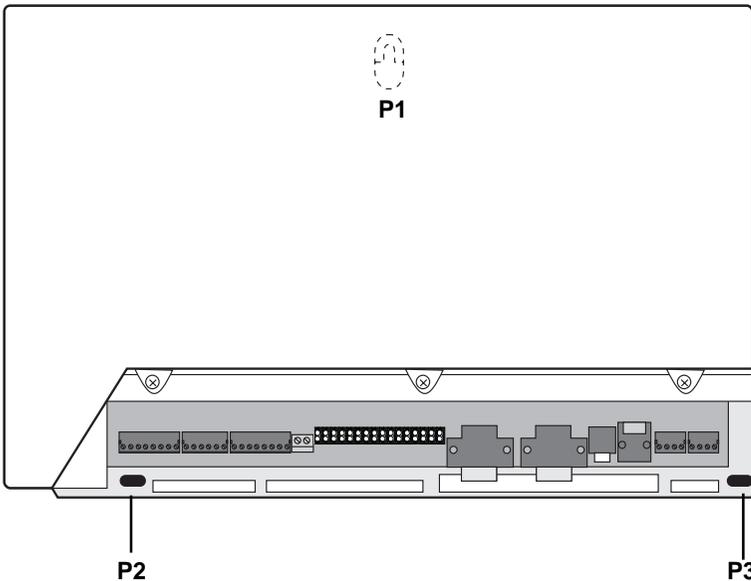
View of the fixing points for mounting the PABX on a wall.

Installation systems EURACOM 18x and 18xF - differences

Depending on the type of your PABX you will discover a different connection technique between EURACOM 18xF and EURACOM 18x PABXs. Specially in the connection area of the analogue ports both PABX types differ from each other concerning the connection technique.

Connection system of EURACOM 18x

The connection of the analogue subscribers (also depicted as analogue ports) is done via a 16-pin plug-in screw clamp. The installation wire is inserted into the front opening in this case and fastened with screw from the upper side. The clamp indication is printed onto the screw clamp.
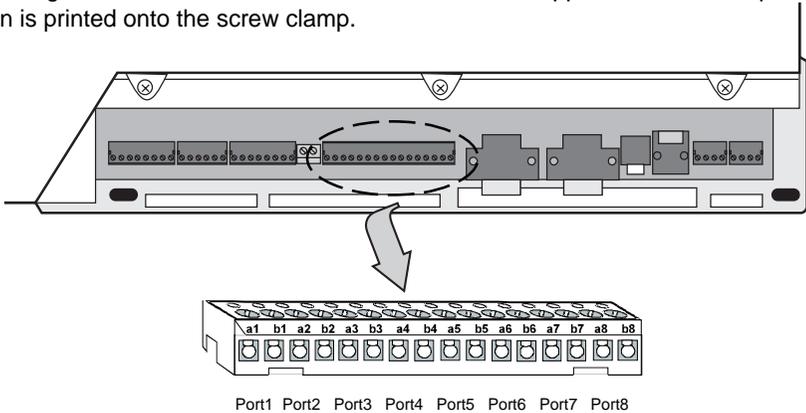
Clamp connector assignment in case of connection of 8 analogue subscribers to a EURACOM 18x

Connection system of EURACOM 18xF

The connection of the analogue subscribers (analogue ports) is done via a 16-pin plug-in cage clamp. The installation wire is inserted into the opening and then engages. The clamp indication is printed onto the cage clamp.

Clamp connector assignment in case of connection of 8 analogue subscribers to a EURACOM 18xF

Description of connectors

2nd DIS $^{*)}$ 1st DIS   8 analogue subscr.   2nd RS232   1st So   3rd So $^{*)}$

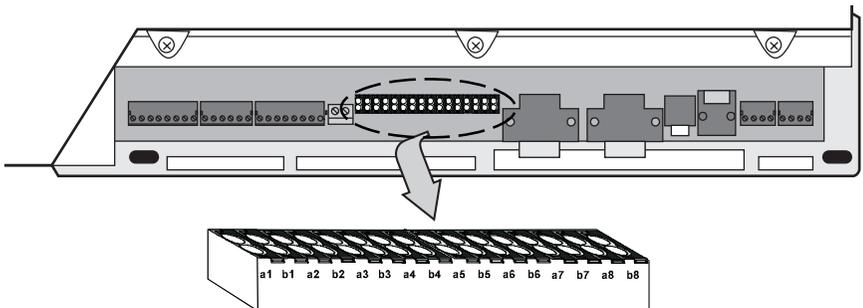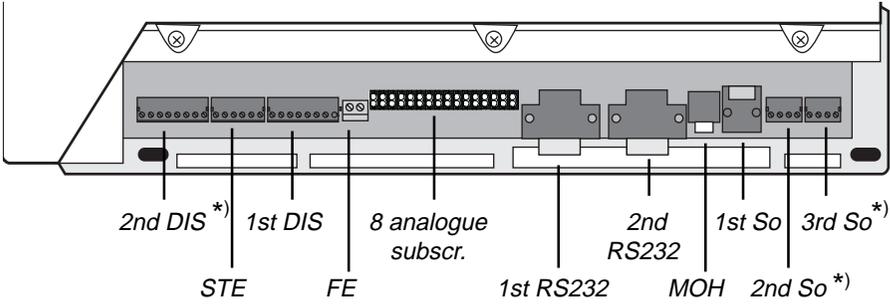STE   FE   1st RS232   MOH   2nd So $^{*)}$

Interface name	Name of connector	What is the function of the interface?
1st S_0		1. ISDN-interface, basic network access (Western socket)
2nd S_0	a1 b1 a2 b2	Conector for internal/external ISDN port (EURACOM 181F, 181)
3rd S_0 $^{*)}$	a1 b1 a2 b2	Connector for internal/external ISDN port (EURACOM 182F, 182)
1st DIS	KT-KT'	Connectors for potential free bell push key
	a-b	Speech circuit, DC free
	TO-TO'	Connectors for control of door release relay
	TS-TS'	Connectors for a relay
2nd DIS $^{*)}$	KT-KT'	Connectors for potential free bell push key
	a-b	Speech circuit, DC free
	TO-TO'	Connectors for control of door release relay
	TS-TS'	Connectors for a relay
STE	S1-S1'	Connectors for potential free alarm contact
	A1-A1', A2-A2'	Connectors for control relay 1 and 2 or for secondary ringer 1 and 2
FE		Telecommunication earth
8 analogue subscr.	a1-b1 .. a8-b8	Connectors for analogue terminal equipment
1st and 2nd RS232		serial interfaces for printer or PC
MOH		Connector for external music source (music-on-hold)

$^{*)}$ These interfaces are integrated into the PABX, but can only be activated however by use of an upgrade module!

Configure
EURACOM

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► Insert all cables through the opening of the clamp area.

► Connect the removable screw clamps (part of the supply volume) to the wires. The connector name is printed on the screw clamps. Assign the right cable to the different clamp connections.

► If you decide to connect a EURACOM 180, 181 or 182, then connect the plug-in screw clamps (part of supply volume) to the installation wires. The clamp indication is printed onto the screw clamps.

   If you decide to connect a EURACOM 180F, 181F or 182F, then first connect the wires of the analogue subscribers to the cage clamps and then all other wires to the plug-in screw claps (part of supply volume). The clamp indication is printed onto all of the cage clamps.

   Assign the right wire to the different clamp connections.

► Plug the screw clamps into the corresponding socket places (--> drawing on page 9).

► Plug the included ISDN connection cord into the socket of the first PABX S_0 interface. Plug the remaining end of the cord after completed installation of all connections and with closed housing into the line socket of your ISDN basic access.

⚠ **ATTENTION!**
If you intend to install an internal line of your PABX, leaving the building and going to the outside area, you have to prepare a special lightning protection. Consult your dealer for this matter.

Connect analogue subscribers

You are able to connect 8 analogue subscribers by connecting them with both of the related wires to the desired clamps (port 1 to port 8) in correspondence with the connector´s name. The polarity of the wires is not essential.
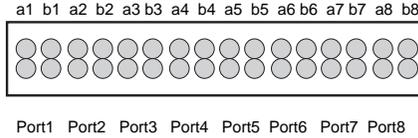
Connector positions for connection of 8 analogue subscribers
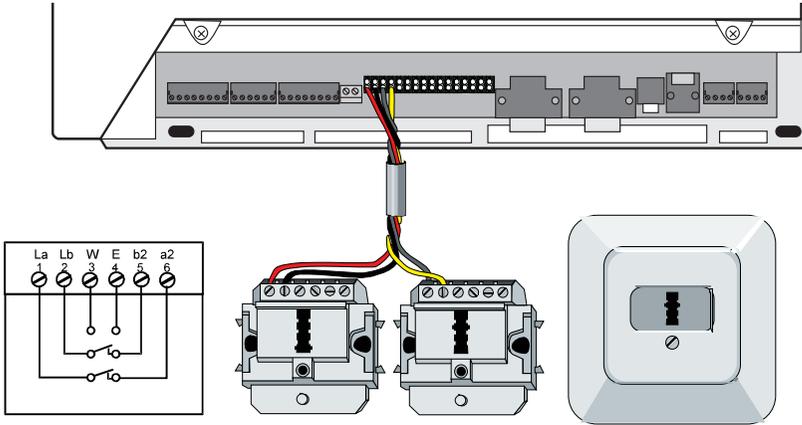
Connection of analogue subscribers (from outlet to PABX)

Connecting and disconnecting of analogue subscribers in case of EURACOM 18xF

You should take a pen, eg and press its top onto the orange-coloured edge of the corresponding connection place.
While doing this, you have to insert the wire into the opening or pull it out of the opening again for disconnection (see illustration). It is possible to use the front or back opening of the connector.
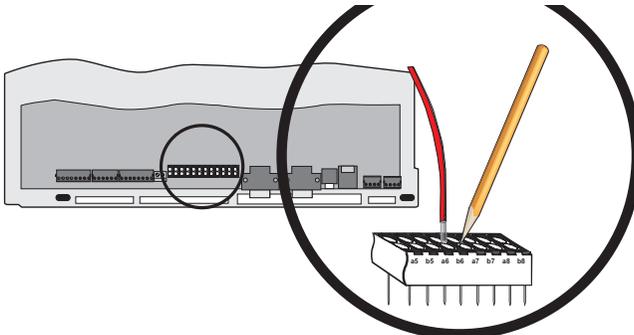
Connect internal ISDN subscribers

You may install up to 12 ISDN outlets on each of the internal S_0 busses and operate up to 8 ISDN terminals, as eg ISDN telephones, ISDN PC cards, connected to these outlets. It is also possible to use ISDN terminals, not being equipped with an own power supply. In this case the following combinations are possible:

- 4 ISDN terminals with a power consumption of up to 1 Watt and 4 ISDN terrminals without power consumption, eg PC cards
- 8 ISDN terminals without power consumption
- a combination, eg two ISDN terminals with and 6 without power consumption

a1 b1 a2 b2
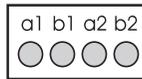
Connector positions for connection of ISDN ports 2 and 3

max. cable length: **100 - 150 m**

last S_0-outlet
*with 2x 100 ohm
termination resistor*

1. S_0 outlet

EUR■COM

230 V~

NTBA
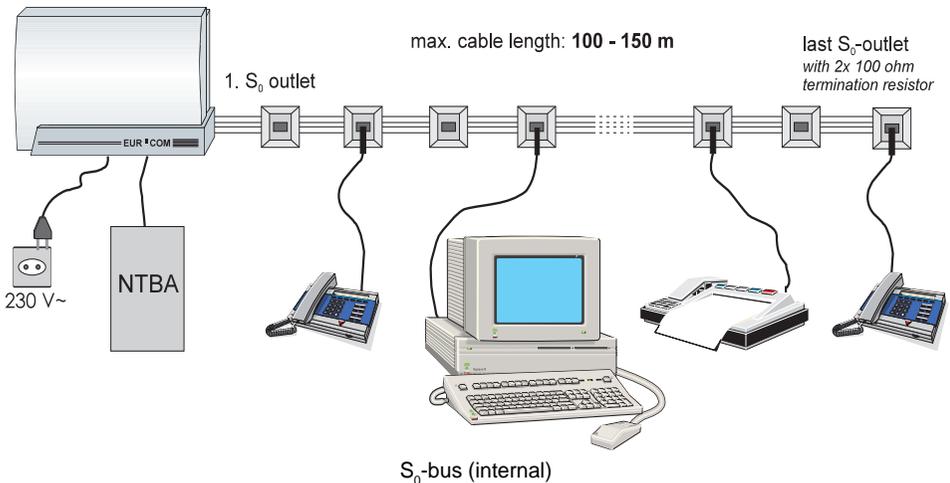
S_0-bus (internal)

Wiring of internal S_0 bus for terminal equipment operation

► The wiring of the internal S_0 bus should be carried out according to the connection illustration shown below.
► The last outlet has to be equipped with a resistor of 100 ohm value each between clamps 3/6 and 4/5 or 1a/1b and 2a/2b (power rating min. 0,25 Watt)
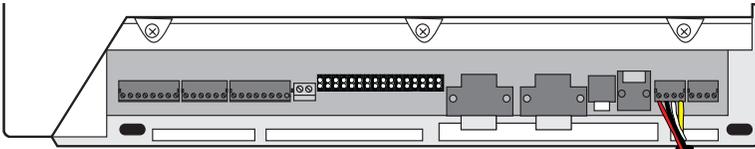
Example for connection of an internal ISDN bus

clamp connector
EURACOM

a1 b1 a2 b2

clamp connector
EURACOM

a1 b1 a2 b2

1a 1b 2a 2b

1 2 3 4 5 6 7 8

1a 1b 2a 2b

1 2 3 4 5 6 7 8

Outlets with 4-pin
Western sockets

IAE/UAE outlets

1a 1b 2a 2b

1 2 3 4 5 6 7 8

1a 1b 2a 2b

1 2 3 4 5 6 7 8

Resistor each of
100 Ohm

Resistor each of
100 Ohm
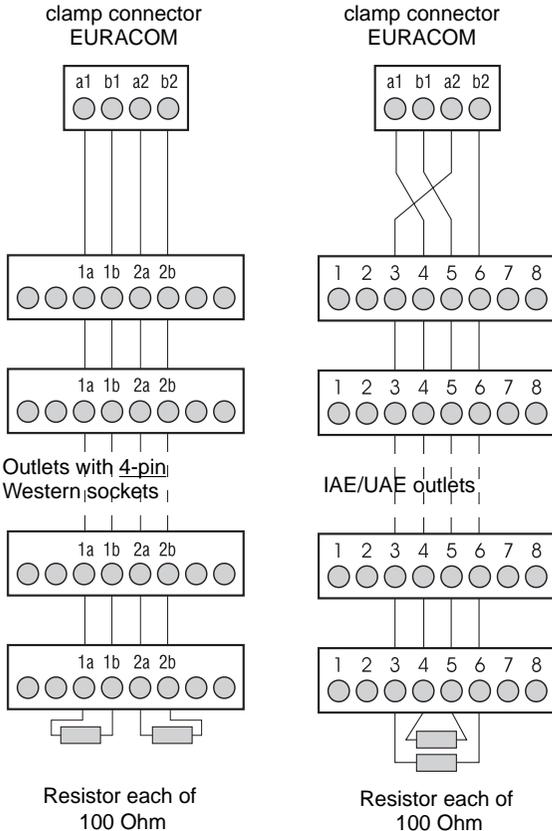
Wiring of the internal ISDN bus
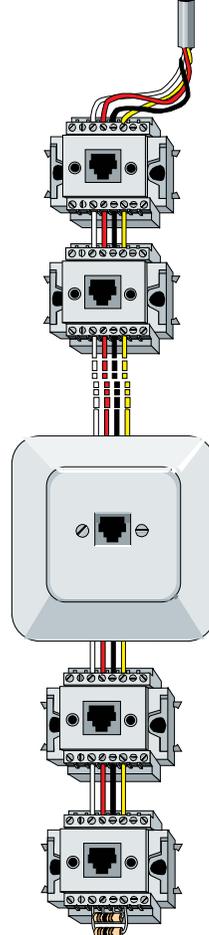
Connect external music source for music-on-hold

It is possible to connect an external music source to your PABX, eg CD player or tape recorder. Your callers will then hear, while being in hold condition, an individual music (also known as MOH = music on hold) or an announcement concerning your company.

Connect the external music source via a standard jack plug of 3,5 mm, as shown in the illustration below, to your PABX.
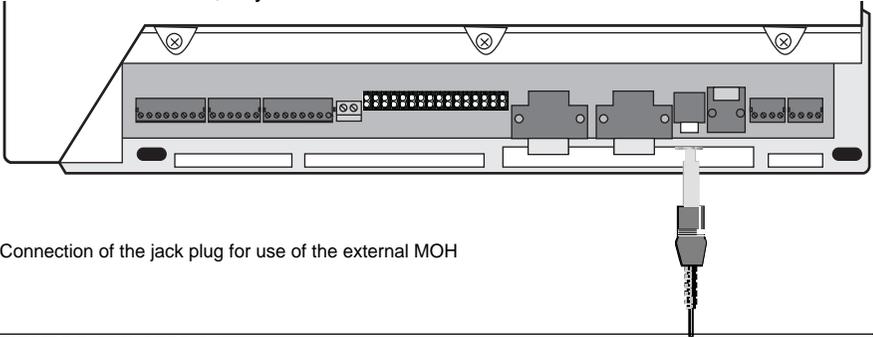
Connection of the jack plug for use of the external MOH

IMPORTANT NOTE!

- The external music source has to be active all the time, if it is not controlled by the control contacts.

- Please make sure, that it is checked, if national licence for music reproduction are necessary.

Connect sensor and actor

Your PABX is equipped with different control elements (sensor and actors).
The use of the actors is as follows:
- Alarm contact
- Secondary ringer
- MOH switch
- Manually switched relay

Connect the control elements according to illustration below.

S1, S1'   Connections for potential-free alarm contact (sensor)
A1, A1'   Connections for operation of control relay 1 (actor)
A2, A2'   Connections for operation of control relay 2 (actor)

Connect door intercommunication system (DIS)

You can operate all door intercommunication systems with your PABX, which meet the relevant market standard (FTZ 123 D12).

► Connect door bell, intercom station or door opener according to the following illustration.

Door station — Interface for conversion to FTZ 123 D 12 — EURACOM DIS clamp connenctor
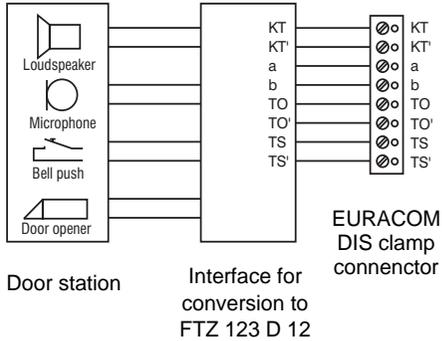
In case of door intercommunication systems according to standard FTZ 123 D12 the interface may be implemented completely or partially. In case of partial implementation it usually covers only the conversion of the listening and speaking circuit to two-wire technology.

In this case connect the bell push key and the door opener separately. You get further informations to this matter from the manufacturer´s documentation of the corresponding door intercom system.

You can find examples for the connection of various door stations on our internet homepage (http://www.ackermann.com).

Concerning your PABX, there are two complete, separate controllable, door station connections at your disposal. If you intend to control two door stations, you then need the MD upgrade module (option).

► Connect the door stations on clamp connectors 1st DIS and 2nd DIS as shown in the following illustration.

KT, KT'   Connector for potential-free bell push key
a, b   Speaker circuit, DC-free
TO, TO'   Connector for door opener relay
TS, TS'   Control of a relay for switching on an external amplifier (switching of speech path).

Set PABX to door station operation

In case you have installed a door station (DIS), you can use this either via the analogue port 1 or via the additional MD module (option).

DIS operation with MD module

Advantage: You do not loose an analogue port for the DIS. It is still possible to connect 8 analogue terminals.
The manufacturer has set your PABX for DIS operation with MD module. The a/b port is configured as analogue port. The corresponding jumpers are set to position 2/3 (presetting).

► Connect the DIS either via DIS 1 port or DIS 2 port.

DIS operation without MD module

Disadvantage: The analogue port 1 is used as DIS port. It is only possible to operate 7 analogue terminals.

► Set the jumpers to position 1/2 (see detail A). The a/b port 1 is then used as DIS port.
► Connect the DIS to DIS 1 port.

⚠ **ATTENTION!**
Equipment may be damaged by electrostatic discharge.
Touch a grounded, metallic part (eg water or radiator pipe) directly prior to the installation.

A

1 2 3

ab / DIS switch

Position of Jumper:
Position **1/2** for **DIS operation (without** MD-module**)**
Position **2/3** for **a/b-operation (with** MD-module**)**

DIS2   DIS1

DIS-switch, detail A – illustration enlarged
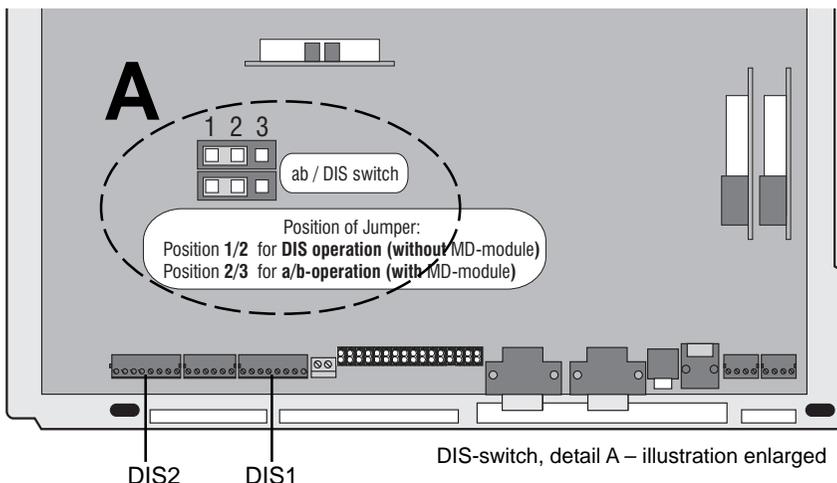
► Afterwards configure your PABX (see instruction manual "Configuration", page 66 +).

Connect telecommunication earth

For potential balancing reasons your PABX needs a telecommunication earth.

► Connect the telecommunication earth (FE) to your PABX by use of a 1,5 mm^2 wire, as shown in illustration below.
► Connect the other end of FE to the earth/ground potential of the building or floor, but by no means to the protective earth conductor.

IMPORTANT NOTE!

By no means connect FE via protective earth wire.
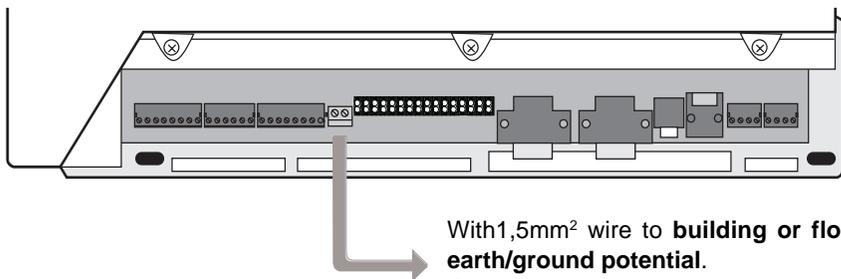
With 1,5mm^2 wire to **building or floor earth/ground potential**.
Do not connect to protective earth conductor!
Note VDE 0100!

Potential balancing by grounding of the PABX

Connect PC and printer

It is possible to connect your PABX with a PC and a printer via the RS 232 interface by use of an appropriate cable (part of supply volume). You can set the interface parameters of your PABX to the parameters of your PC (--> instruction manual "Configuration", page 44).
If your PC is equipped with a 9-pin connection, use the enclosed V.24 cable. If your PC is equipped with a 25-pin connection, use the enclosed adapter between V.24 cable and PC connection. If you prefer tailoring a cable yourself, please refer to the pinning given in illustrations below. The cable length must not exceed 3 m.

PABX
9-pin D-Sub-plug

2	2
3	3
5	5
	6
7	7
8	8
	20
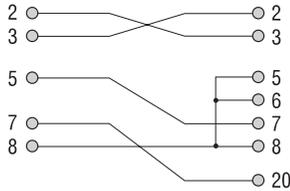
serial printer
25-pin D-Sub-plug

PABX
9-pin D-Sub-plug

2	2
3	3
	4
5	5
7	7
8	
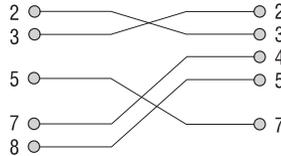
PC
25-pin D-Sub socket

PABX
9-pin D-Sub-plug

2	2
3	3
5	5
7	7
8	8
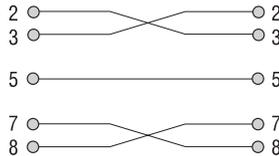
serial printer
9-pin D-Sub-plug

PABX
9-pin D-Sub-plug

2	2
3	3
5	5
6	6
7	7
8	8
9	9
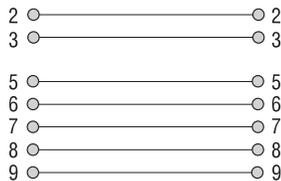
PC
9-pin D-Sub socket
(included)

Establishing EURO ISDN connection

► Insert the included ISDN line cable into the Western socket (1st S_0) of your PABX.

► Then insert the other cable end into the S_0 socket of the Euro ISDN network termination (NTBA) installed by your network provider and cklick the plug in.

ISDN-connection
(2 wire technology)

UK_0

NTBA

So-bus
(4 wire technology)

Jack

EUR■COM
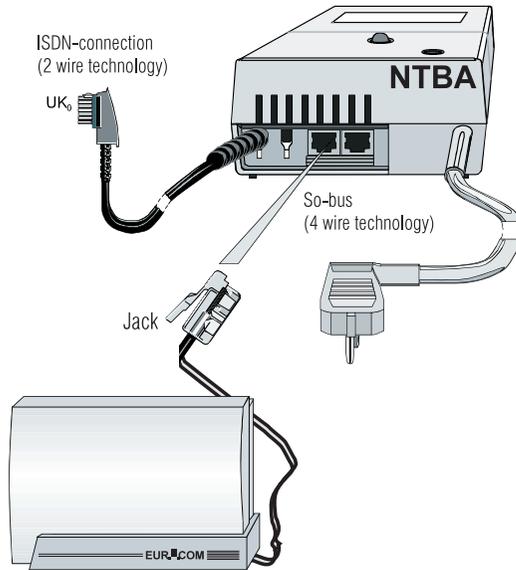
Connection of PABX to an NTBA

Connection variants for EURACOM 180F, 180

EURACOM 180F
EURACOM 180
State of delivery

EURACOM

2 Actors
1 Sensor
1 DIS
8 analogue subscriber
2 RS232 C
1 ext. MOH
1. S_0

ISDN-basic connection
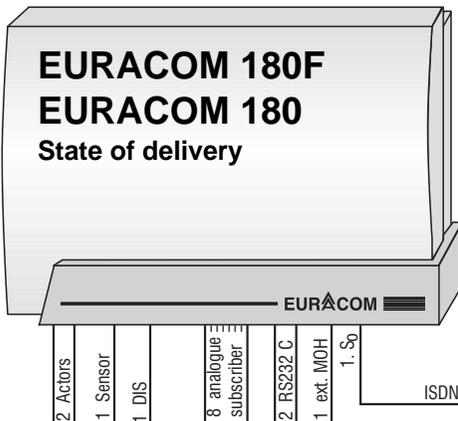
ISDN basic access modes:
a) 1 multiple subscriber mode
b) 1 PABX mode

Connection variants for EURACOM 181F, 181

EURACOM 181F
EURACOM 181
State of delivery

EURACOM

2 Actors | 1 Sensor | 1 DIS | 8 analogue subscriber | 2 RS232 C | 1 ext. MOH | 1. S$_0$ | 2. S$_0$

internal ISDN-connection

ISDN-basic connection

ISDN basic access modes:
a) 1 multiple subscriber mode
b) 1 PABX mode

EURACOM 181F
EURACOM 181

EURACOM

2 Actors | 1 Sensor | 1 DIS | 8 analogue subscriber | 2 RS232 C | 1 ext. MOH | 1. S$_0$ | 2. S$_0$

ISDN-basic connection
ISDN-basic connection

ISDN basic access modes:
a) 2 multiple subscriber mode
b) 2 PABX mode
c) 1 multiple subscriber mode,
   1 PABX mode

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Configure
EURACOM

IMPORTANT NOTE!

If you want to operate your PABX in the above shown constellation, the installation has to be carried out by a registered specialist. Both NTBA´s must be connected to one exchange. If in doubt, ask your network provider.

Connection variants for EURACOM 182F, 182

EURACOM 182F
EURACOM 182
State of delivery

EURACOM

2 Actors | 1 Sensor | 1 DIS | 8 analogue subscriber | 2 RS232 C | 1 ext. MOH | 1. S_0 | 2. S_0 | 3. S_0

internal ISDN-connection

internal ISDN-connection

ISDN-basic connection

ISDN basic access modes:
a) 1 multiple subscriber mode
b) 1 PABX mode

EURACOM 182F
EURACOM 182

EURACOM

2 Actors | 1 Sensor | 1 DIS | 8 analogue subscriber | 2 RS232 C | 1 ext. MOH | 1.S_0 | 2. S_0 | 3. S_0

internal ISDN-connection

ISDN-basic connection
ISDN-basic connection

ISDN basic access modes:
a) 2 multiple subscriber mode
b) 2 PABX mode
c) 1 multiple subscriber mode,
   1 PABX mode

**Configure
EURACOM**

2

IMPORTANT NOTE!

If you want to operate your PABX in the above shown constellation, the installation has to be carried out by a registered specialist. Both NTBA´s must be connected to one exchange. If in doubt, ask your network provider.

ISDN basic access modes:
a) 3 multiple subscriber mode
b) 3 PABX mode
c) 2 multiple subscriber mode,
   1 PABX mode
d) 1 multiple subscriber mode,
   2 PABX mode

IMPORTANT NOTE!

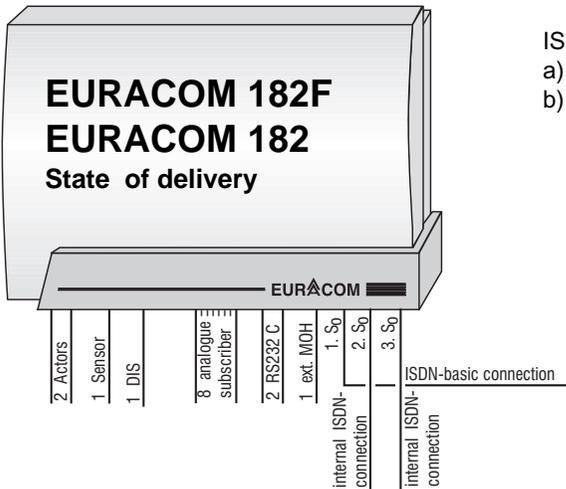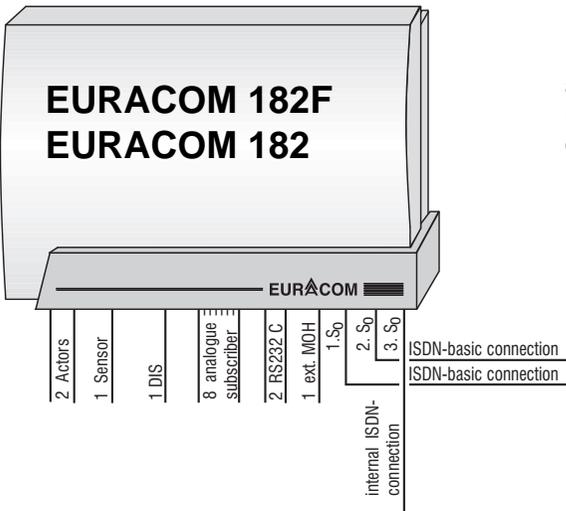If you want to operate your PABX in the above shown constellation, the installation has to be carried out by a registered specialist. All NTBA´s must be connected to one exchange. If in doubt, ask your network provider.

2 Configure EURACOM

Multiple subscriber connection

An ISDN multiple subscriber connection (point-to-multipoint) allows the installation of up to 8 ISDN terminals. In this constellation the PABX has to be the last equipment on the bus, as the PABX contains the bus termination.
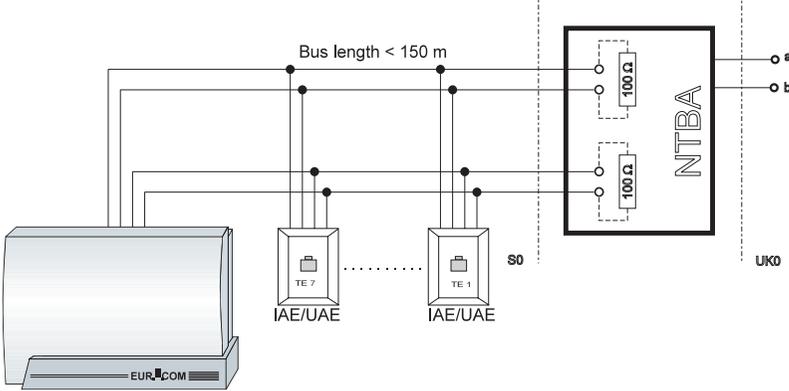
ISDN multiple subscriber connection - point-to-multipoint connection

PABX connection

The PABX connection (point-to-point connection) allows to connect only one equipment, usually a PABX. The outlet, used for the PABX, must not contain any termination resistors, as these are integrated in the PABX. A PABX connection is always prepared for direct dialling in.
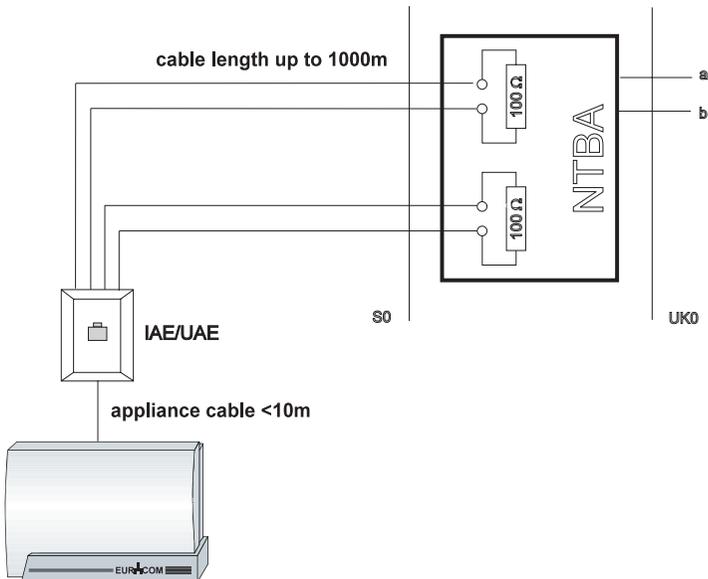
ISDN PABX connection - point to point connection

Configure
EURACOM

2

Power failure and emergency functions of EURACOM 181F and 182F

Your PABX is powered by the 230 V mains. In case of a mains power failure, your PABX can not be operated. However it will store all programmed configuration features, subscriber data and their call transfers.

Emergency function

In case of a mains power failure you are able to operate an ISDN terminal, set for restricted power mode, on the second S_0 port of your EURACOM 181F and 182F. This terminal must fulfill the network access requirements during operation on the public telecommunications network.

Conditions:

Multiple subscriber connection:
- Your telephone must be suited for restricted power authorization (please refer to the manual of your terminal equipment in this case!)
- Only **one** telephone is allowed for restricted power mode.
- You have to set your ISDN telephone to the desired emergency MSN.
  Example:
  1st MSN: internal PABX number
  2nd MSN: 1st MSN of your connection
  3rd MSN: 2nd MSN of your connection

PABX connection:
Your telephone must fulfill the requirements for network access, concerning a PABX connection. If not, the four jumpers (see illustration below), being placed in state of delivery, have to be removed.

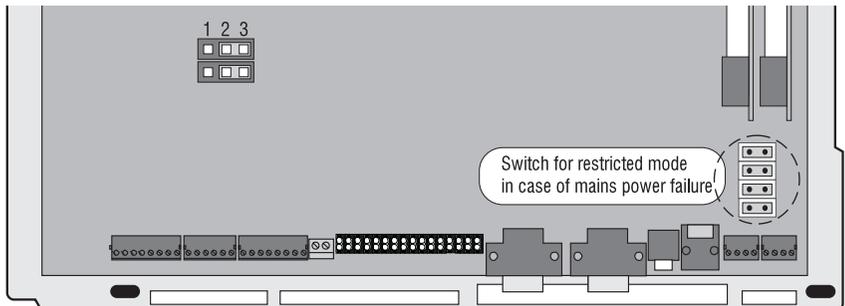View of EURACOM 181F, 182F inside area, with switch for restricted mode function (marked illustration enlarged)

2 Configure EURACOM

Connecting two PABX in a network

It is possible to connect two EURACOM PABX´s with each other (build a network). This makes sense eg, if you have a need for additional analogue or digital terminal equipment, caused by expansion of your company, and you do not intend to change to another larger system. The networking of two EURACOM PABX´s means, that two single systems are connected via an ISDN interface. Several functions and behaviours are then controlled by one PABX. Thus the PC programming for both PABX´s is performed from one PABX. The numbering plan is established in relation to each other and the communication among the PABX´s is done via the internal telephone numbers. Call distribution is effective for the subscribers of both PABX´s, as you have programmed in the configuration.

As networking is operated via an ISDN interface, also the principles of ISDN connections are applicable, i.e. only two simultaneous connections can be operated via this interface. In times of high telephone traffic blockages may occur during dialling process, if eg connections are not possible any more via this interface. With networking, the data of both PABX´s are coordinated with each other. This means eg, that identical speed dialling numbers are provided in both PABX´s. The number of sets of charging information covers approximately 750 each for a PABX, as each PABX stores the charging information independently. But they are read and deleted together.

In a network you have to determine, which of the two PABX´s shall be operated as master (A system) and which as slave (B system).This is necessary, as you can only perform the configuration by PC for both PABX´s via the master PABX. Both PABX´s can only be connected with each other via an ISDN inteface (S_0), being configured as direct cross link port.

Networking choices

The table on next page shows you the networking choices of several PABX´s. From this it can be seen, that the PABX´s EURACOM 141F, 141 and EURACOM 180F, 180 can only be operated as slave PABX (B system). Each of the crosses denotes, whether the mentioned S_0 port can be used as internal, external or directly cross linked port.

Connecting two PABX in a network
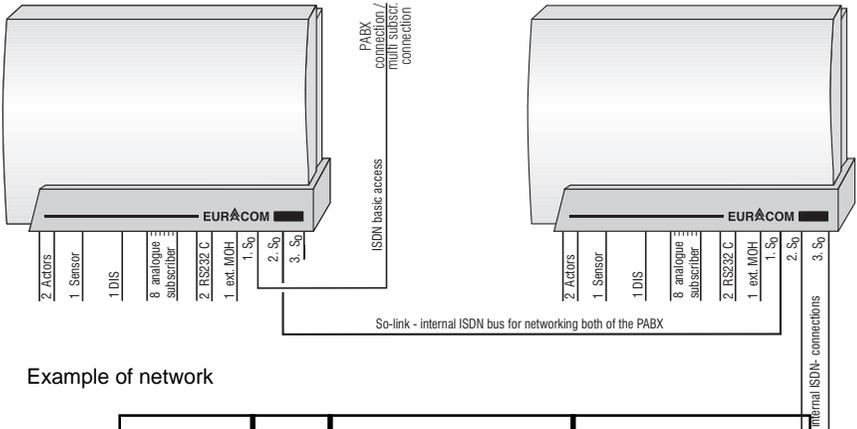
Example of network

Typ of EURACOM	S_0-Port	A-system			B-system		
		internal	external	cross link	internal	external	cross link
141F, 141	1						X
	2				X		
180F, 180	1						X
181F, 181	1		X			X	X
	2			X	X	X	X
182F, 182	1		X			X	X
	2	X	X	X	X	X	X
	3	X	X	X	X	X	X
260F, 260	1		X			X	X
	2			X	X	X	X
261F, 261	1		X			X	X
	2	X	X	X	X	X	X
	3	X	X	X	X	X	X
262F, 262	1		X			X	X
	2	X	X	X	X	X	X
	3	X	X	X	X	X	X
	4	X	X	X	X	X	X

Networking choises

IMPORTANT NOTE!

- The distribution of the subscribers and external ports among both of the PABX´s is up to you.
- If the master system has at least one PABX connection, all other variants for external ports are allowed.
- If the master system is operated only with multiple subscriber connections, no external port is allowed to be configured on the slave system.
- Connect a fax machine to that PABX, indicating the incoming fax number. Normally this will be the master system.
- Connect an answering machine to that PABX, signalling most of the calls. Normally this will be the master system.
- In case of operation of more than two external ISDN connections on one PABX, the installation has to be done by a registered expert.

Connection variants for networked PABXs

You may configure your PABX as master or slave system.

IMPORTANT NOTE!

The EURACOM 180F, 180 can not be configured as master system.

Configuration of EURACOM 181F, 181, 182F, 182 as master PABX

You can use port 2 to port 3 as ISDN port for networking. The used ISDN port has to be configured as internal interface without power feeding.

ATTENTION!
Equipment may be damaged by electrostatic discharge.
Touch a grounded, metallic part (eg water or radiator pipe) directly prior to the installation.

► Set the jumpers on the MS_0 module corresponding to following illustration:

J3: position 1/2
J4: position 2/3

J3   J4

Jumper position of J3 on position 1/2
and of J4 on pos. 2/3
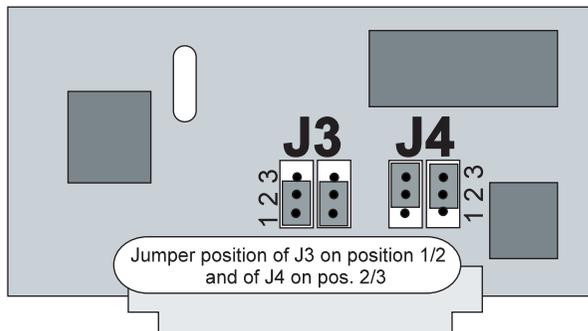
IMPORTANT NOTE!

- There must not be any power feeding on the cross link interface (S_0 cross link).
- If you perform networking via port 2, concerning EURACOM 181F, 182F, you have to remove the jumpers for restricted mode (-->page 22).

Configuration of EURACOM 180F, 181F, 182F, 180, 181, 182 as slave PABX

You can use every port as cross link port.

ATTENTION!
Equipment may be damaged by electrostatic discharge.
Touch a grounded, metallic part (eg water or radiator pipe) directly prior to the installation.

► In case of use of ports 2 to 3 set the corresponding jumpers on the MS_0 module to the operation mode "external interface", as shown in following illustration:

Jumper position of J3 and J4 on position 2/3
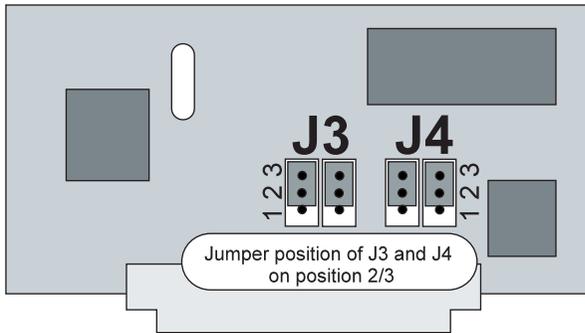
Cross link via an MS_0 module (2nd/3rd S_0 port)

► Set the jumpers corresponding to above illustration:

J3: position 2/3
J4: position 2/3

IMPORTANT NOTE!

• There must not be any power feeding on the networking interface (S_0 cross link).

• If you perform networking via port 2, concerning EURACOM 181F, 182F, you have to remove the jumpers for the restricted mode (--> page 22).

Wiring of networked PABX´s

Depending on the used S_0 ports for the cross link network for wiring there are two ways to connect the PABX´s. For the slave system it is possible to establish the connection via a Western plug (networking via port 1) or via the clamp connector. The following illustration is showing you, how to connect the connection cords.

Connector EURACOM (A system)

Connector EURACOM (B system)

Connector EURACOM (A system)

Western plug EURACOM (B system)
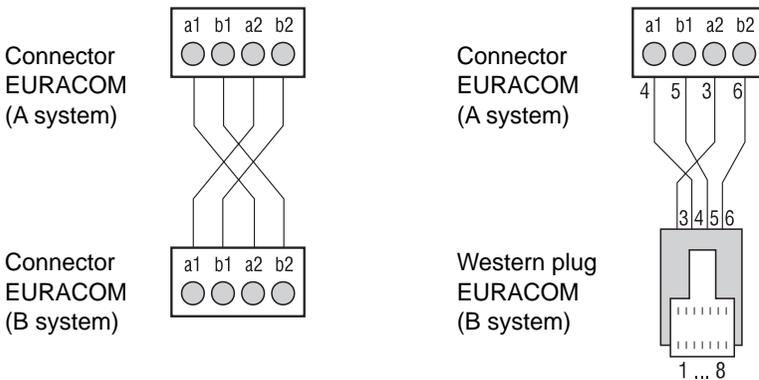
Configuration of networked PABX´s

It is possible to configure networked PABX´s very easily via the PC program, as this gives a better overview and your settings are more comprehensible. As both PABX´s are programmed via the PC in one go, before that you have to make some settings via a telephone set.
The steps in overview:
- Define type of PABX
- Define master / slave system
- Define network port (cross link port)
- You have to perform these steps for each of the PABX´s via a telephone set.

You can look up, how to configure the networked PABX´s, in the instruction manual "Configuration", page 82+.

What can be upgraded, and what is the performance?

In case the current equipment of your PABX at a later time is not enough any more, you can upgrade your EURACOM.
In that case different modules are available. If you insert in these modules into your PABX, you get further functions.
For upgrading of your PABX following modules are availablel:

MS$_0$ module

as additional S$_0$ interface for:

- EURACOM 180F, 180 - up to two MS$_0$ modules can be connected
- EURACOM 181F, 181 - one MS$_0$ module can be connected

MD module

for the connection of a second door intercommunication system for:
EURACOM 180F,181F, 182F and EURACOM 180, 181, 182 - one MD module can be connected

► In order to upgrade your PABX, plug in the modules in the prepared sockets.
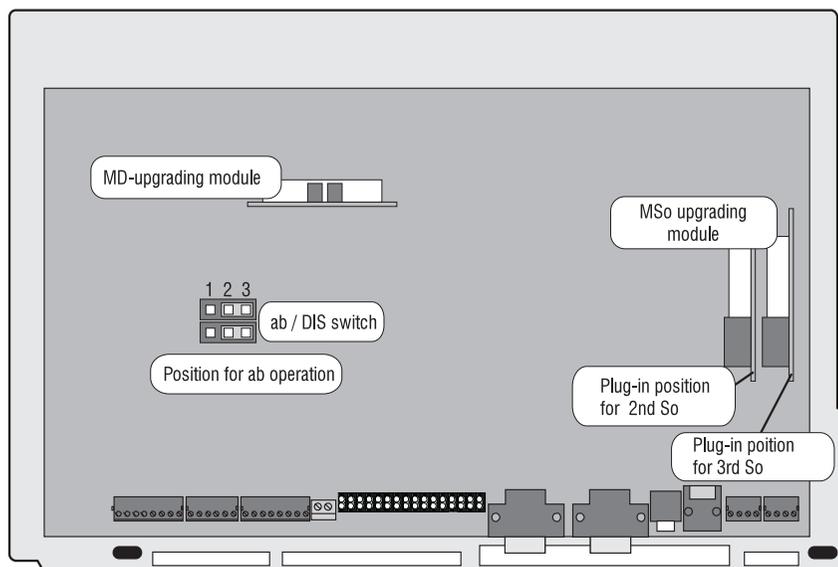
Illustration of the module plug-in positions inside the PABX

Upgrading with MS$_0$ module

Upgrade with MS$_0$ modules, if your PABX shall be equipped with one or two additional S$_0$ interfaces.

⚠️ **ATTENTION!**
In any case unplug the mains before opening the equipment!

ATTENTION!
Equipment may be damaged by electrostatic discharge.
Touch a grounded, metallic part (eg water or radiator pipe) directly prior to the installation.

► Carefully take the MS$_0$ module out of the packaging. Set the jumpers in that way, that they meet the planned operating conditions.
This is where you determine how to use the MS$_0$ module:
- as ISDN interface for another line access or
- as internal ISDN bus for operation of up to eight digital terminal equipment.

In state of delivery the jumpers of the MS$_0$ modules are presetted for operation as internal ISDN interface. Jumpers J3 and J4 are then fixed to position 1/2 (see illustration below).
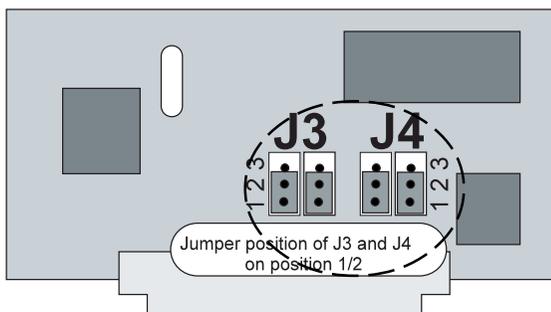
Jumper position for the operation as internal ISDN bus with power feeding

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IMPORTANT NOTE!

- If you use port 2 as a further external basic access, concerning EURACOM 181F, 182F, you have to remove the jumpers for the restricted mode (see page 24).
- If you want to use the MS$_0$ module as another line access for the ISDN basic access, you have to switch the jumpers J3 and J4 to position 2/3 (see illustration on top of page 32). The connection to the public telecommunications network is only allowed to be performed by a registered expert.

J3   J4

Jumper position of J3 and J4
on position 2/3
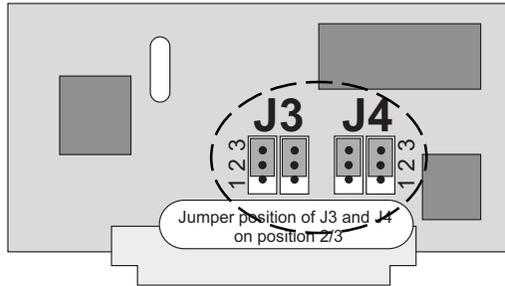
Jumper position for the operation as external ISDN interface for the basic access

► Now insert the module in the slot named "2nd S_0". If this is occupied, choose slot "3rd S_0" (--> page 30).

► Afterwards your PABX has to be configured again. More about it can be read in the instruction manual "Configuration".

Upgrading with MD module

⚠ **ATTENTION!**
In any case unplug the mains before opening the equipment!

⚠ **ATTENTION!**
Equipment may be damaged by electrostatic discharge.
Touch a grounded, metallic part (eg water or radiator pipe) directly prior to the installation.
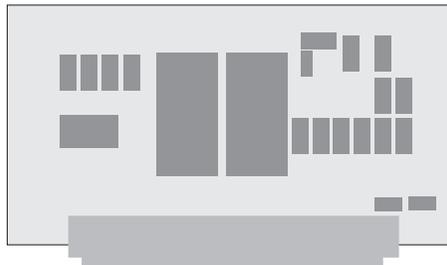
► Carefully take the MD module out of the packaging.
► Insert the module in the MD module slot.
► Check the correct position of the DIS switches on the motherboard of your PABX. The switches have to be in position 2/3 for DIS operation. This presetting is done by the manufacturer.
► Close the cover of your PABX again.
► Now you still have to configure your DIS:
Assign an internal number to the DIS.
Determine the call distribution for your DIS.
Read the corresponding chapters of the instruction manual "Configuration" about it.

Technical data

Housing:
Dimensions: 360 x 252 x 92 mm
                                       (width x height x depth)
Material: Bayblend FR 110 (flame resistant)

Weight: 2 kg

Ambient temperature:
Operation: $5°C$ to $40°C$
Storage: $-25°C$ to $+70°C$

Air circulation: heat transfer (air cooling)

Relative humidity:
Operation at $23°C$:   45% to 75%
$5°C$ to $40°C$:   25% to 80% (without moisture)
Storage: 20% to 90% (without moisture)

Nominal voltage and
nominal current range: 180 - 253 V / 0,22 - 0,19 A
                                         ELV circuit

Nominal frequency range: 50 - 60 Hz

Euro ISDN basic access: TNV circuit
Interface (1st S_0):   ETS 300 012
Protocol: DSS1 (ETS 300 125 and ETS 300 102
Operation mode: Multiple subscriber mode (point-to-multipoint)
                                         Transmission distance 100 - 150 m
                                         or
                                         PABX connection (point-to-point)
                                         Transmission distance 1000 m
Connection: WE 8/4 (RJ 45) IAE plug

Internal analogue terminal interface: TNV circuit
Dialling procedure: DTMF: flash key recognition: 80 msec
                                         hook flash: 150 - 900 msec
or: Pulse: earth key substitution with
                                                   dialling of number "1"
                                                   or hook flash
Power feeding: 34 V +4% / -7% (current limited to max. 34 mA)
Ringing voltage: 30 to 41 VAC on $1,8k\Omega + 1\mu F$ per port
                                         Charge pulse 16 kHz, -14 dB on Zr (950 mV)

Transmission distance: $2 \times 200\ \Omega$
                                        approx. 1,4 km with wire gange 0,4 mm
                                        approx. 3,1 km with wire gange 0,6 mm

    Impedance: $Z_r = 220\ \Omega + 820\ \Omega$ parallel 115 nF, symmetrical

    Symmetry: > 55 dB (300 Hz - 3400 Hz)

    Level of tones: -14 dB on Z_r (950 mV)

    Connection EURACOM 18x: plug-in screw connection clamp

    Connection EURACOM 18xF: cage clamp

External music on hold interface: SELV circuit

    Input impedance: 100 kΩ, asymmetrical

    Input voltage: 0,6 Vss

    Connection: 3,5 mm jack

    Max. cable length: 3 m

Printer / PC interface: SELV circuit, RS 232 C

    Connection: 9-pin D Sub socket

    Connection cable: shielded

    Transmission rates: 2400, 4800, **9600** bit/sec
                                          no parity bit
                                        1 stop bit

    Max. cable length: 3 m

Door intercom system interface: SELV circuit according to FTZ 123 D 12

    Max. switch performance: (TS / TO relay)
                                          28 VAC / 400 mA or 24 VDC / 300 mA
                                          potential free

    Connection: 8-pin, plug-in screw connection clamp

Control elements: SELV circuit

    1 sensor: 5 V surveillance loop

    2 actor relays: 28 VAC / 400 mA or 24 VDC / 300 mA
                                          potential free

    Connection: 6-pin, plug-in screw connection clamp

System 181F, 182F and 181, 182 with variable digital Euro ISDN ports

Interface (2nd S_0 and 3rd S_0):	MS_0 module
	SELV circuit
Internal:	according to ETS 300 012
Power feeding:	41 V +/- 5% (max. 100 mA)
Protocol:	DSS1 (ETS 300 125 and ETS 300 102)
Operation mode:	Multiple subscriber connection (point-to-multipoint)
	Transmission distance 100 - 150 m
	or
	PABX connection (point-to-point)
	Transmission distance 1000 m
Network access:	ETS 300 012
Protocol:	DSS1 (ETS 300 125 and ETS 300 102)
Operation mode:	Multiple subscriber connection (point-to-multipoint)
	Transmission distance 100 - 150 m
	or
	PABX connection (point-to-point)
	Transmission distance 1000 m
Connection:	4-pin plug-in screw connection clamp

For your notes