

AXIOM III E



# User manual

## Summary

<b>1. Generality and Security</b> .....	<b>4</b>	5.2. Input tray stop.....	13
1.1. Compliance.....	4	5.3. Output tray stops.....	14
1.2. Safety precautions.....	5	<b>6. Maintenance software</b> .....	<b>15</b>
<b>2. Transport and installation</b> .....	<b>6</b>	6.1. Connections and start-up.....	15
2.1. Operating environment.....	6	6.2. Use of the maintenance software.....	16
<b>Presentation of the axm 998</b> .....	<b>8</b>	6.3. Calibration of the light barriers (L.B.).....	18
<b>3. Connections</b> .....	<b>8</b>	<b>7. New mechanical firmware</b> .....	<b>20</b>
3.1. Reader's connection.....	8	7.1. Connection and starting.....	20
3.2. Reader's disconnection.....	9	<b>8. Options</b> .....	<b>21</b>
<b>4. Opening the lid or the covers</b> .....	<b>10</b>	8.1. Barcode option.....	21
4.1. Reading head lid.....	10	8.1.1. Readable codes.....	21
4.2. Side cache cover.....	11	8.1.2. Reading area for Barcode option.....	22
<b>5. Adjustments</b> .....	<b>12</b>	8.1.3. Adjustment of the Barcode head position.....	23
5.1. Separation system adjustment.....	12	8.2. Printer option.....	24
		8.2.1. Printing area.....	25
		8.2.2. Adjustment of the printing area.....	26
		8.2.3. Replacement of the ink cartridge.....	26

<b>9. First use of the axm 998 .....</b>	<b>27</b>	<b>13. Mechanical firmware error list .....</b>	<b>36</b>
9.1. Documents introduction .....	27	<b>14. Spare parts.....</b>	<b>37</b>
9.2. MAX parameters file .....	27	<b>15. Contacts.....</b>	<b>38</b>
9.2.1. EXT1 parameter .....	28		
9.2.2. CDELAY parameter .....	28		
9.2.3. EDELAY parameter .....	28		
9.3. Loading of the MAX parameter file.....	29		
<b>10. Maintenance.....</b>	<b>30</b>		
10.1. Regularly maintenance .....	30		
10.2. Service.....	30		
<b>11. Parts exchanges and settings .....</b>	<b>31</b>		
11.1. Transport tyres exchange .....	31		
11.2. Separation belt exchange .....	32		
11.3. Upper head exchange.....	32		
11.4. Lower head exchange.....	33		
11.4.1. Reading head settings .....	34		
<b>12. Paper jam.....</b>	<b>35</b>		

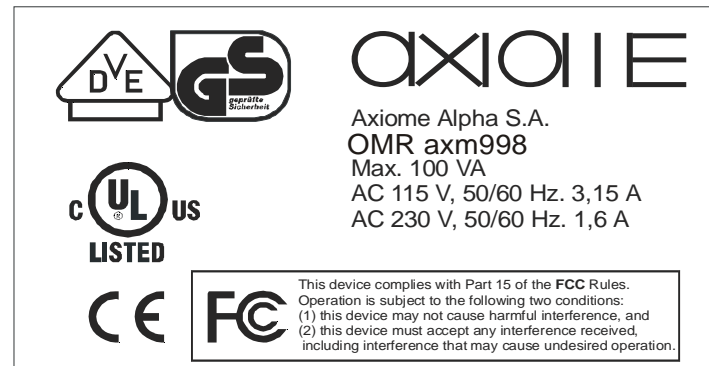
# 1. Generality and Security

## 1.1. Compliance

The axm 998 complies with the safety regulations related to office equipment, and with the electrical safety standards for data processing equipment. The various certifications concerned are under process, and will be indicated on the axm 998's label as they become finalized:



- DIN- EN 60950
- IEC 60950
- UL 60950
- FCC classe A
- CE



## 1.2. Safety precautions

This unit may be used continuously in normal ambient office conditions.

To ensure user hands and fingers protection, this unit is also equipped with safety devices above the automatic intake feed tray.


The following guidelines must be respected during the installation and use of the scanner.

- The scanner is fitted with a power cable which must be connected to an earthed power outlet.
- During the installation of the axm 998, always ensure the power outlet is accessible by the user.
- Do not connect or disconnect the cables during a storm.

## 2. Transport and installation

### 2.1. Operating environment

The suitability of the operating environment for the axm 998 is an essential factor for its proper functioning. Issues that must be taken into account are as follows:

- The scanner must be placed on a stable, flat and horizontal support.
-  The axm 998 is **36 kg**.
- The scanner must be shielded from all heat sources, such as:
  - direct sunlight;
  - heaters;
  - spot lights and other high heat lights.
- The axm 998 must also be protected from vibrations and humidity (40 to 80% relative humidity, with no condensation).
- Operating temperature range: +10 to +35 °C (50 to 95 °F).
- Storage temperature range: 0 to +40 °C (32 to 104 °F).
- Operating sound pressure level: 50 dB.
- Never operate the axm 998 in atmospheric conditions contaminated by dust or oil products in gaseous state.

*When connecting the axm 998 to a power outlet, ensure that it never shares the same outlet as:*

- large electric motors;*
- refrigerators;*
- generally speaking, any equipment generating substantial inductive loads.*

## Presentation of the axm 998

The optical mark reader axm 998 is an automatic unit with a motorised entry feeding tray and two output tray for the document's ejection. Its conception allows a simple handling and easy access to the documents, it's also easy to maintain. Its high transport speed adding to the exclusive feeding and double detection systems make it reliable and effective.

## 3. Connections

### 3.1. Reader's connection

During axm 998 and peripheral's installation, cables must be plugged in the following order:

- Plug the USB cable for data transfer to the reader, then to the computer
- Plug the power cable to the reader then to the main voltage plug with earth.
- If necessary, connect the service cable.
- Once it's done, turn the power ON.



### 3.2. Reader's disconnection

- Turn OFF the reader and its peripherals
- Disconnect the power cable
- Disconnect the USB cable for data transfer
- If necessary, disconnect the service cable

## 4. Opening the lid or the covers

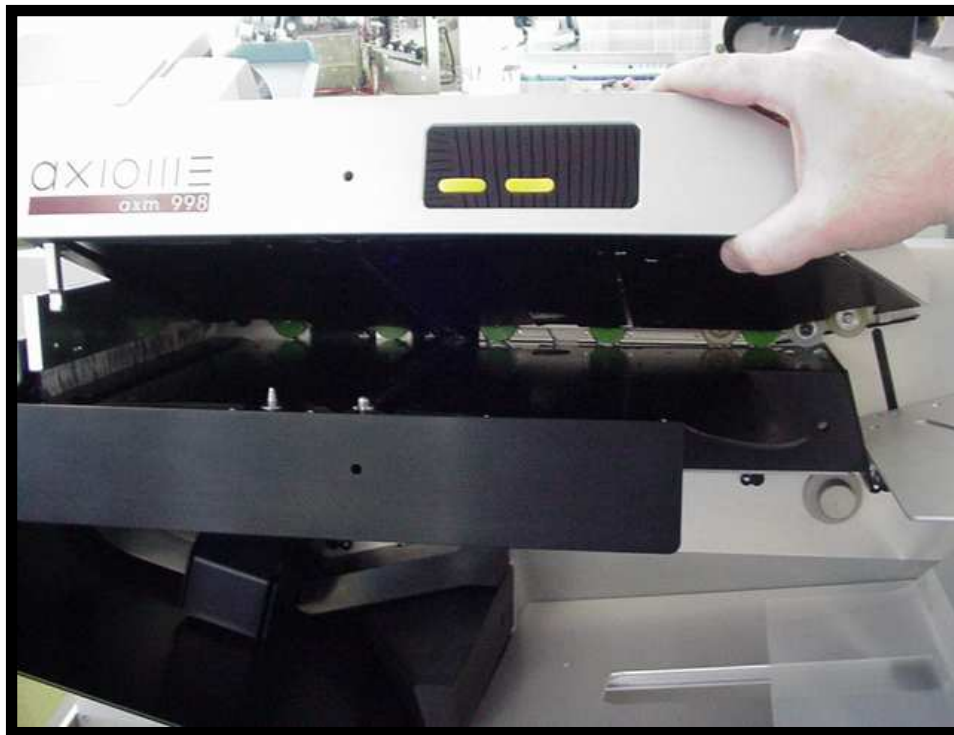
### 4.1. Reading head lid

To open the reading head lid, simply pull it as shown on below picture.

---

**! There is no secured system to keep the reading head lid open !**

---



## 4.2. Side cache cover

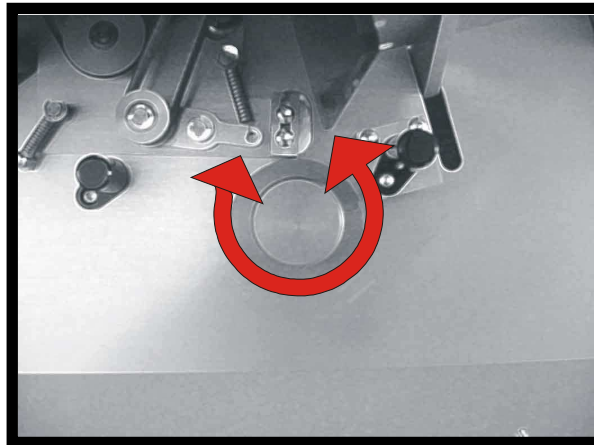
The side cache cover is simply clipped on the reader. To remove it, simply pull it to you from the bottom.



## 5. Adjustments

### 5.1. Separation system adjustment

Depending papers characteristics or according to the separation system's wear, it can be necessary to change the initial high of the separation belt. To process, follow the setting procedure:



- Pull the setting button to you
- The standard setting is reach when separation belt and separation tyre are tangent.
- Turn the button in the direction adapted to your needs (See diagram on below the button)
- Separation is correctly set when documents are separate without been blocked

---

**! The more the separation belt touch the separation tyre the more the belt get used !**

---

## 5.2. Input tray stop

To obtain a perfect transport and reading, a good guidance of the document in the input tray is necessary. The input tray stop help to the guidance.

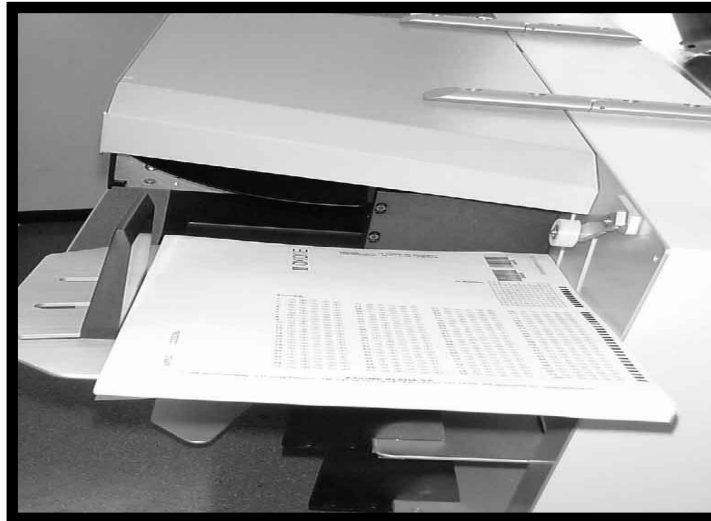
---

**! Never lift up or pull the reader by the input tray or the stop!**

---

For the input tray adjustment, process this procedure:

- Maintain the input tray with your hand
- Push the stop to its maximum opening
- Introduce a pile documents in the input tray
- Place the stop so the documents are in contact with it and the reference side. Documents must be flat.

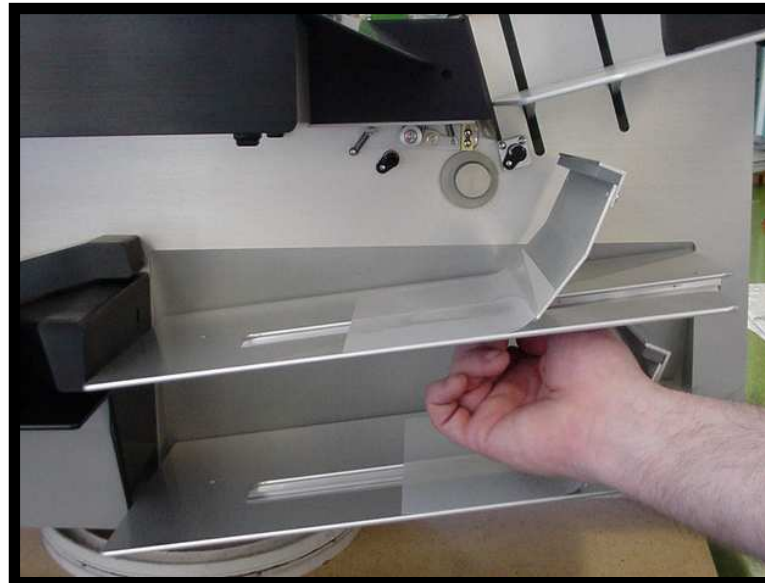


### 5.3. Output tray stops

To obtain a correct stacking result and to avoid jam in the output, stops have to be adjusted. A incorrect adjustment can be the cause of non respected stacking order.

For the input tray adjustment, process this procedure

- Introduce a typical document in the on of the output tray
- Smoothly slide the stop by the document. Attention, the documents must not be too tighten.
- Repeat for the procedure for the other output tray.



Depending paper's quality, it can be necessary to keep more or less space between the stop and the document.

## 6. Maintenance software

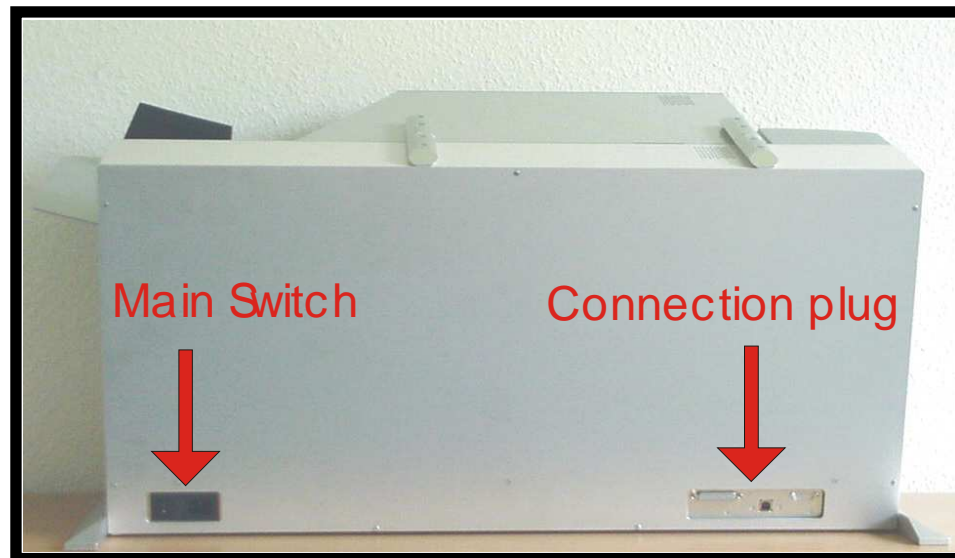
### 6.1. Connections and start-up

This software allows you to check the mechanical functions of the unit and calibrate the optical parts.



To use the maintenance software, you only need the USB-2 cable

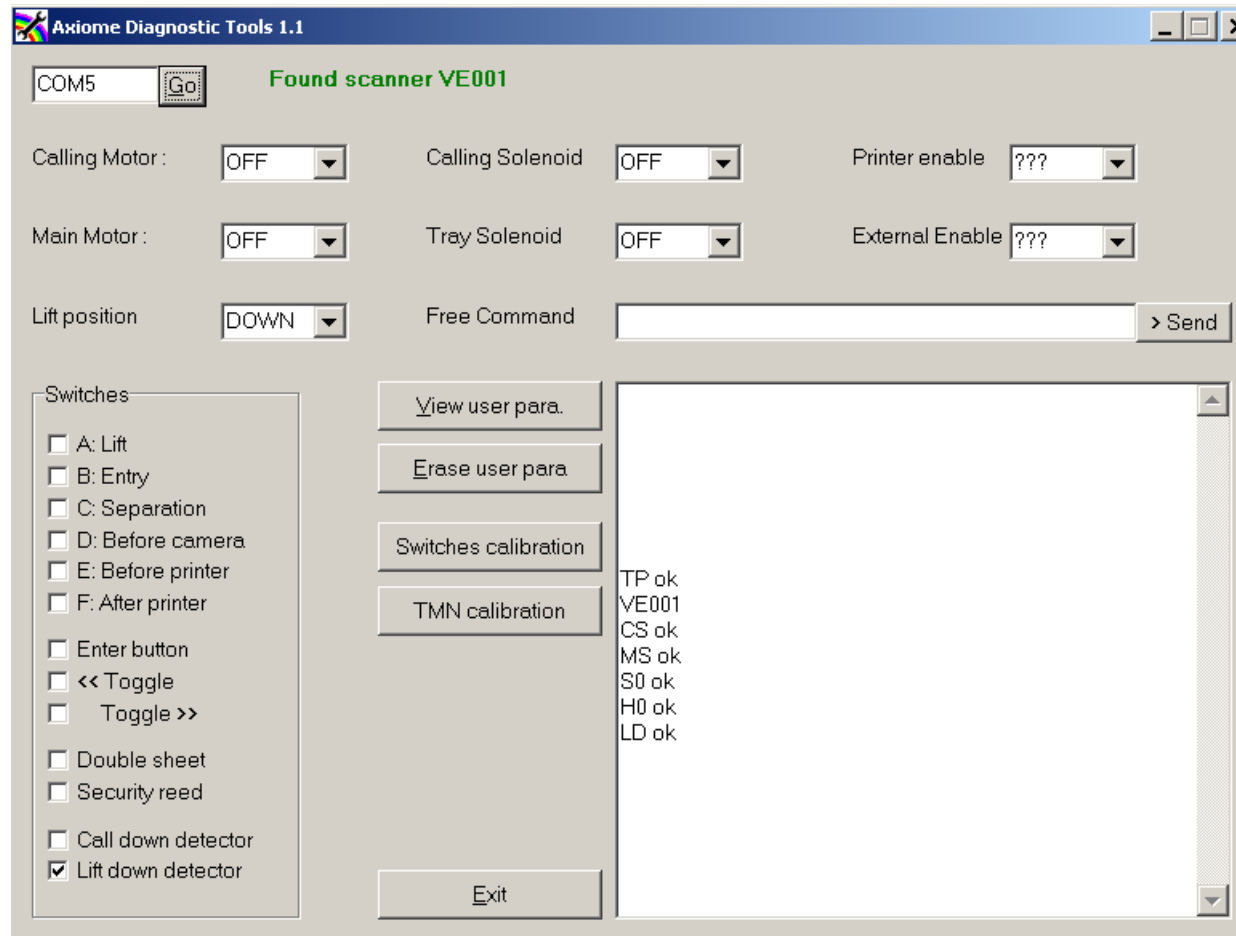
- Connect the PC to the reader with the help of the USB cable
- Start-up the reader using the main switch on the reader's rear.



## 6.2. Use of the maintenance software

Once the reader is started in normal mode and with the USB connection, launch the software **AxiomeDiagTools.exe** located on the CD-ROM *User Manual and Utilities*.

Select the correct Comport and valid with the **GO** button. If the reader is detected, message **FOUND SCANNER** appears.





## List of commands:

- Status Check connection by display of the mechanical firmware version (or scanner not found if no connection)
- Go Connect after com port selection
- Main Motor Run the main motor (three forward speeds)
- Calling Motor Run the calling motor (three forward speeds)
- Lift Check the functionality of the input lift (up / down)
- Calling solenoid Activate the calling arm
- Tray solenoid Activate the output tray to the upper position
- Free command To check special feature (questions from Axiome's technician)
- Printer Enable Enable or disable the printer line (used for implementing the printer option)
- External Enable Enable or disable the external data line (used for implementing of MICR or barcode option)
- Switches Check the different detection and switch features by blinking when activated
- ABCDEF Optical sensors of paper transport
- Enter button Check of the left confirmation key
- << Toggle >> Check of the right selection key (two positions)
- Double sheet Check of double sheet sensor

List of commands:

- Security reed                      Check of upper cam closing
- Call down detector                Internal position sensor
- Lift down detector                Internal position sensor
- View user para                    Visualise the present valid parameters located on the reader flash memory
- Erase user para                    Erase the user parameter located in the reader flash memory
- Exit                                 Exit the diagnostic software, the unit switch in real scanning mode

### 6.3. Calibration of the light barriers (L.B.)

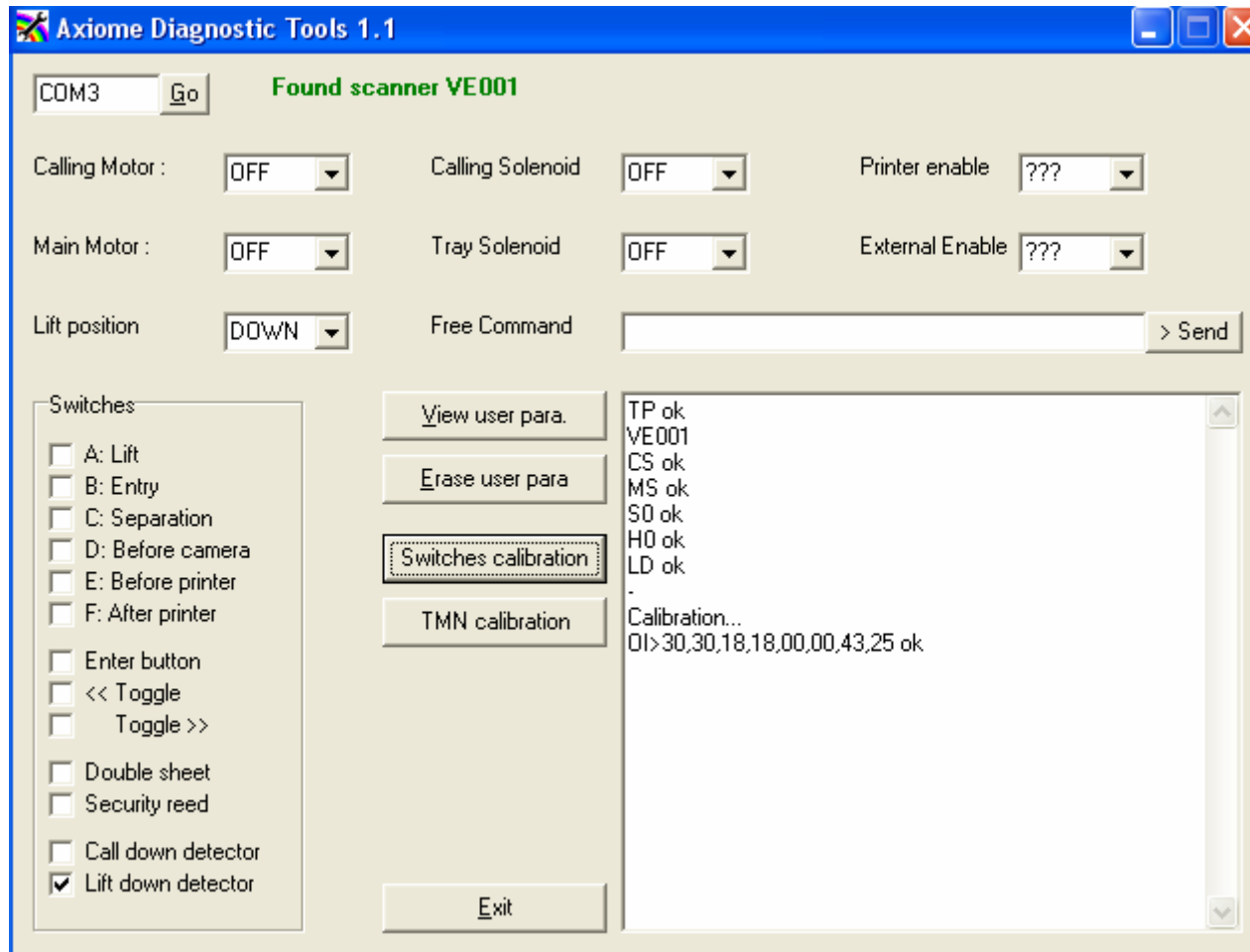


Light barriers adaptation is done through the maintenance software. The adaptation is not continuously made to avoid useless reader's stops. The below operation can be done only during a maintenance service and by trained technicians.

- No document or paper present in the input tray or in the transport mechanism
- Click on the **Switch Calibration** button or enter the **OI** command in the Free Command window
- L.B. are automatically set and keep the setting till the next switch calibration
- Values are displayed in the communication window
- 00, L.B. is not working or not connected
- 06-98, L.B. is optimum
- 99, L.B. is working but the safety margin is low

Remarks:

- The Switch calibration is only requested for a maintenance services
- L.B. values are displayed in the same order as the transport sense.
- Position 5 and 6 are not used. 00 values are normal for these positions.

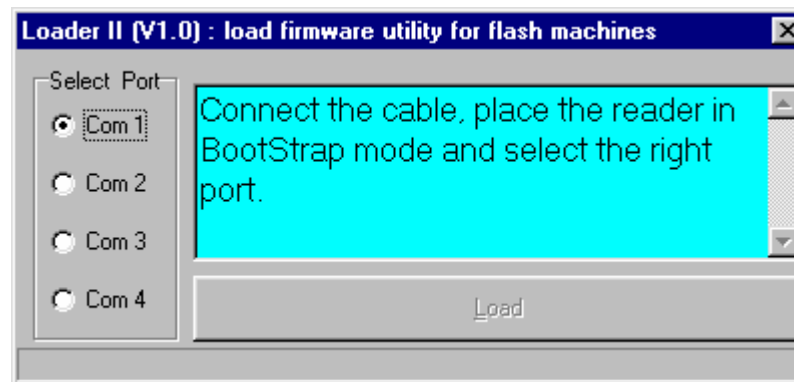


## 7. New mechanical firmware

### 7.1. Connection and starting

 To use the Loader2 software, you need a **crossed serial cable 9 pins male to 25 pins female (Service cable)**. ***Not delivered with reader!***

- connect the **Service cable** from your PC com port to the serial connector (25 pins) located on the unit's rear
- start the unit in "loader mode", switch on the scanner with right selection key pressed, and wait for the "Loader" message on the display
- Start the Loader2 software (*CD-ROM User Manual and Utilities*)
- Choose the new firmware file and start the loading
- Wait till the scanner finish the Firmload (confirmation message), then motor run and the unit is now in test mode
- Switch off the scanner and turn it on again in standard mode



## 8. Options

### 8.1. Barcode option

Axm 998 can be mounted with a barcode head. Only printed codes or stickers placed on the recto could be read.

Remark:

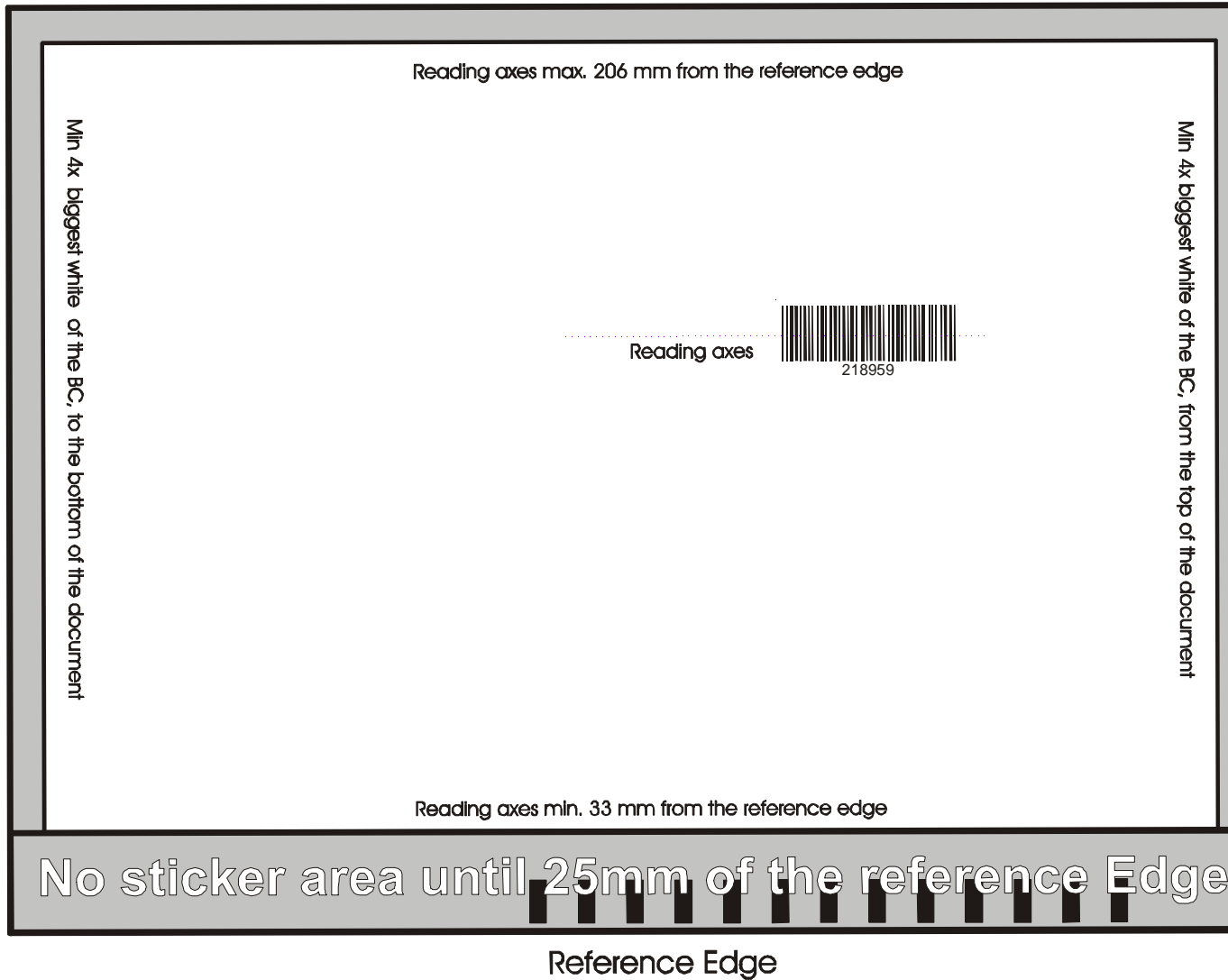
Barcode option can be implemented on not already equipped axm998

#### 8.1.1. Readable codes

The returned barcode value is always preceded with a letter corresponding to the type of code read.

<b>I</b>	=	Interleaved 2/5	forward + backward
<b>A</b>	=	Codabar	forward + backward
<b>C</b>	=	Code 128	forward + backward
<b>E</b>	=	Code 39	forward + backward
<b>G</b>	=	AXIOME	forward + backward
<b>TA=</b>		UPC A	forward + backward
<b>TE=</b>		UPC E	forward + backward
<b>TFF=</b>		EAN 8	forward + backward
<b>TE=</b>		EAN 13	forward + backward

### 8.1.2. Reading area for Barcode option

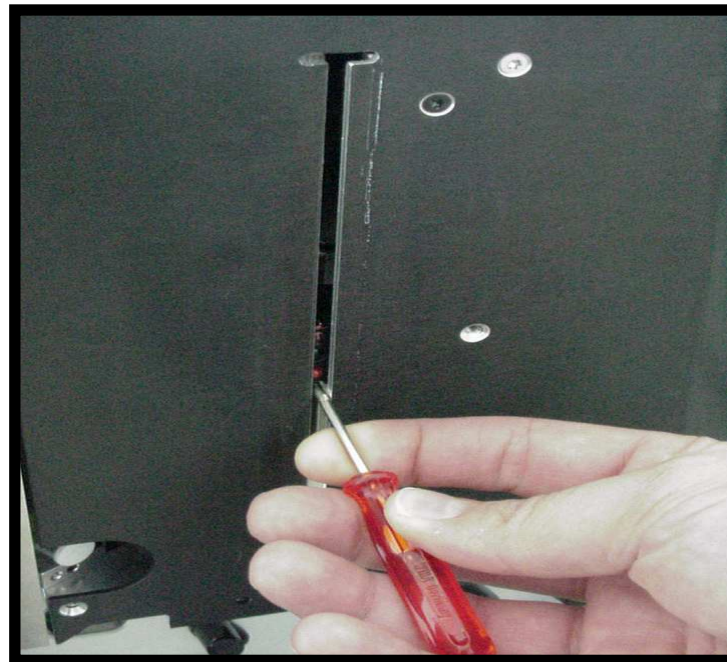


### 8.1.3. Adjustment of the Barcode head position

The barcode head position depend of the position your codes on your documents.

For the Barcode head positioning, process this procedure:

- Turn off the reader
- Open the lid
- Move the head along for a left or right placement
- Correct Barcode position can be find by adding 8mm from the black sheet edge (transport side)



## 8.2. Printer option

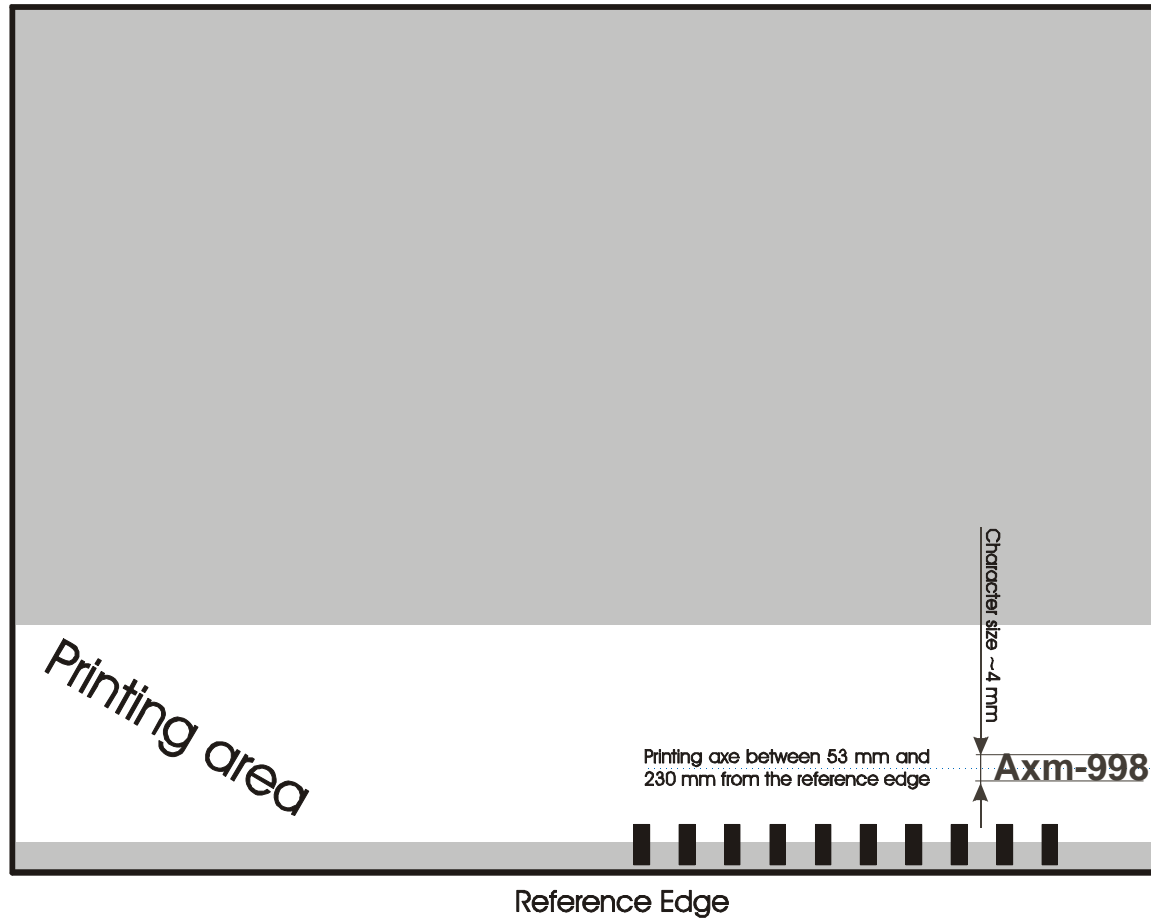
The axm 998 can be mounted with a printer option. Printer can print one line of characters. The lateral positioning is adjustable from the reference side. Document ending define the vertical positioning.

### Remark:

Printer option can be implemented on not already equipped axm998



### 8.2.1. Printing area



### 8.2.2. Adjustment of the printing area

- Remove the printer cover
- Move the printer head along its guide

### 8.2.3. Replacement of the ink cartridge

- Remove the printer cover
- Remove the used cartridge
- Install a new one

## 9. First use of the axm 998

### 9.1. Documents introduction

The document stack must be put on the upper lift, however, **be aware** that an OMR document ( optical mark reading ) always has a direction. In the document's margin are small black ( or red ) rectangles. These small rectangles are clockmarks. They allow reading of the pre-printed cases or marks on the document only.

- The documents must be put on the automatic introduction lift, against the reference side of the reader (see chapter Input tray stop, p. 13)
- The documents must be put on the automatic introduction lift with the clockmarks visible and against the reference side of the reader
- The documents put on the lift must also touch the separation block
- Adjust the stop of the introduction tray to the width of the document plus one or two millimetres

### 9.2. MAX parameters file

Adding to the normal MAX commands, the axm 998 accepts 3 news parameters for the real time mode.

Example of MAX file:

```
MD(CONFIG)
@CUSTOMER
CDELAY=10
EDELAY=1
EXT1=ON
END
```

### 9.2.1. EXT1 parameter

The EXT1 parameter, enable or disable the Barcode option. When activated, EDELAY and CDELAY must be considered.

### 9.2.2. CDELAY parameter

The CDELAY parameter represents the time delay before calling next document to read. CDELAY can have the following values:

CDELAY = x, with  $0 < x < 20$  or  $x = 99$ . Values from 1 to 20 are values for corresponding delay in tenth milliseconds (for example, 8 gives 80 milliseconds). A 99 value ask for not calling the next document before receiving a RD command.

### 9.2.3. EDELAY parameter

The EDELAY parameter represents adding the time to decode a Barcode. EDELAY can have the following values:

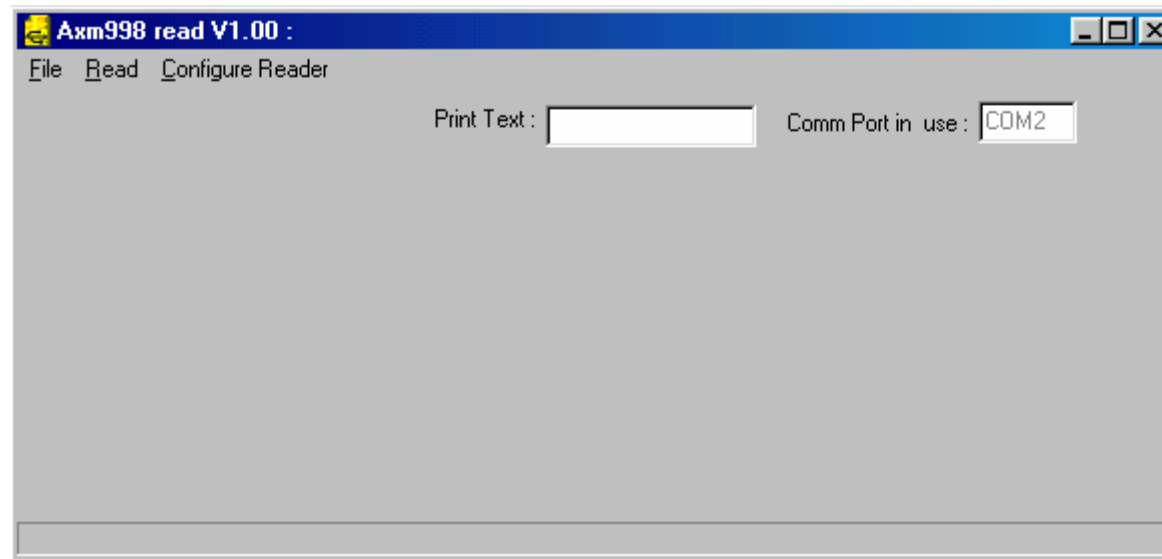
EDELAY = x, with  $0 < x < 20$  or  $x = 99$ . Values are in tenth milliseconds. For values different of 0, the CDELAY parameter must be increased to permit decoding. And longer the document is, bigger the CDELAY must be. For practice cases, an A5 sized document request a EDELAY= 5 and a CDELAY= 15 (or 99). With an A4, CDELAY reach easily 20 or 99.

### 9.3. Loading of the MAX parameter file

The MAX parameter file is downloaded to the reader through the USB cable and with the Axm998read.exe software.

To download the MAX parameter file, process this procedure:

- Turn on the reader
- Turn on the Axm998reader.exe
- Select the “Configure reader” option, then “send config file”
- Select the wanted configuration file (\*.max)
- Wait till confirmation message
- MAX parameter file is saved in the unit till next new loading



## 10. Maintenance

### 10.1. Regularly maintenance

- Cleaning the reading head's glasses (duster with alcohol or soaped water)
- Cleaning the separation wheel and separation belt (dry duster or brush)
- Cleaning the light barriers (dry duster or a brush)
- Control the paper transport (duster or a brush)
- Control the ink cartridge

### 10.2. Service

- Regularly maintenance
- Control the tyre's wear. Exchange if necessary
- Control the mechanism with the help of the test software (L.B., double sheet detector, lift, output solenoid, motors, display,...)
- Control the separation tyre and separation belt. If necessary change them. Needs new adjustment
- Paper transport with a full batch.



## 11.2. Separation belt exchange

- Remove the protection cover under the back reading head (4 clips).
- Release the belt by using the setting button (see 5.1 Separation system adjustment, p.12)
- Release the force spring and liberate the separation belt.
- Place the new belt
- Adjust the separation mechanism

## 11.3. Upper head exchange

---

**! After a head exchange, a new calibration is necessary and a positioning too. Only Axiome's trained people are authorised practising those procedures!**

---

- Remove the two upper screws (cruciform, silver); remove the three lower screws (cruciform, black).
- Remove the front plate with the display, and disconnect it.
- Open the reader's rear cover (7 screws)
- Disconnect the RJ11 cable on the MTUSB board positioned on the rear's side
- Extract the upper head's case.
- Release the head position's spring
- Unscrew the 2 torx screws of the black entry plate



- Take the head out of the case
- Invert the procedure to replace the new head
- Calibrate the head and set its position (11.4.1Reading head settings, p.34)

#### **11.4. Lower head exchange**

- Remove the protection cover under the back reading head (4 clips).
- Unscrew the lower front flange ( 5 screws )
- Disconnect the head and extract the lower head case.
- Unscrew the lower sheet before head and the positioning pin
- Invert the procedure to replace the new head.
- Calibrate the head and set its position (11.4.1Reading head settings, p.34)

### 11.4.1. Reading head settings

After a head exchange, it's necessary to process a new calibration and to set its position. For the reading head installation, process these procedures:

#### Calibration:

- Connect the reader to the computer with the USB cable and turn the axm 998 on.
- Start the **AxiomeDiagTools.exe** software
- Select the correct com port
- Place a full white sheet under the reading head. The sheet must cover the full head width
- Once the axm 998 is detected, select the **TMN calibration** button or enter the **TC** (TMN Calibration) command in the Free command window.
- Downer head and upper head are checked and calibrated as mentioned in the Communication window

---

**! If OK message is not displayed in the communication window, contact an Axiome's technician!**

---

#### Positioning:

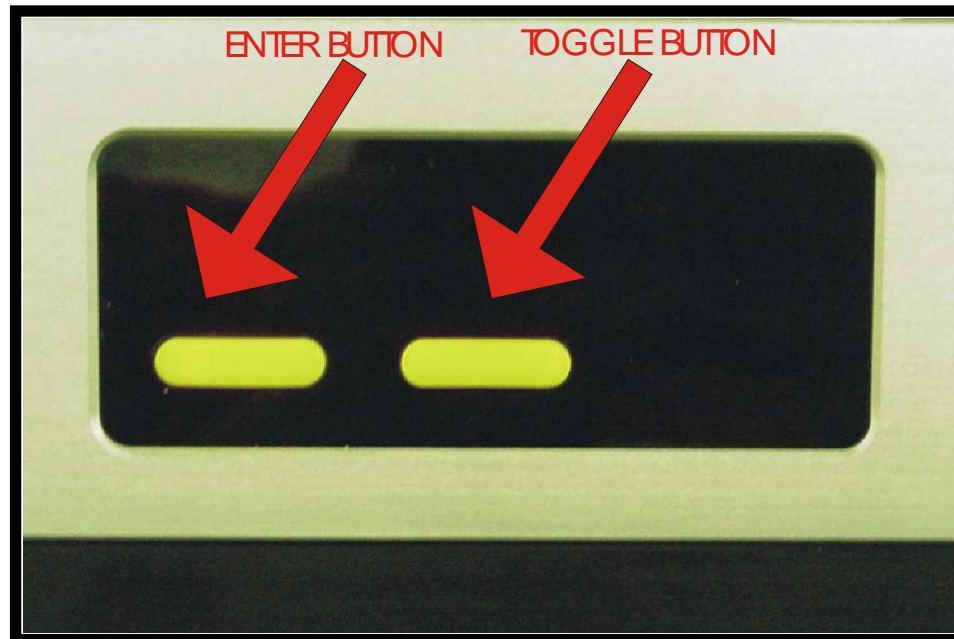
- Start the Axm998read.exe program and turn on the reader
- Select the correct com port
- Choose the Read Image option
- Place the test sheet in the input tray
- Valid the NEXT button and press the validation button on reader
- Compare the results with the reference document on the Technical Application Note (CD-ROM *User Manual and Utilities*)

## 12. Paper jam

Even with an efficient separation system, some document can creates double feeding or jam before the separation mechanism. When such issue happen, the reader stops and display an error message. To solve this issue, documents that are in the transport mechanism have to be rejected with the user help.

To reject documents from the separation mechanism, process this procedure:

- Replace documents in the entry lift
- Press the ENTER button till all documents are rejected in the upper output tray, then let up the ENTER button
- Press again the ENTER button to confirm reader is ready to work again



## 13. Mechanical firmware error list

- Errors in initialisation part :
  - 101 main motor driver not found
  - 102 lift motor driver not found
  - 103 calling motor driver not found
  - 104 optical switch driver not found
  - 105 not possible to init external com
  - 106 not possible to init optical switch com
  - 107 not possible to init RS232 cam
  - 108 not possible to control main motor
  - 109 not possible to restore parameter
  - 110 not possible to init printer 1
  - 111 not possible to init printer 2
  - 112 separator gap not ajusted
  - 113 not possible to init external 1
  - 114 not possible to init external 2
  - 123 not possible to control lift
- Errors while scanning process :
  - 001 Bad feeding
  - 002 Jam before camera
  - 003 Jam under camera
  - 004 Jam after camera
  - 005 Jam in sorting
  - 006 No sheet to read
  - 011 Multiple sheet
  - 015 Jam under printer 2
  - 019 No sheet to eject
  - 020 Path not free
  - 023 Entry lift error
  - 030 Error writing in flash

## 14. Spare parts

The replacement parts for the axm 998 can be ordered from AXIOME Alpha SA or from your retailer.

### Replacement parts for the axm 998

Part Number	Description	Units per machine
MSCA505	Green transport wheel 3°	13
MHEM504	Transparent transport wheel 15°	3
MHEM507	Calling tyre	1
MHEM506	Separation tyre	1
FCOL1630	Main transport belt	1
FCOL020	Separation belt	1
FORE148	Output O-ring	1
FCOC110	Transport MiniPitch	1
FCOC088	Separation MiniPitch	1
FCOC082	Entry lift MiniPitch	1
FCARHPC660	Ink cartridge	1
EFUE030	Fuse 1,6A T SPT 230V AC	1
EFUE036	Fuse 3,15A T SPT 115V AC	1

### Accessories

EC25M9F000	Cable DB25 male / 9 female (Null Modem)	1
------------	-----------------------------------------	---

## 15. Contacts



AXIOME Alpha SA  
Rue du Chasselas 1  
CH-2034 Peseux  
Switzerland



e-mail [info@axiome.ch](mailto:info@axiome.ch)  
[support@axiome.ch](mailto:support@axiome.ch)  
website [www.axiome.ch](http://www.axiome.ch)



Tel. ++41 (032) 732 18 18  
Fax. ++41 (032) 732 18 00

