



TA+P2I

Adapting ISDN Phones to
POTS FXS

User Manual

Release r06

Note

This device was developed for the purpose of communication in an office environment. It is intended solely for our industrial clients for physical integration into their own technical products after careful examination by experienced technical personnel for its suitability for the intended purpose. The device was not developed for or intended for use in any specific customer application. The firmware of the device may have to be adapted to the specific intended modalities of use or even replaced by other firmware in order to ensure flawless function in the respective areas of application. Performance data (range, power requirements, etc.) may depend on the operating environment, the area of application, the configuration, and method of control, as well as on other conditions of use; these may deviate from the technical specifications, the Design Guide specifications, or other product documentation. The actual performance characteristics can be determined only by measurements subsequent to integration. Variations in the performance data of mass-produced devices may occur due to individual differences between such devices. Device samples were tested in a reference environment for compliance with the legal requirements applicable to the reference environment. No representation is made regarding the compliance with legal, regulatory, or other requirements in other environments. No representation can be made and no warranty can be assumed regarding the suitability of the device for a specific purpose as defined by our customers. Stollmann reserves the right to make changes to the hardware or firmware or to the specifications without prior notice or to replace the device with a successor model. Of course, any changes to the hardware or firmware of any devices for which we have entered into a supply agreement with our customers will be made only if, and only to the extent that, such changes can reasonably be expected to be acceptable to our customers. No general commitment will be made regarding periods of availability; these must be subject to individual agreement. All agreements are subject to our Terms and Conditions for Deliveries and Payments, a copy of which is available from Stollmann.

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Table of contents

| | | |
|-----|-------------------------------------------------|----|
| 1 | Introduction | 4 |
| 1.1 | Product description | 4 |
| 2 | Installation | 5 |
| 2.1 | Content | 5 |
| 2.2 | Procedure of Installation for ISDN phones | 5 |
| 2.3 | Procedure of Installation for ISDN PABX | 7 |
| 2.4 | Displays | 8 |
| 2.5 | Interfaces | 9 |
| 3 | Usage of the TA+P2I | 9 |
| 3.1 | Incoming call | 10 |
| 3.2 | Outgoing call | 11 |
| 3.3 | Call waiting | 11 |
| 3.4 | Call Hold / Enquiry | 11 |
| 3.5 | Three party conference | 12 |
| 3.6 | Call forwarding | 12 |
| 3.7 | Additional supplementary services | 12 |
| 4 | Error Diagnostic | 13 |
| 4.1 | Error: Phone calls not possible | 13 |
| 4.2 | Error: No dial tone | 14 |
| 4.3 | Error: No incoming calls | 14 |
| 4.4 | FAQ | 14 |
| 5 | Configuration | 15 |
| 5.1 | Overview configuration commands | 15 |
| 6 | Operation Mode | 15 |
| 7 | Technical features | 16 |
| 7.1 | Analogue ports | 16 |
| 7.2 | ISDN ports | 16 |
| 8 | History | 18 |

1 Introduction

We are very pleased to see that you have purchased a Stollmann product and would like to express our appreciation.

This documentation is valid for the product TA+P2I:

- Software version V1.715 or later

1.1 Product description

Using the TA+P2I you can connect ISDN phones or an ISDN PABX with two analogue interfaces (POTS FXS).

The analogue lines of the TA+P2I react like standard analogue phones und have to be connected with the FXO ports of the switching system or adapter.

The ISDN interface has identical function equal to an ISDN interface presented by an NT1 or a PABX.

You can connect up to 8 ISDN phones to the ISDN interface whereas up to 4 ISDN phones can be powered by the TA+P2I.

ISDN modems for data transmission and ISDN fax machine group 4 cannot be driven by the TA+P2I.

Devices based on voice connection like answering machines and fax G3 machines are supported.

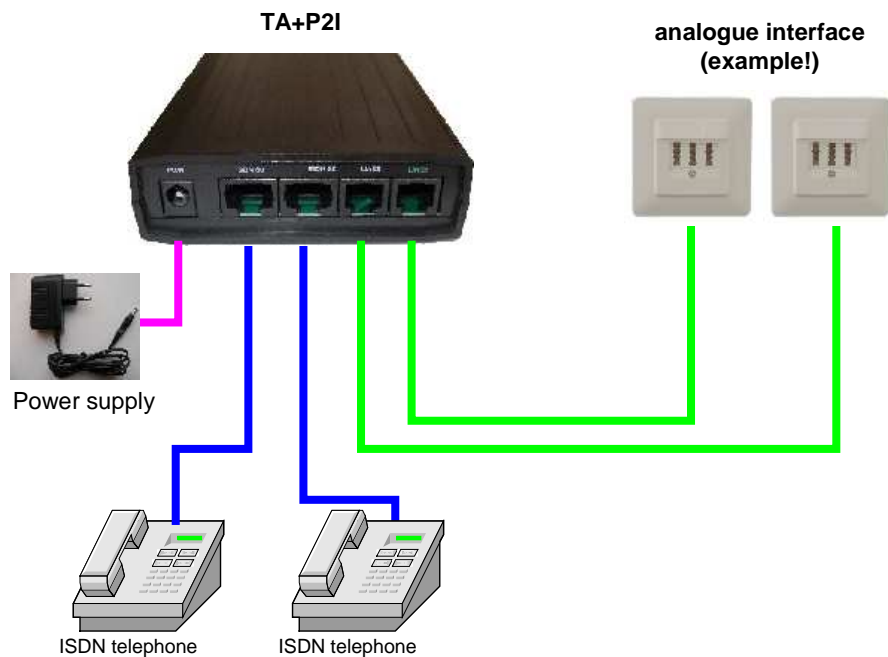
2 Installation

2.1 Content

This package contains the following parts:

- TA+P2I adapter
- External power supply (cable length approx. 1.85m)
- Two cable for the analogue interfaces (cable length approx. 1.00m)
- This user manual
- Quick installation guide

2.2 Procedure of Installation for ISDN phones



The installation of your TA+P2I is done in a few simple steps:

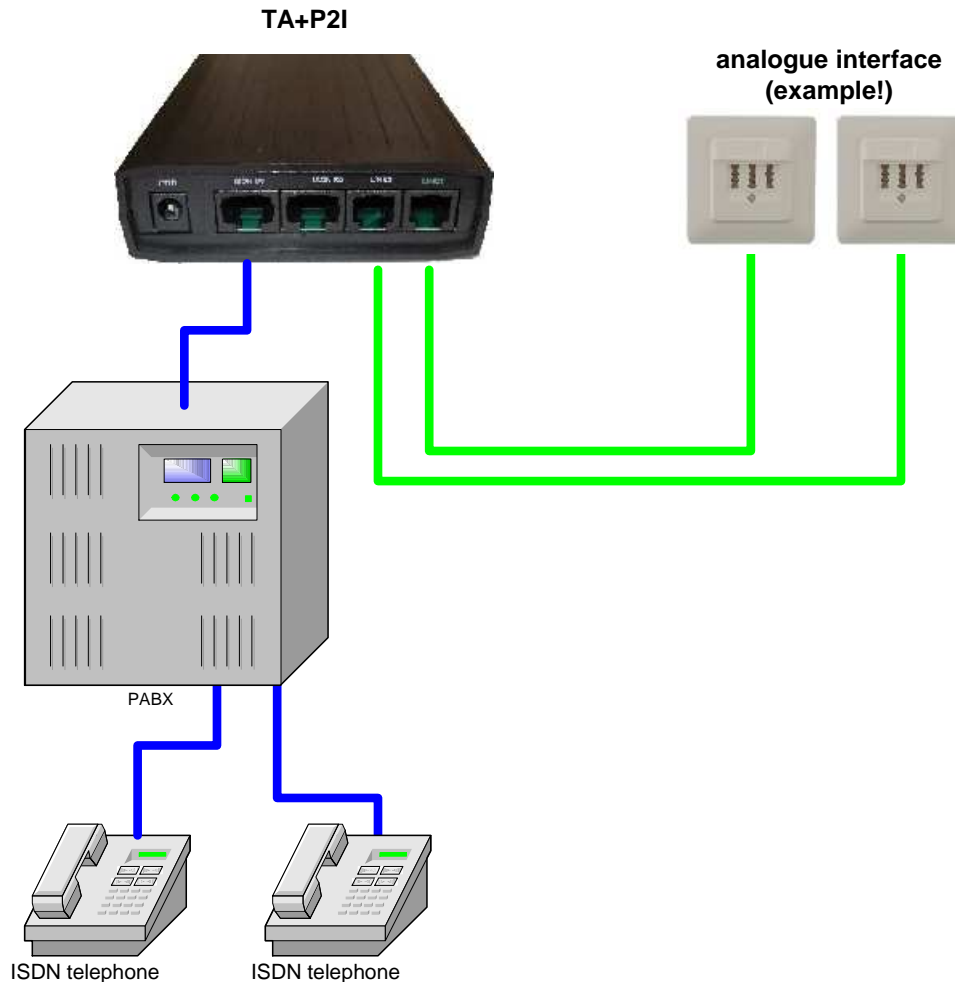
- Connect the power supply to the TA+P2I and mains: The green LED “READY” at the front panel will be lit.
Attention: Please use only the delivered power supply!
- Connect „LINE 1“ with the first analogue interface, LINE 2 with the second one. The corresponding LEDs LINE1 and LINE2 will be lit green.
- Connect the ISDN phone(s) to one or both ISDN plugs. As an alternative you can connect the previous installed ISDN cabling to one of the ISDN plugs.

Note: The ISDN terminating resistors for the ISDN network are integrated inside the TA+P2I already.

- Check whether you can receive calls using all called numbers. If you have problems please proceed as follows:
 - If one ISDN phone shall react on all incoming calls from both lines it is necessary to delete all still activated MSN settings inside the ISDN phone.
 - If one ISDN phone shall react only to the phone numbers of one of the analogue interfaces, change the former MSN settings and use the digit “1” as MSN for that phone, which shall react on incoming call from line 1. Please handle the same way for the ISDN phone that shall be allocated to line 2, this phone needs the digit “2” as MSN setting.
 - Example:
 - For line 1 was associated the call number 123123123 and for line 2 the call number 456456456
 - If an ISDN phone shall only accept incoming calls for the number 123123123, set up the MSN of this phone to „1“.
 - If another phone shall react on incoming calls to 456456456, set up the MSN of this phone to „2“.
 - If a third phone shall react on all incoming calls, so delete all MSNs of that phone.
- More information you can find in your phone manual. If you have problems setting up MSNs please contact your dealer or the manufacturer of the phone.

More setups you will find in the next chapter.

2.3 Procedure of Installation for ISDN PABX



To use the TA+P2I with an ISDN PABX please do the steps below:

- Connect the power supply to the TA+P2I and mains: The green LED “READY” at the front panel will be lit permanently.

Attention: Please use only the delivered power supply!

- Connect “LINE 1” with the first analogue line, “LINE 2” with the second one. The corresponding LEDs LINE1 and LINE2 will be lit green.
- Connect the public line port of the PABX to one ISDN plug.

Note: The ISDN terminating resistors for the ISDN network are integrated inside the TA+P2I already.

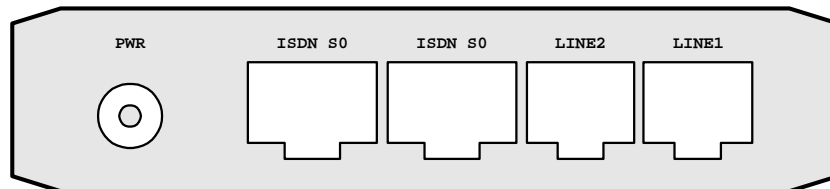
- For accepting incoming calls with the correct calling number, you have to set up the MSN inside the ISDN PABX:
Set up the MSN of your ISDN PABX as they are signaled by the TA+P2I:
By default the MSN "1" for the analogue line 1 and the MSN "2" for the analogue line 2.

2.4 Displays



| | |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| READY | The TA+P2I is powered and ready to use |
| ERROR | Hardware error, the TA+P2I cannot be used |
| LINE1 | <i>Lit:</i> The analogue line 1 is connected to a working analogue interface <i>Blinking:</i> The analogue line 1 is connected to a working analogue interface, but there is no dial tone |
| LINE2 | <i>Lit:</i> The analogue line 2 is connected to a working analogue interface <i>Blinking:</i> The analogue line 2 is connected to a working analogue interface, but there is no dial tone |
| ISDN1 | The first B channel is in use respectively the hand set of the ISDN phone is off hook |
| ISDN2 | The second B channel is in use respectively the hand set of the ISDN phone is off hook |
| CONF | The configuration of the TA+P2I has been changed |
| EXT | Reserved |

2.5 Interfaces



| | |
|---------|---------------------------------------------------------------------------------------------------------|
| LINE1 | Interface for the first analogue line |
| LINE2 | Interface for the second analogue line |
| ISDN S0 | First plug for ISDN devices |
| ISDN S0 | Second plug for ISDN devices |
| PWR | Interface for external power supply ! Attention: Please use only the delivered power supply ! |

3 Usage of the TA+P2I

By adapting with the TA+P2I you can use many supplementary services known from the ISDN also via the analogue lines, the services have to be activated on the analogue lines.

The TA+P2I supports the following supplementary services:

- Outgoing call including transmission of calling party number
- Calling line identification restriction
- Incoming call including display of calling party
- Call waiting
- Call hold
- Three party conference (3PTY)
- Barring incoming calls
- Terminal portability (TP)
- Call forwarding (CFU, CFB, CFNR)

More services may be available depending on the characteristics of the analogue lines, these can be driven from the ISDN phone transparently by key inputs.

3.1 Incoming call

An incoming call will be shown via the ringing tone and the calling number display as if the ISDN phone would be connected to the ISDN network directly.

To route the incoming calls to the addressed ISDN phones it is necessary to set up the MSN of each ISDN phone. If the MSN is not configured (MSN = <empty>) in the ISDN phone, the ISDN phone is ringing on incoming calls both on analogue line 1 and analogue line 2.

If a wrong MSN (a MSN which does not match with any MSN configured in the TA+P2I) is configured in the ISDN phone, the ISDN phone is not ringing.

By factory the associated MSNs for the two analogue line are set to 1 (line1) and 2 (line2). For using the factory setting set up the MSN of your phones accordingly:

Phone with MSN = 1 is ringing on incoming calls on analogue line 1.

Phone with MSN = 2 is ringing on incoming calls on analogue line 2.

For experts only:

If a phone number according to the call number of the analogue lines shall be used, you have to set up this correct MSN both in the TA+P2I and the ISDN phones.

To change the setting for the MSN for analogue line 1 please do the following:

- Please enter the following number in on hook state of the ISDN phone
- **00000101xxx** = Set the first MSN for analogue line 1 to xxx (factory default 1: „Dialing 000001011“)
- Go off hook
- Go on hook

Please proceed adequate for the second analogue line, please dial instead:

00000102xxx = Set the first MSN for analogue line 2 to xxx (factory default 2: „Dialing 000001022“).

Two additional MSNs can be programmed for each line accordingly by using other dial codes (see chapter configuration).

3.2 Outgoing call

An outgoing call will be started identical as if the ISDN phone would be connected directly to the ISDN network via the menu and the keys of the ISDN phone.

The MSNs entered in the ISDN phone and the TA+P2I define the analogue interface (line 1 or line 2), that will be used for the outgoing call. If no MSN is defined in the ISDN phone, the TA+P2I uses the next free analogue line (line 1 or line 2). If a wrong MSN (a MSN which does not match with any MSN configured in the TA+P2I) is configured in the ISDN phone, an outgoing call is not possible.

To make an outgoing call with calling line restriction please use the menu user interface of the ISDN phone. The signaling sequence will be adapted automatically by the TA+P2I.

Note: The ISDN phone can display „connected“ although the connection has not been established completely. This is a feature and no bug.

3.3 Call waiting

Call waiting will be signaled as if connected to an ISDN network. The display text and tone signaled is dependent on the configuration of the ISDN phone and will be shown according to the ISDN phone features and settings (typical by an acoustic tone and a display entry).

3.4 Call Hold / Enquiry

You can start an enquiry by the typical sequence as usual for the ISDN phone (menu key or R key).

3.5 Three party conference

You can start a three party conference by the typical sequence as usual for the ISDN phone (menu driven).

3.6 Call forwarding

You can activate and deactivate call forwarding by the typical sequence as usual for an analogue line by prefix codes. These codes are predefined by your service provider.

Activation and deactivation is only possible by using the appropriate keys of the ISDN phone (i.e. *21<phone number>). Activation and deactivation by using the menu keys of an ISDN phone or an ISDN PABX is not possible.

3.7 Additional supplementary services

Additional services like call completion to busy subscriber, call transfer, etc. are not available via the menu driven interface of the ISDN phone. These services are defined by the services of the analogue lines and are controlled by keypad input (DTMF tones). The display information of the ISDN phone is also not available.

Please refer to the services supported by your provider of the analogue lines.

4 Error Diagnostic

4.1 Error: Phone calls not possible

| | |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Is the READY LED lit green? | If not, please check, whether the delivered power supply is adapted correctly. Disconnect the power supply for several seconds. Is the READY LED still off or is the ERROR LED lit, the device has a hardware error. Please contact your supplier. |
| Is the LINE1 LED lit green? | If not, please check the connection between the plug LINE1 and the analogue port. |
| Is the LINE1 LED blinking green? | The analogue line 1 is connected to a working analogue interface, but there is no dial tone. |
| Is the LINE2 LED lit green? | If not, please check the connection between the plug LINE2 and the analogue port. |
| Is the LINE2 LED blinking green? | The analogue line 2 is connected to a working analogue interface, but there is no dial tone. |
| Is the MSN programmed in the ISDN phone also programmed in the TA+P2I? | Check the setting of the MSNs in the ISDN phone and the TA+P2I. In the default configuration of the TA+P2I MSN "1" is configured for analogue line 1 and MSN "2" is configured for analogue line 2. Please check if the ISDN phone is configured accordingly (i.e. MSN-A = 1). |

4.2 Error: No dial tone

ISDN1 or ISDN2 lit, but there is no dial tone.

- A The analogue line is connected to a working analogue interface, but there is no dial tone. Please check if a phone number is not yet activated at the analogue line.
- B Another phone already uses the same analogue line. Check if a busy tone can be heard and/or the phone display indicates that the line is busy.

4.3 Error: No incoming calls

Is the setting of the MSN correct?

Check the setting of the MSN in the ISDN phone and the TA+P2I. Please refer additionally to chapter incoming call.

4.4 FAQ

- The TA+P2I supports all ISDN phones and ISDN PABX's configured to "multipoint" mode.
- The TA+P2I does not support data connections via ISDN modems or ISDN PC cards. Voice connections like answering machine and fax G3 are supported.
- Call waiting: Due to technical reason another phone in the same phone number group is ringing in case of call waiting. But it is not possible to accept the waiting call with this phone, only the active phone may accept the waiting call.
- For additionally frequently asked questions please refer to our web site: <http://www.stollmann.de>

5 Configuration

5.1 Overview configuration commands

Each configuration command has to be dialed en-bloc from the ISDN phone. Enter the configuration dial number, go off hook and go on hook.

| | |
|--------------------|----------------------------------|
| 00000101xxx | Set-up first MSN xxx for line 1 |
| 00000111xxx | Set-up second MSN xxx for line 1 |
| 00000121xxx | Set-up third MSN xxx for line 1 |
| 00000102xxx | Set-up first MSN xxx for line 2 |
| 00000112xxx | Set-up second MSN xxx for line 2 |
| 00000122xxx | Set-up third MSN xxx for line 2 |

(The MSN xxx may consist of 1...20 digits)

| | |
|------------------|----------------------------------------------|
| 000002011 | Barring incoming calls for line 1 |
| 000002021 | Barring incoming calls for line 2 |
| 000002010 | Release barring of incoming calls for line 1 |
| 000002020 | Release barring of incoming calls for line 2 |

00000103ddmmyyhhmm Set-up date and time

00000104yy Set-up year only

(dd=day; mm=month; yy=year; hh=hour; mm=minute)

00000980 Reset all parameters to factory default

6 Operation Mode

The TA+P2I can only be used in „multipoint“ operation mode.

7 Technical features

| Function | TA+P2I |
|---------------|---------------------------------------------------------------------------|
| Power supply | External plug in power supply Input 100-240V AC Output 12V DC 1,25A |
| Dimensions | 127 x 88 x 27 mm |
| CE conformity | CE Europe |

7.1 Analogue ports

| Function | TA+P2I |
|------------------------------|-------------|
| Plug | 2 x RJ11 |
| Ringing detection | 20 to 50 Hz |
| Off-Hook / On-Hook signaling | √ |
| DTMF dial | √ |
| Barring incoming call | √ |
| CLIP detection (FSK) | √ |
| Busy tone detection | √ |

Pin assignment analogue plug (6 pin; RJ11)

| Pin | Signal (a/b) |
|-----|---------------|
| 1 | Not connected |
| 2 | Not connected |
| 3 | a (TIP) |
| 4 | b (RING) |
| 5 | Not connected |
| 6 | Not connected |

7.2 ISDN ports

| Function | TA+P2I |
|-----------------------------------------------|--------------------------------------------------------------|
| ISDN interface | 1 x I.430 LT-S mode (S-Bus, BRI) |
| Plug | 2 x RJ 45 |
| Terminating resistors | Integrated, 2 x 100 Ohm |
| Phantom feeding ISDN-Bus | 4 Watt |
| Supplementary services TA+P2I | MSN, DDI, call waiting, hold, resume, three party conference |
| Supplementary services transparent using DTMF | All available on analogue line |
| D channel protocol | DSS1 LT-S mode |
| Interfacing modes | Multipoint |
| B channel | G.711 a-law (analogue voice) |
| Configuration | Block dial via ISDN phone |

Pin assignment ISDN plug (8 pin; RJ45; ITU I.430/ISO 8877)

| Pin | Signal (S ₀) |
|-----|--------------------------|
| 1 | Not connected |
| 2 | Not connected |
| 3 | [2a] Rx+ (Receive +) |
| 4 | [1a] Tx+ (Transmit +) |
| 5 | [1b] Tx- (Transmit -) |
| 6 | [2b] Rx- (Receive -) |
| 7 | Not connected |
| 8 | Not connected |

8 History

| Version | Release Date | By | Change description |
|---------|--------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| r04 | Nov 2007 | is | First release for firmware version 1.701 |
| r05 | Mar 2008 | nh | New document structure, Added pin assignment for analogue/ISDN plug Changes for new firmware version 1.715: - Modified behavior depending on the MSN settings during outgoing call - New parameter for setting the year - Modified LED behavior for LINE1, LINE2, ISDN1, ISDN2 |
| r06 | Jun 2008 | ta | Revised chapter Call Forwarding |