ADDI-DATA®

Technical support:
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CE

Technical description

ADDICOM PA 754

8-port serial interface

9th edition 02/1996

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- improper installation, operation and maintenance of the board
- if the board has been operated with defective safety devices or with not appropriate or non-functioning safety equipment
- nonobservance of the instructions concerning: transport, storage, inserting the board, use, limit values, maintenance, device drivers
- altering the board at the user's own initiative
- altering the source files at the user's own initiative
- not checking properly the parts which are subject to wear
- disasters caused by the intrusion of foreign bodies and by influence beyond the user's control.

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CE

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Declaration of Conformity

Document-Number/Month-Year: B-25814 / 04.1996

Manufacturer/Importer: ADDI-DATA GmbH
Dieselstraße 3
D-77833 OTTERSWEIER

Type: **PA 754**

Product description: **Board to be inserted in an ISA slot of a PC**
8-port serial interface
RS232 and 20mA Current Loop

The above named product complies with the following European directives:

Directive 72/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.

Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility.

The following norms have been applied:

IEC 61010-1 2002-08

IEC 61326-2 2004

2004/11/10
Date

Legally valid signature of the manufacturer

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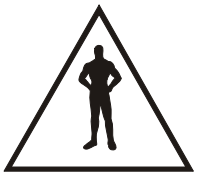
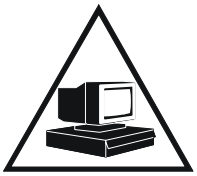
WARNING

In case of wrong uses and if the board is not used for the purpose it is intended:



people may be injured



the board, PC and peripheral may be destroyed

the environment may be polluted

★★★ Protect yourself, the others and the environment★★★

- **Read carefully the safety leaflet (yellow)!**
  If this leaflet is not with the documentation , please contact us and ask for it.

- **Observe the instructions of the manual!**
  Make sure that you do not forget or skip any step. We are not liable for damages resulting from a wrong use of the board.

- **Used symbols**

WARNING!
It designates a possibly dangerous situation.
If the instructions are ignored **the board, PC and/or peripheral may be destroyed**.

IMPORTANT!
designates hints and other useful information.

- **Any question?**

  Our technical support is at your disposal

1 INTENDED PURPOSE OF THE BOARD

The board **PA 754** provides the personal computer (PC) with a 8-port asynchronous serial interface for the communication with external devices.

It is to be used in a free PC ISA slot. The PC is to comply with the EU directive 89/336/EEC and the specifications for EMC protection. Products complying with these specifications bear the CE mark.

Serial data is also exchanged with external devices through the 50-pin SUB-D male connector of the board **PA 754** in the chosen transmission mode RS232 or 20 mA current loop.

The connection with the external cables is to comply with the specifications:
- metallized plastic hoods
- shielded cable
- cable shield folded back and firmly screwed to the connector housing.

The use of the board according to its intended purpose includes observing all advises given in this manual and in the safety leaflet. Uses beyond these specifications are not allowed. The manufacturer is not liable for any damages which would result from the non-observance of this clause.

1.1 Limits of use

The use of the board in a PC could change the PC features regarding noise emission and immunity. Increased noise emission or decreased noise immunity could result in the system not being conform anymore.

Check the shielding capacity of the PC housing and cable prior to putting the device into operation.

Make sure that the board remains in its protective blister pack **until it is used**.

Do not remove or alter the identification numbers of the board.
If you do, the guarantee expires.

Connection to the peripheral
with a shielded cable, twisted in pairs.
Connect the peripheral cable so that the differential lines described in the connector pin assignment with "+" and "-" are twisted in pairs.

Operating mode RS232: the signal lines are to be twisted in pairs with GND.

The housing of the peripheral connector
- is to be firmly screwed together with the shield of the cable
- is to assure a low-resistance connection (< 100 mΩ) between the shield and the housing of the PC.

The shield of the cable is to be earthed on both ends.

2 USER

2.1 Qualification

Only persons trained in electronics are entitled to perform the following works:

- installation,
- use,
- maintenance.

2.2 Personal protection

Consider the country-specific regulations about

- the prevention of accidents
- electrical and mechanical installations
- radio interference suppression.

3 HANDLING THE BOARD

Fig. 3-1: Wrong handling

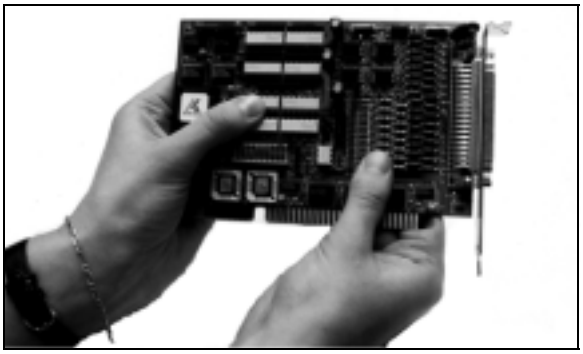
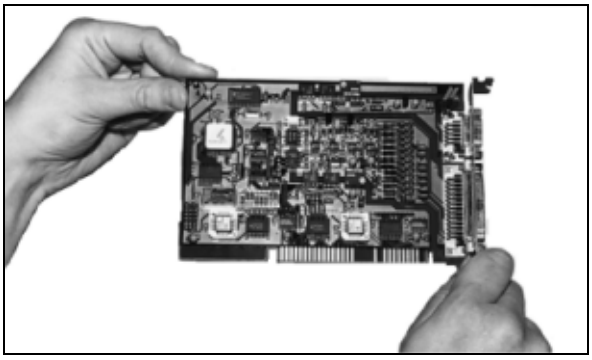


Fig. 3-2: Correct handling



4 TECHNICAL DATA

4.1 Physical set-up of the board

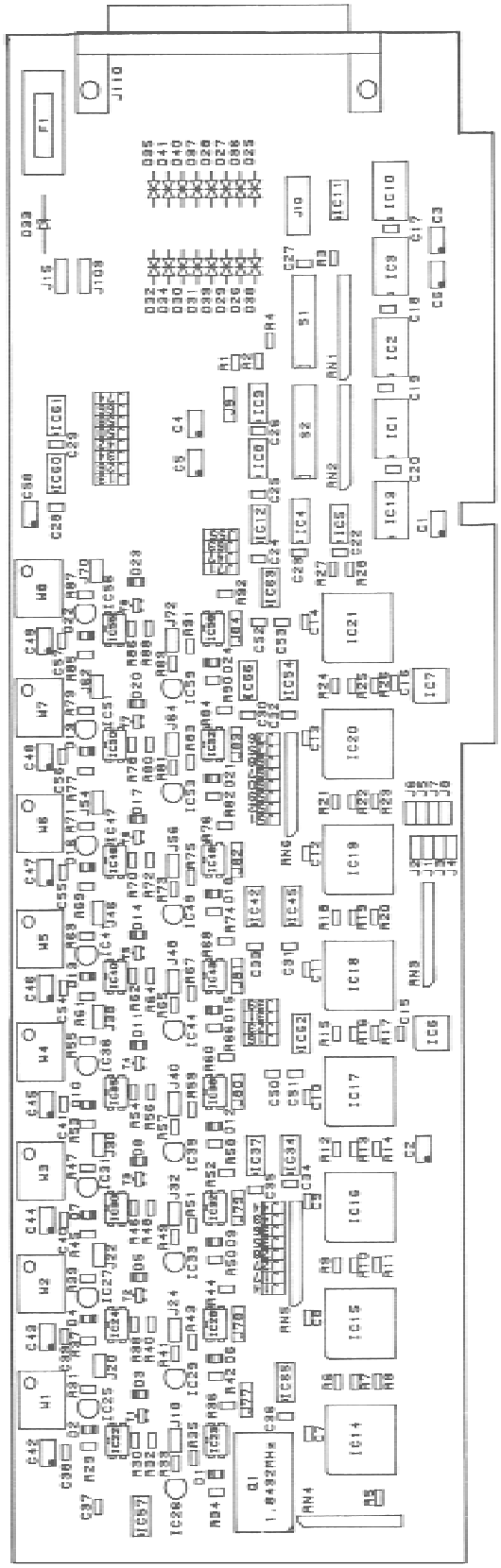
A 1,6 mm thick printed circuit is the mechanical and electrical connection (336 x 99 mm). The connection with the microcomputer bus occurs over a 62 pole gold plated direct plug. The eight ports are connected over a 50 pole MIN-D pin connector. The board is plugged directly into the PC and is screwed onto the back pannel of the appliance with an hinge.

The board's functions are adjusted over wire wrap connections. The base addresses are set with two DIP switches.

5 SETTINGS

5.1 Settings at delivery

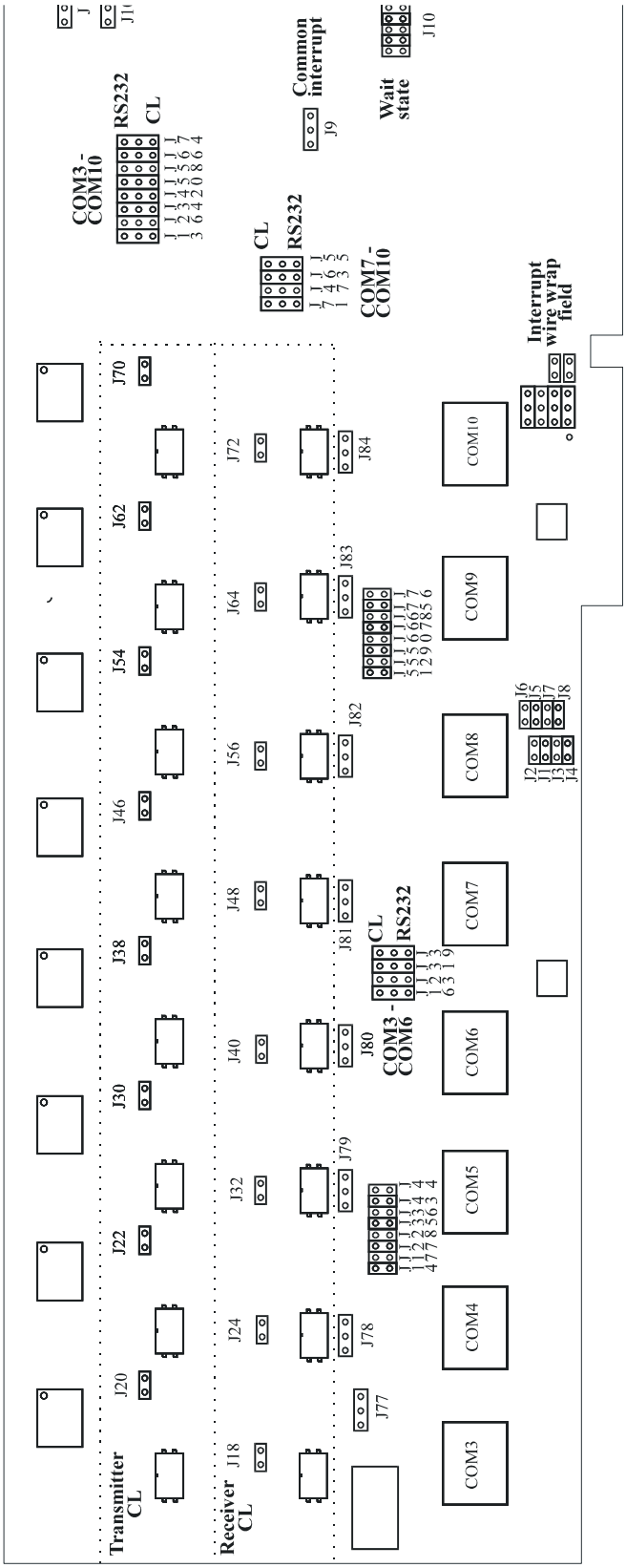
Fig. 5-1: Component scheme of the PA 754 board



5.2 Jumper settings

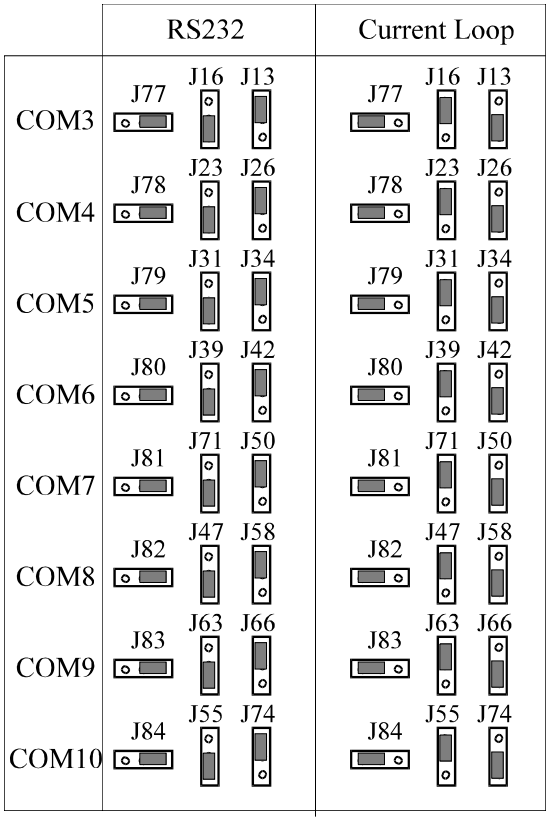
5.2.1 Jumper location

Fig. 5-2: Jumper location



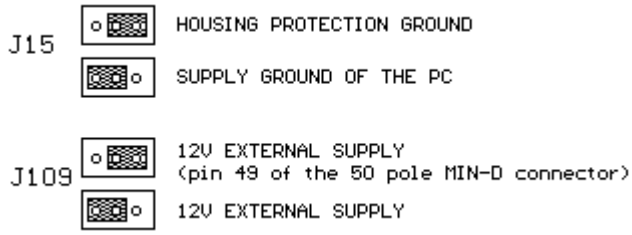
5.2.2 Jumpers settings

Selecting operating modes RS232 and current loop



Operating mode current loop

Supply of current loops



Current loop senders

	Sender active	Sender passive
COM3	J20	J20
COM4	J22	J22
COM5	J30	J30
COM6	J38	J38
COM7	J46	J46
COM8	J54	J54
COM9	J62	J62
COM10	J70	J70

Current loop receivers

	Receiver active	Receiver passive
COM3	J18	J18
COM4	J24	J24
COM5	J32	J32
COM6	J40	J40
COM7	J48	J48
COM8	J56	J56
COM9	J64	J64
COM10	J72	J72

Selecting 0 or 20mA for data transfer

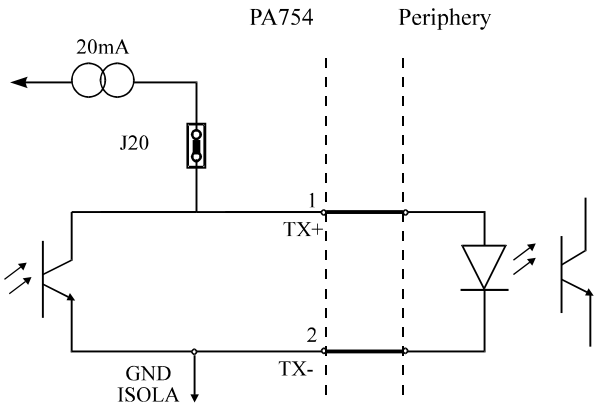
Over jumper fields J14-J44 and J51-J76 you determine whether 20mA flows in current loops while data transfer or in rest state.

	Sender active		Sender passive		Receiver	
	Current flows while					
	data transfer	rest state	data transfer	rest state	data transfer	rest state
COM3	J14	J14	J14	J14	J17	J17
COM4	J27	J27	J27	J27	J28	J28
COM5	J35	J35	J35	J35	J36	J36
COM6	J43	J43	J43	J43	J44	J44
COM7	J51	J51	J51	J51	J52	J52
COM8	J59	J59	J59	J59	J60	J60
COM9	J67	J67	J67	J67	J68	J68
COM10	J75	J75	J75	J75	J76	J76

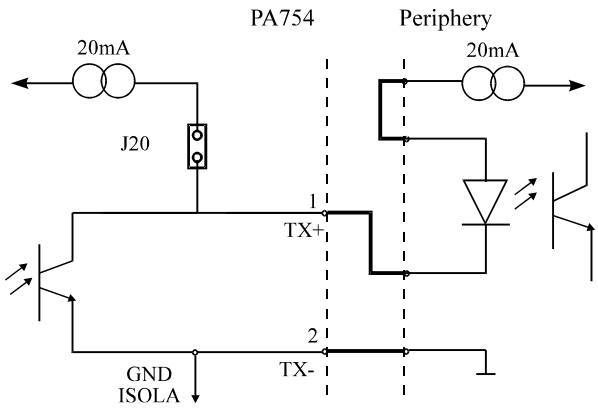
Connection examples for current loop

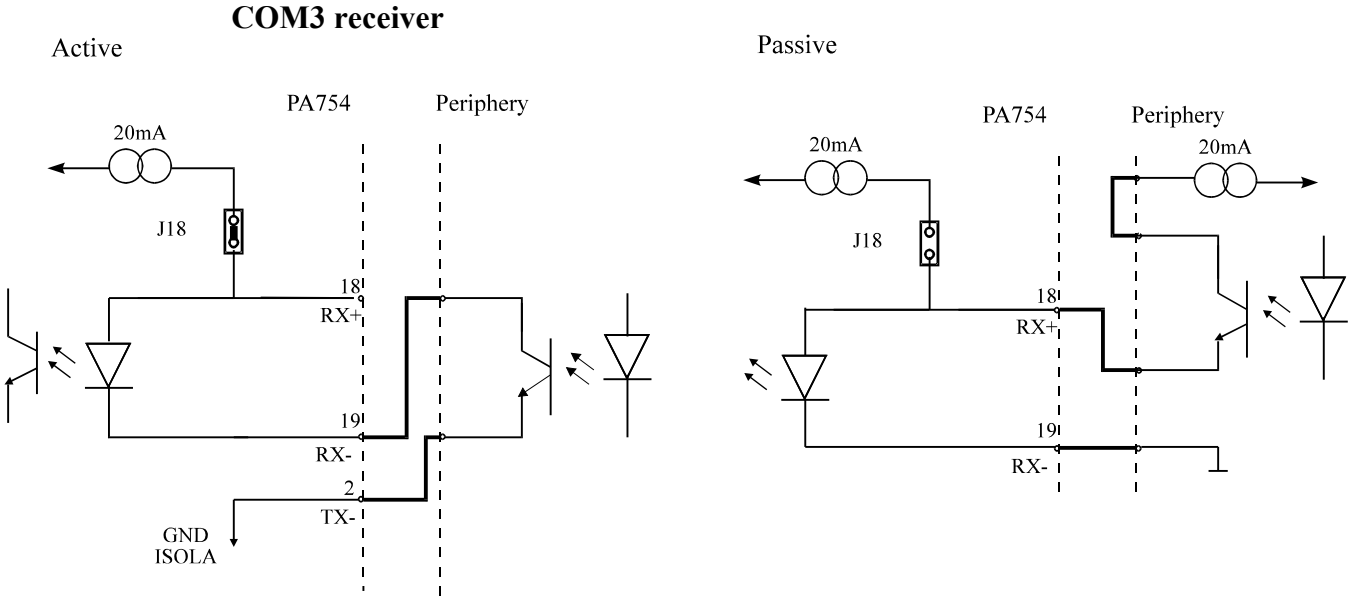
COM3 sender

Active



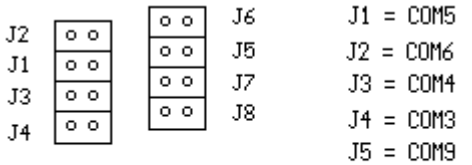
Passive





5.3 Interrupt possibilities

5.3.1 Single interrupt



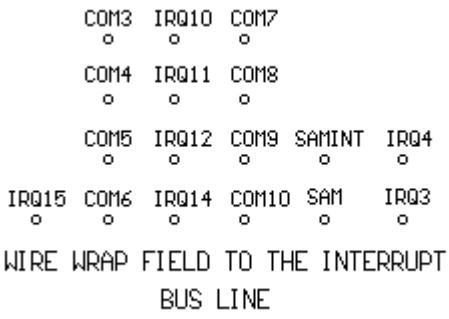
J1 = COM5
J2 = COM6
J3 = COM4
J4 = COM3
J5 = COM9
J6 = COM10
J7 = COM8
J8 = COM7

Ex.: If J2 and J6 are adjusted -->

The interrupts for COM6 and COM10 are available as single interrupts.

The interrupts for COM3-4-5-7-8-9 are then available as a common interrupt.

5.3.2 Common interrupt



SAM	COMMON INTERRUPT FOR COM3-COM6 OR 8 CHANNEL INTERRUPT (J9)
SAMINT	COMMON INTERRUPT FOR COM7 TO COM10
COMx	SINGLE INTERRUPT - SEE J1 TO J8 FOR SINGLE INTERRUPT ADJUSTMENT

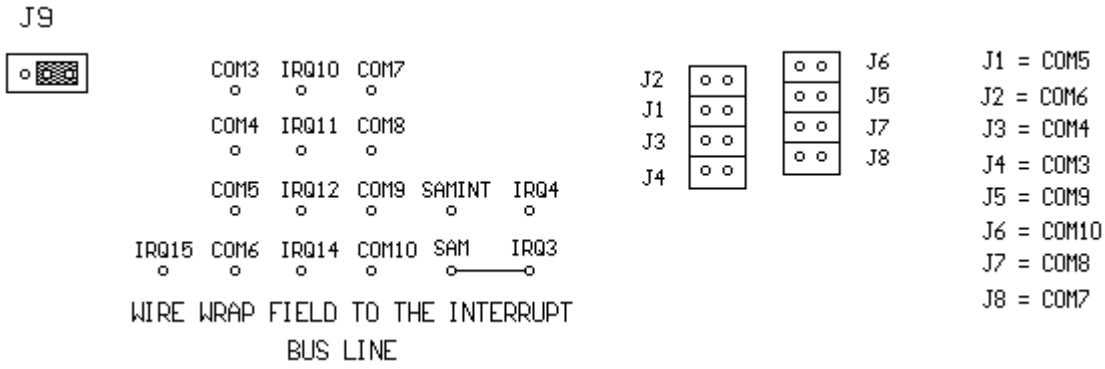
J9

8 CHANNELS TO SAM

4 CHANNELS TO SAMINT
COM7 TO COM10

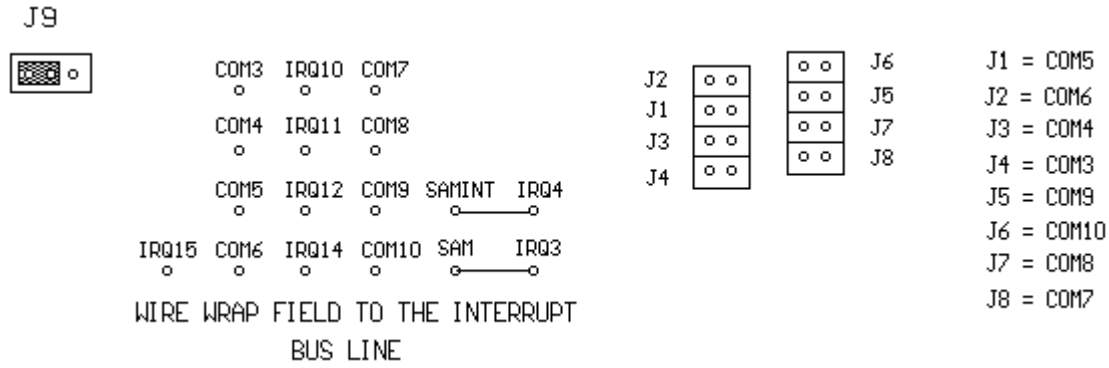
5.3.3 Interrupt examples

Common interrupt IRQ3 for COM3 to COM10



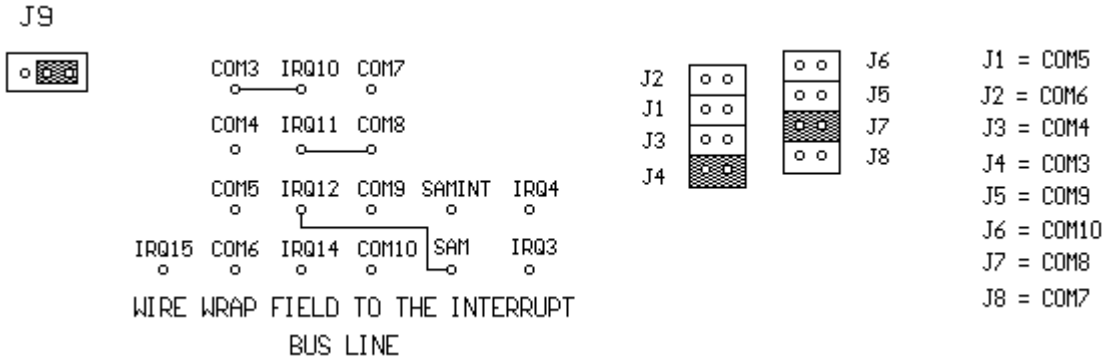
All the ports are connected with the same interrupt line IRQ3.

Interrupt line IRQ3 for COM3 to COM6 - Interrupt line IRQ4 for COM7 to COM10



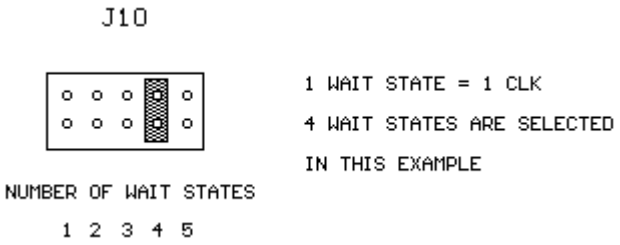
Ports COM3 to COM6 are connected with the interrupt line IRQ3 and ports COM7 to COM10 with interrupt line IRQ4.

Single and common interrupts



COM3 is connected with single interrupt line IRQ10, and COM8 with IRQ11. The others ports COM4, COM5, COM6, COM7, COM9 and COM10 are connected together with IRQ12.

5.4 Wait state



6 INSTALLATION

IMPORTANT!
If you want to install simultaneously **several** ADDI-DATA boards, consider the following procedure.

- **Install and configure** the boards one after the other.
  You will thus avoid configuration errors.

1. Switch off the PC
2. Install the **first** board
3. Start the PC
4. Install the software (once is enough)
5. Configure the board

6. Switch off the PC
7. Install the **second** board
8. Start the PC
9. Configure the board

etc

You will find additional information to these different steps in the sections 6.1 to 6.5.

6.1 Inserting the board

IMPORTANT!
Do observe the *safety instructions*.

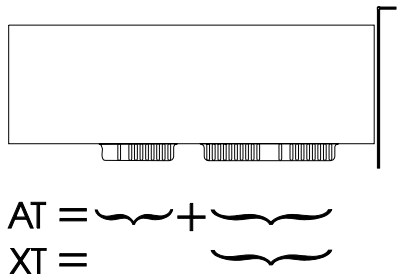
6.1.1 Opening the PC

- Switch off your PC and all the units connected to the PC.
- Pull the PC mains plug from the socket.
- Open your PC as described in the manual of the PC manufacturer.

6.1.2 Selecting a free slot

Two types of ISA slots are available: XT and AT.

Fig. 6-1: Types of slots



If necessary, the board can also be used in EISA slots.
See in the PC manual which types of slots are free.

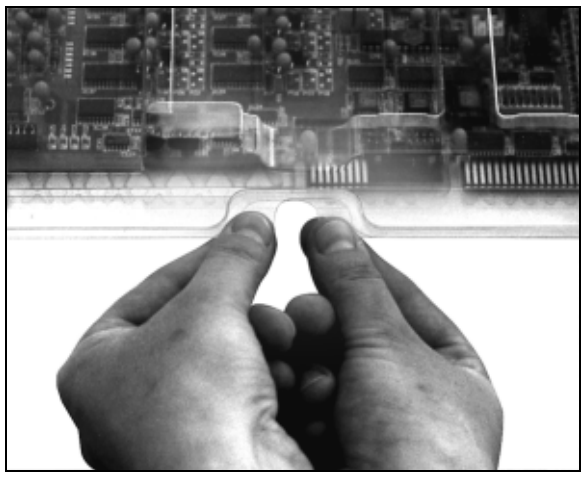
1. Decide in which type of slot to insert the board**.**

2. Remove the back cover of the selected slot according to the instructions of the PC manufacturer. Keep the back cover. You will need it if you remove the board.

3. Discharge yourself from electrostatic charges

4. Take the board out of its protective blister pack.

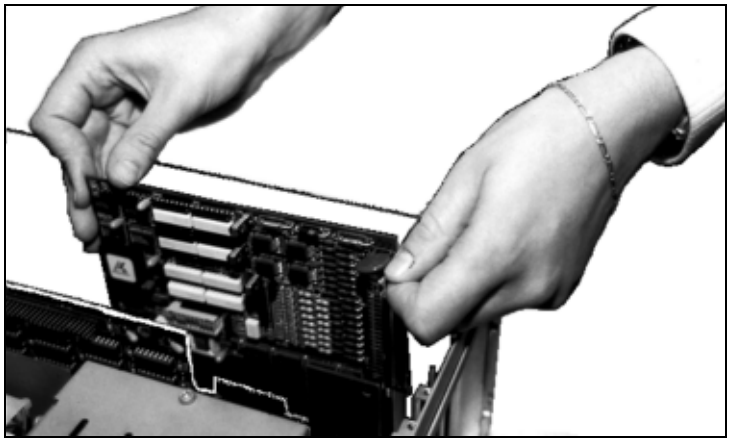
Fig. 6-2: Opening the blister pack



6.1.3 Plugging the board into the slot

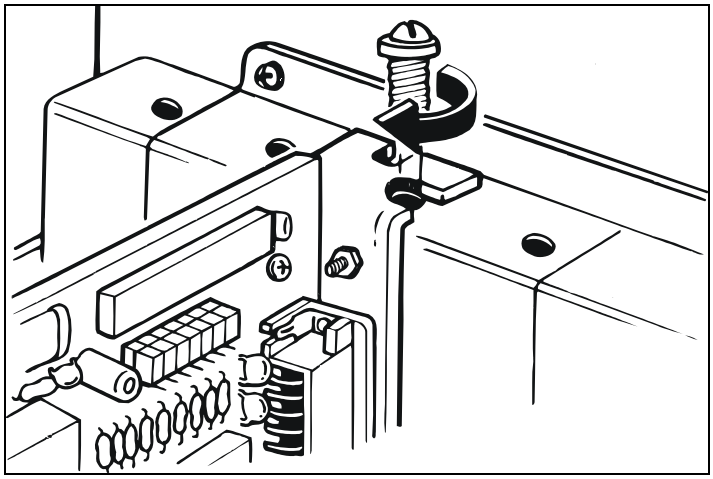
- **Discharge yourself from electrostatic charges**
- Insert the board **vertically into the chosen slot.**

Fig. 6-3: Inserting the board



- **Fasten the board** to the rear of the PC housing with the screw which was fixed on the back cover.

Fig. 6-4: Fastening the board at the back cover



- **Tighten all the loosed screws.**

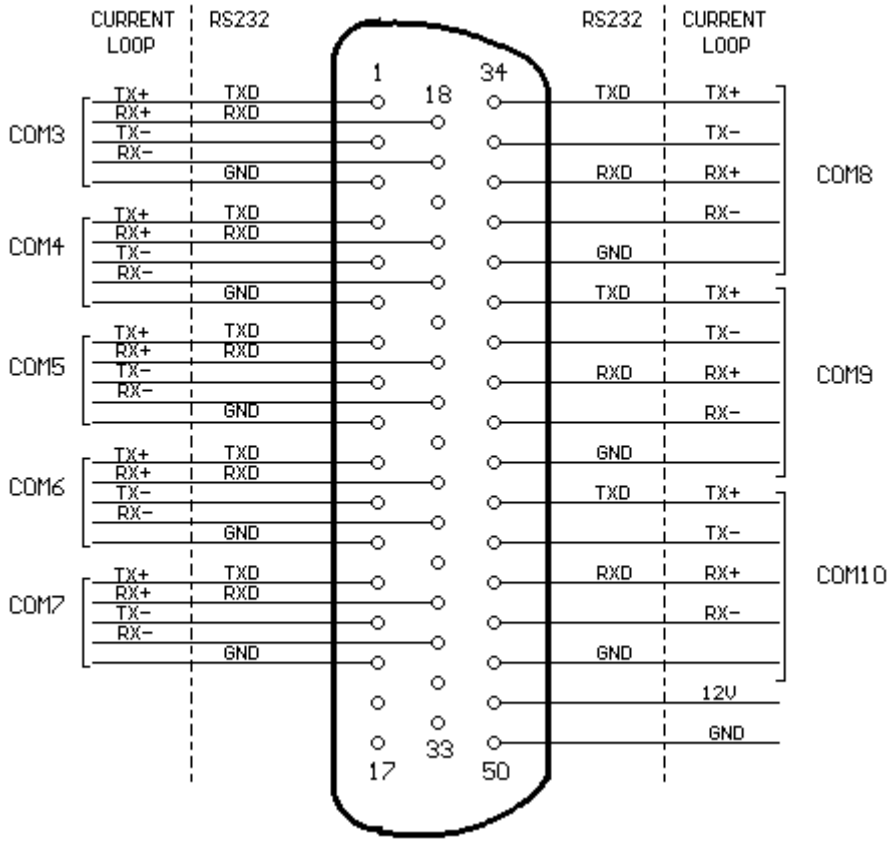
6.1.4 Closing the PC

- **Close** your PC as described in the manual of the PC manufacturer.

7 CONNECTION TO THE PERIPHERAL

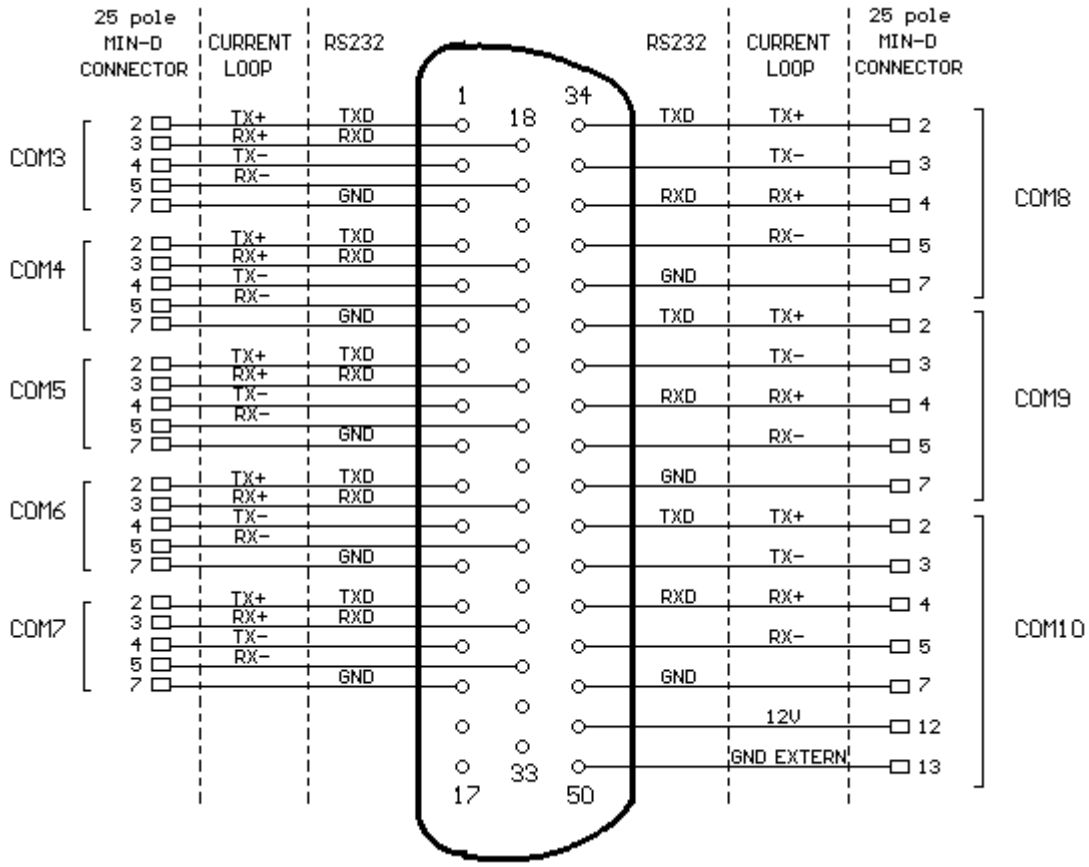
7.1 Connector pin assignment

Fig. 7-1: 50-pin SUD-D male connector

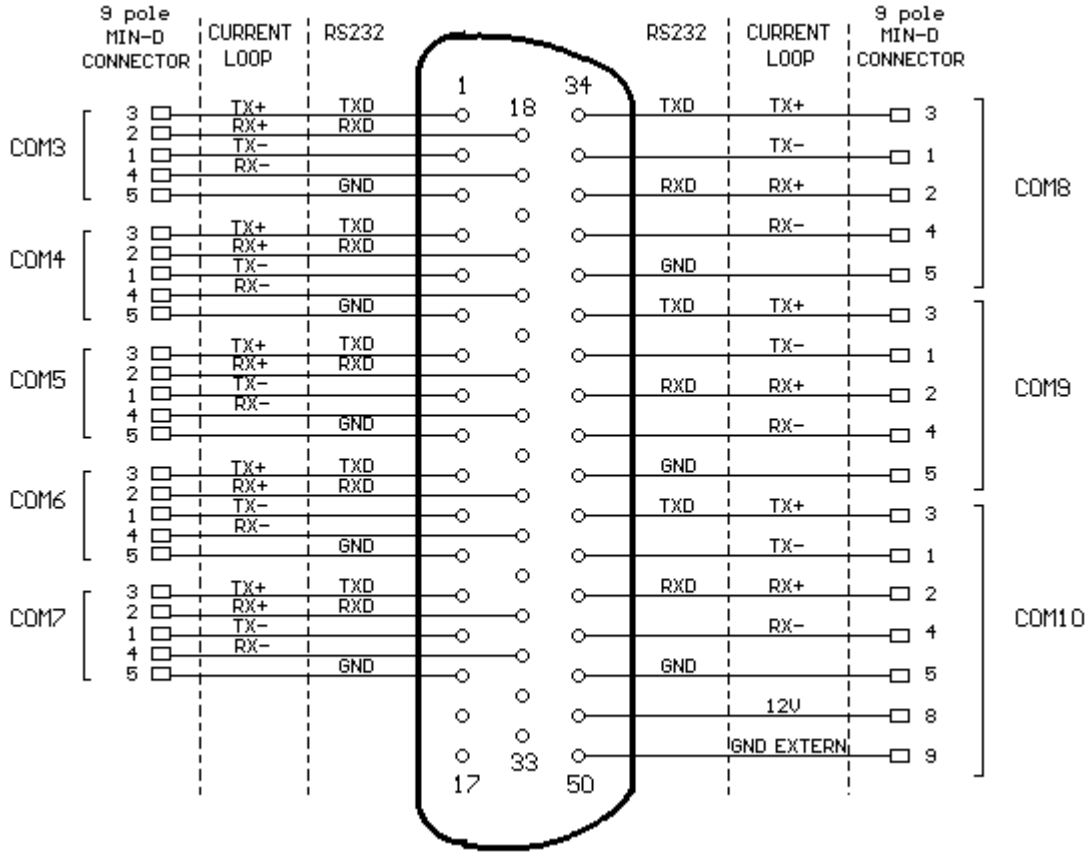


7.2 cabling

7.2.1 Cable ST079



7.2.2 Cable ST080



7.3 Block diagram