

# Collamat® 8600/9100

## Serial communication

## Index

|  | Page |
|--|------|
| Important warnings                                     | 2    |
| Danger indications                                     | 2    |
| Symbol descriptions                                    | 3    |
| Collamat® 8600 and 9100 remote control                 | 4    |
| Installation of the Communicationprint C8600/C9100     | 5    |
| Partslist  | 5    |
| Connection guide for monitor C8699/C9100 to PC         | 11   |
| Communications parameters                              | 12   |
| First contact  | 13   |
| Dump program   | 14   |
| TX all data  | 16   |
| Datatransfer protocol for Collamat® 8600/9100 monitors | 17   |
| Description of commands and data transfer              | 17   |
| Commands   | 18   |
| Data transfer  | 19   |
| Error messages   | 20   |
| Examples for commands and data                         | 20   |
| Short cuts   | 21   |
| Signal names   | 21   |
| Terms  | 22   |

## Important Warnings



Before installing and operating the Monitor C8600/C9100 read following safety instructions:

- The labeler C8600/C9100 is exclusively determined for labelling goods.
- The installation of a Collamat<sup>®</sup> 8600/9100 has to be done by a trained specialist. For this you have to consider the national specific regulations of
  - prevention of accidents
  - mechanical stability
  - construction of electrical and mechanical systems
  - noise suppression
- Take notice to the technical data of the Collamat<sup>®</sup> 8600/9100. Especially the environment conditions must be observed.
- The operation of the Collamat<sup>®</sup> 8600/9100 must be done by trained personnel.
- In case of non-authorized modification guarantee will fall.
- Before connecting non-standard products ask your competent technical supporter.

## Danger Indications

- The safety symbols and danger advices on the Collamat<sup>®</sup> 8600/9100 and in this manual must strictly be observed.
- Before connecting or disconnecting the labeler to or from the mains, it must be switched off.
- The labeler C8600/C9100 may only be opened by authorized personnel.
- Before opening the labeler C8600/C9100 , it must be separated from the mains power.
- It exists danger of pinching hairs, jewelry, ties, clothes etc. into the traction unit
- It exists danger of injury by cutting fingers in the area of the paper web.
- It exists danger of injury in the area of the dancer of the unwinder of the Collamat<sup>®</sup> 8600/9100 .
- It exists danger of injury in the area of the paper stockcontroller of the Collamat<sup>®</sup> 8600/9100 .
- For operation on the Collamat<sup>®</sup> 8600/9100 the operating personnel must keep to a safely place to prevent injury from the products being labeled.

## Symbol descriptions

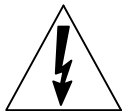


### ATTENTION

Indicates danger of damaging the Collamat® 8600/9100 or other system components, with a potential consequential danger of injuries.

### DANGER

Indicates an immediate hazard for persons.



### DANGER

Shock hazard due to high voltage at component.



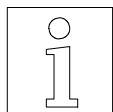
### DANGER

Hazard due to high temperature component.



### ATTENTION

ESD warning (Electro Static Discharge). The PC boards or component may only be touched in an electrostatically protected environment.



### NOTE

Important or additional information to Collamat® 8600/9100 or to the documentation.

## Terminal dialogs

are displayed in a round angled frame:

```
: COLLAMAT 9100  
: Version 1.10  
: 20. Feb. 1997
```

## Monitor dialogs

are displayed in a sharp angled frame:

```
REMOTE ACCESS  
  
Serial Port active  
9600 Baud 8 Bits
```

## Collamat® 8600 and 9100 remote control

In the firmware Version 1.10 and higher the monitor can be controlled by a RS232 serial communication line. To control the monitor, it must be equipped with an additional RS232 serial connector.

### Features:

There are a lot of new features:

- Download of one or all programs and settings
- Upload of one program or setting
- RUN-command
- Program change command
- Data dump command
- Error messages in Numbers and readable texts

### Restrictions:

There are a few restrictions in the control protocol:

- It is not possible to access the monitor in the running mode. The monitor must first be stopped manually or through the RUN/STOP signal input on the rear panel.
- It will not be possible to connect a RS485 industrial serial communication line.

### Example:

With the upload of one program, then a program change to this program, and then a RUN command, the monitor can be remote controlled by the RS232 connector. For displaying the monitor's status and internal data, the data dump command can be used.

## Installation of the Communicationprint C8600/C9100

The communication print can additionally be built in into the monitors C8600 and C9100.



**ATTENTION:**

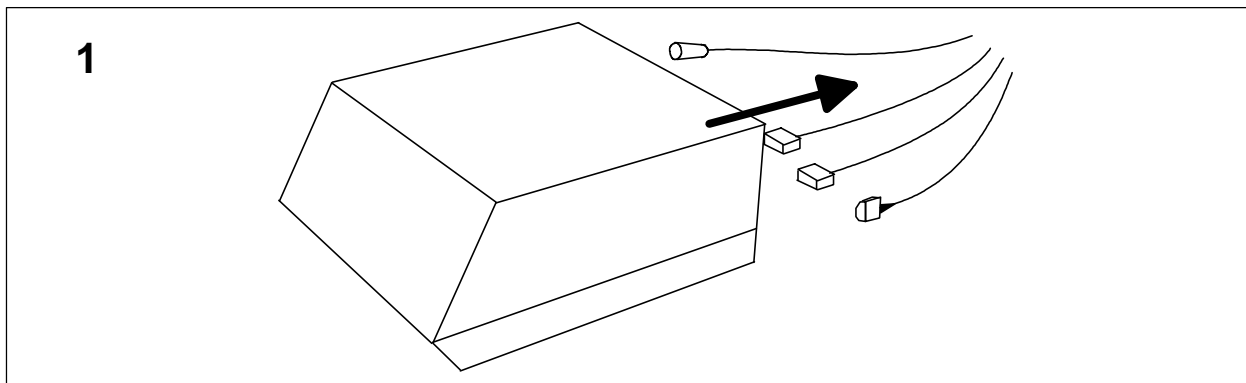
**Before working on the monitor the monitor must be disconnected from mains. After power off wait at least one minute before opening the monitor.**

### Partslist

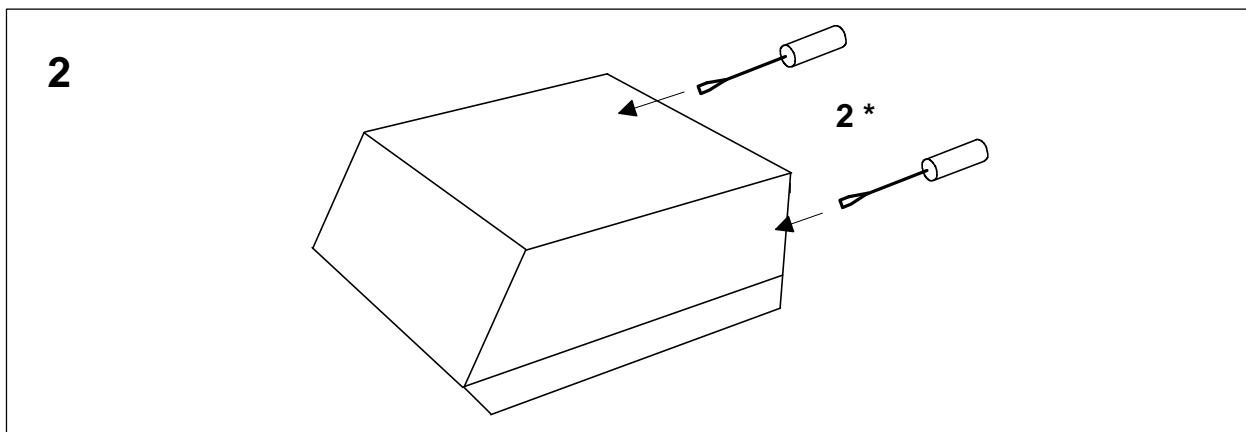
| Part                                  | Quantity | Part number     |
|---------------------------------------|----------|-----------------|
| Installation instruction german       |          | 5999.532-00     |
| Installation instruction english      | 1        | 5999.532-01     |
| Backpanel with Communicationprint     | 1        |                 |
| Communication cable for PC connection | 1        |                 |
| EPROM firmware version 1.10 or higher | 1        | ES.471.010E-13A |

### Procedure

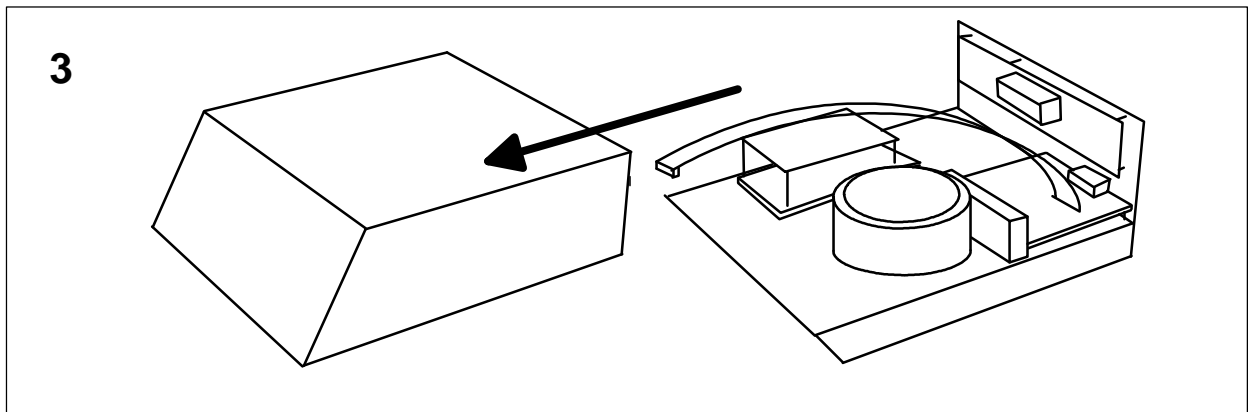
1. Disconnect all cables from the monitor. The monitor must be completely disconnected !



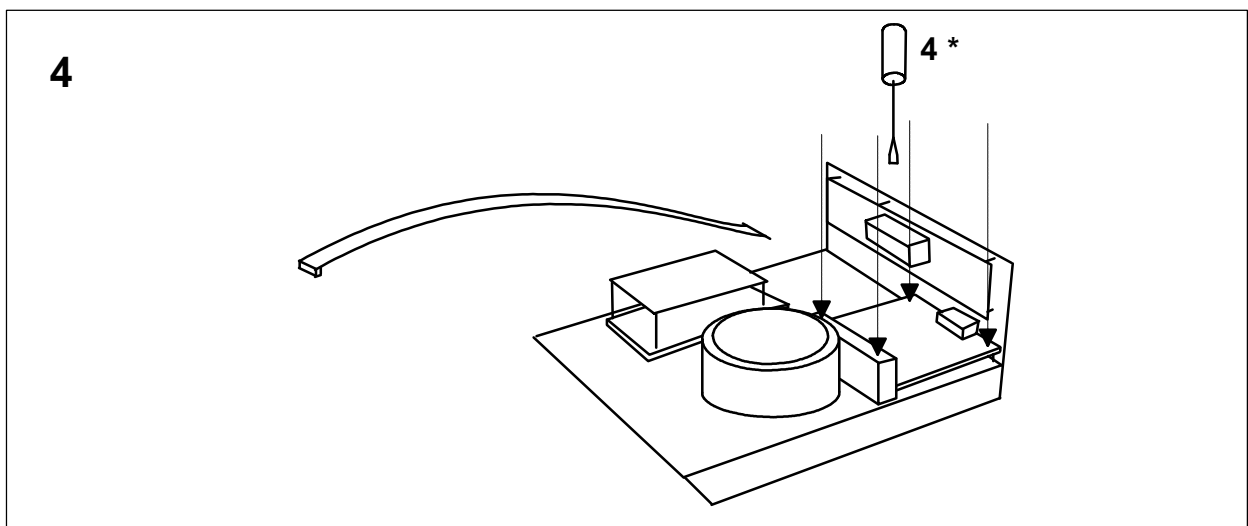
2. Unscrew the two screws on the rear panel of the monitor.



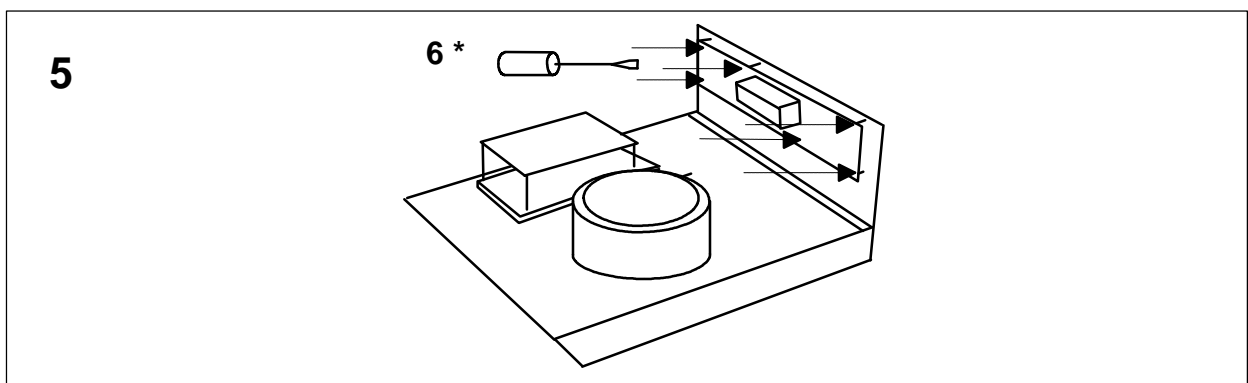
3. Separate the cover from the heat sink and disconnect the flat cable carefully from the controller print.



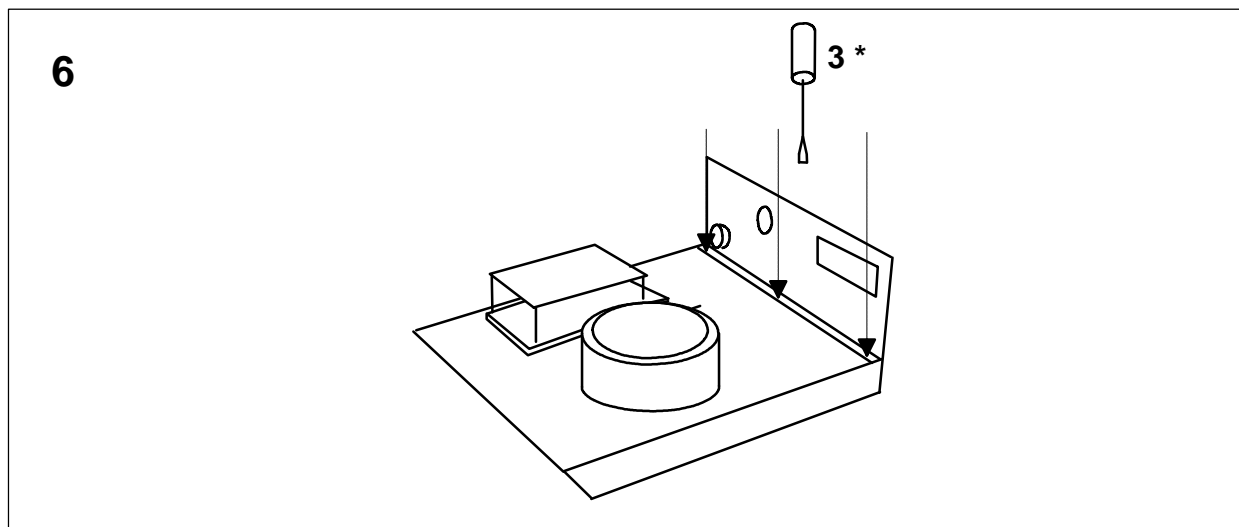
4. Disconnect all electrical wires from the interface print and remove the interface print.



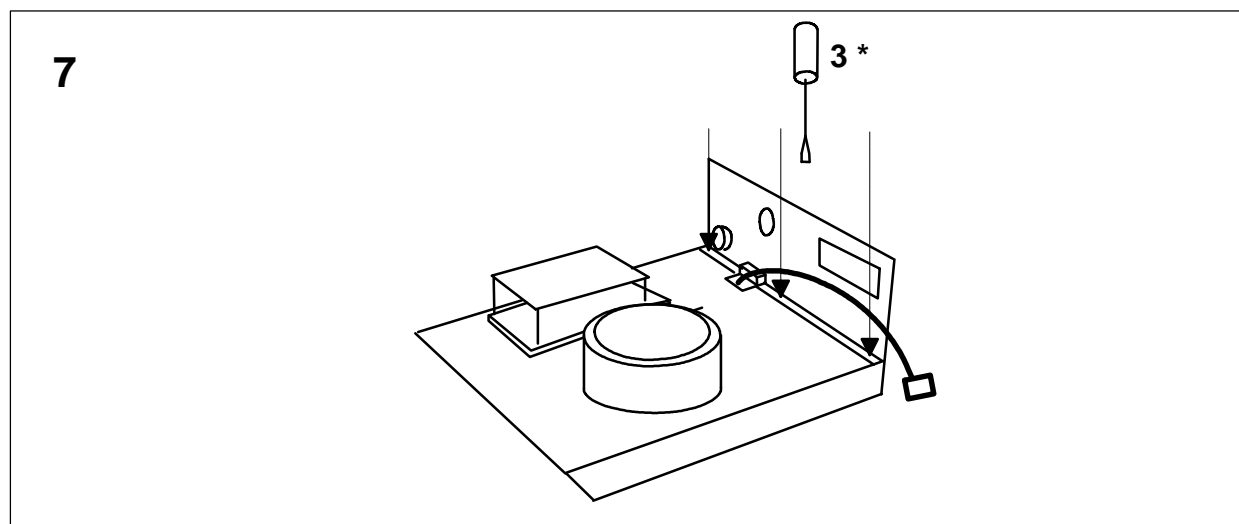
5. Disconnect all electrical wires from the filter print and remove the filter print..



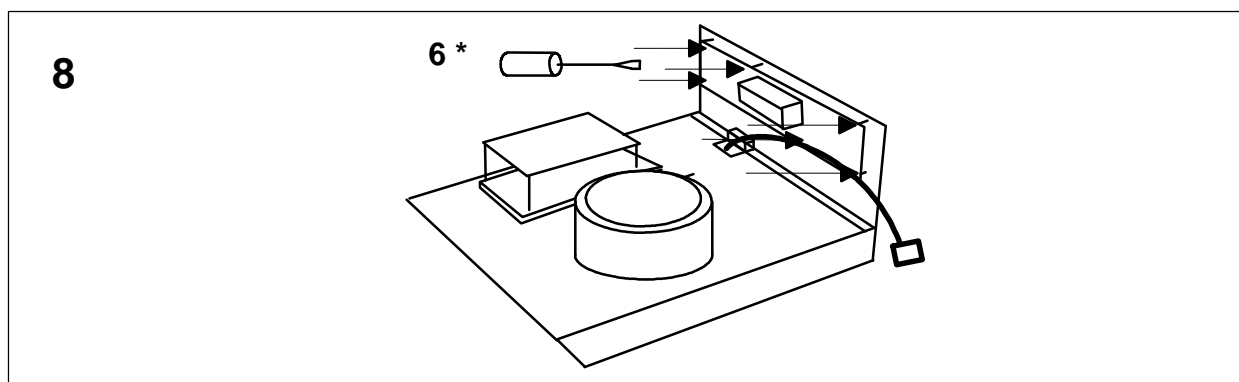
6. Separate the back panel from the heat sink.



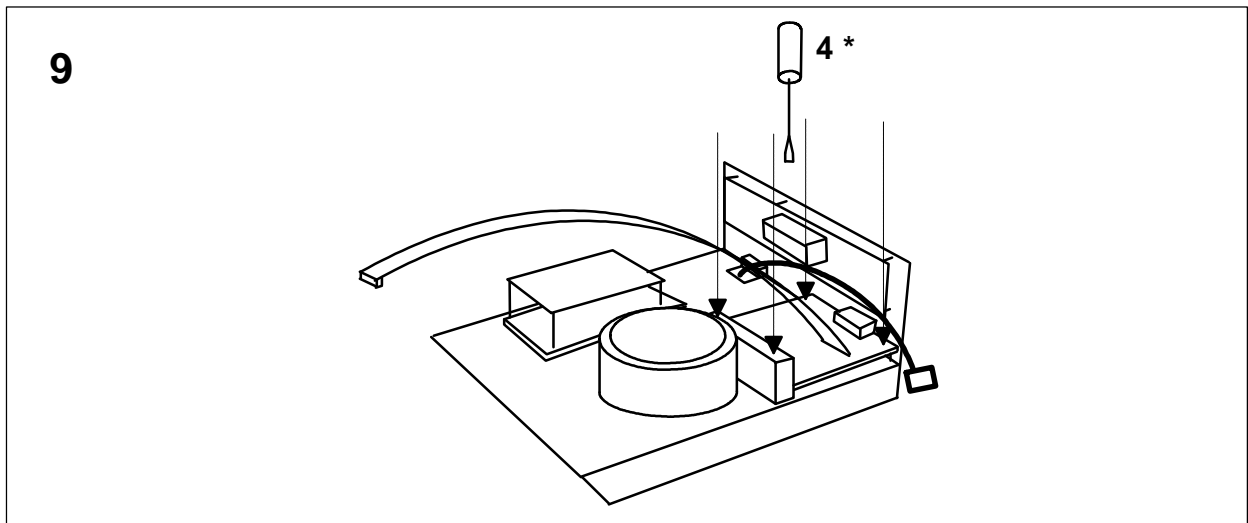
7. Install the new back panel including the communication print.



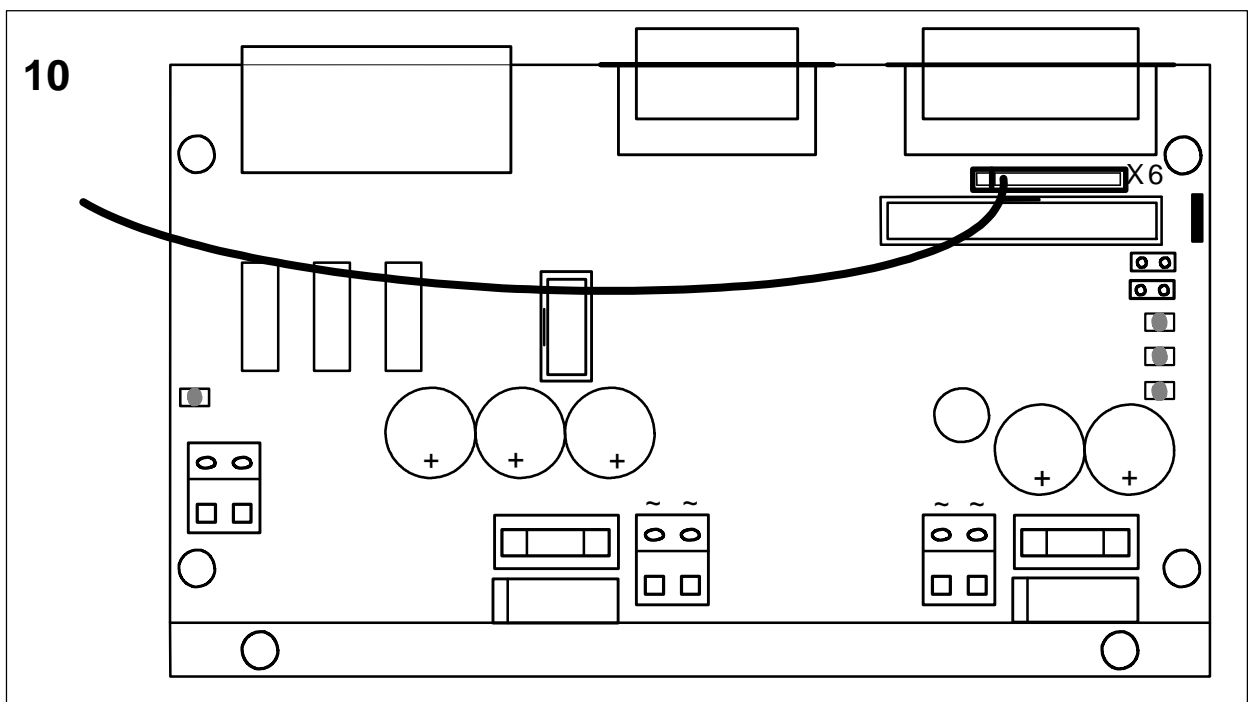
8. Reinstall the filter print and reconnect all electrical wires as described in the technical handbook C8600/C9100.



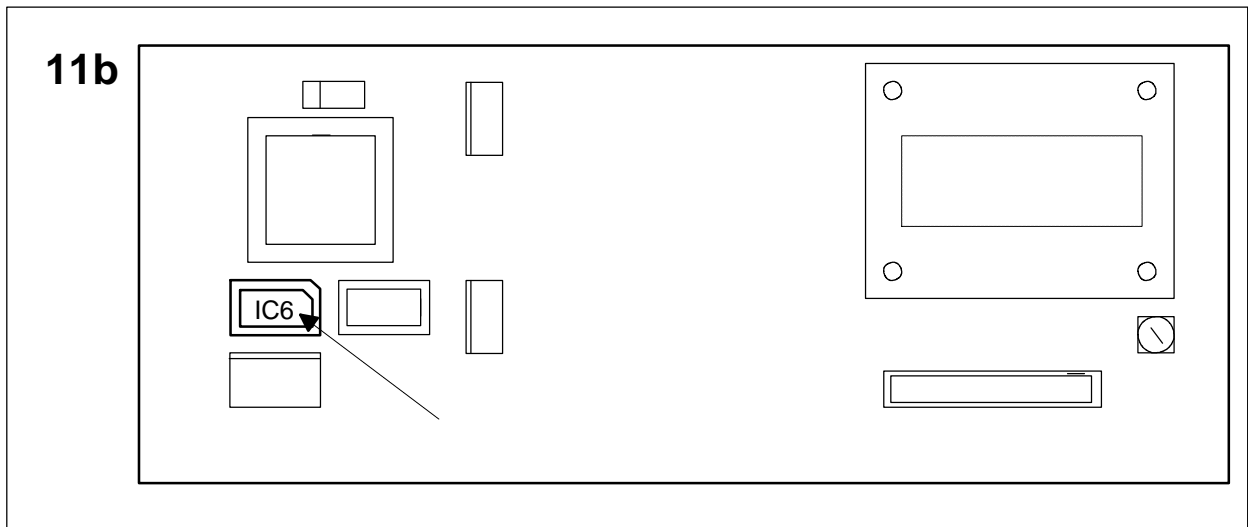
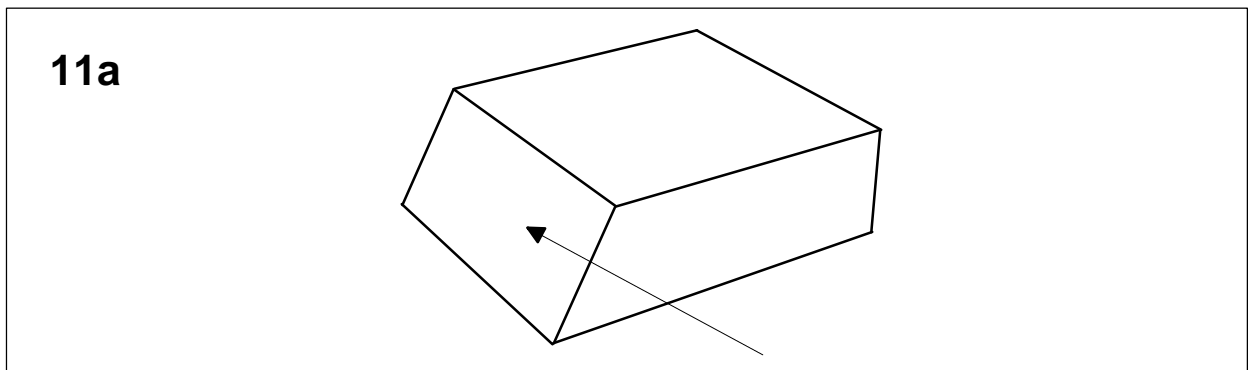
9. Reinstall the interface print and reconnect all electrical wires as described in the technical handbook C8600/C9100.



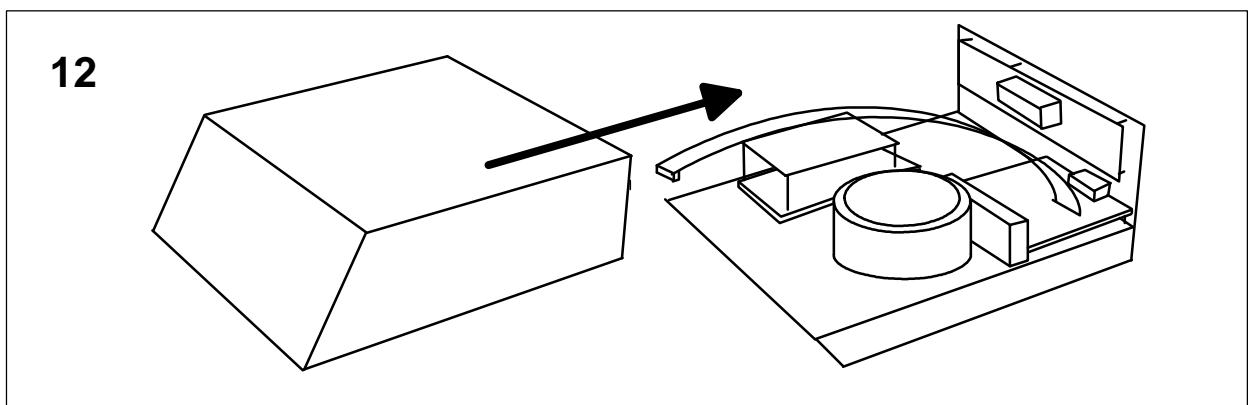
10. Connection of the communication print with the interface print.



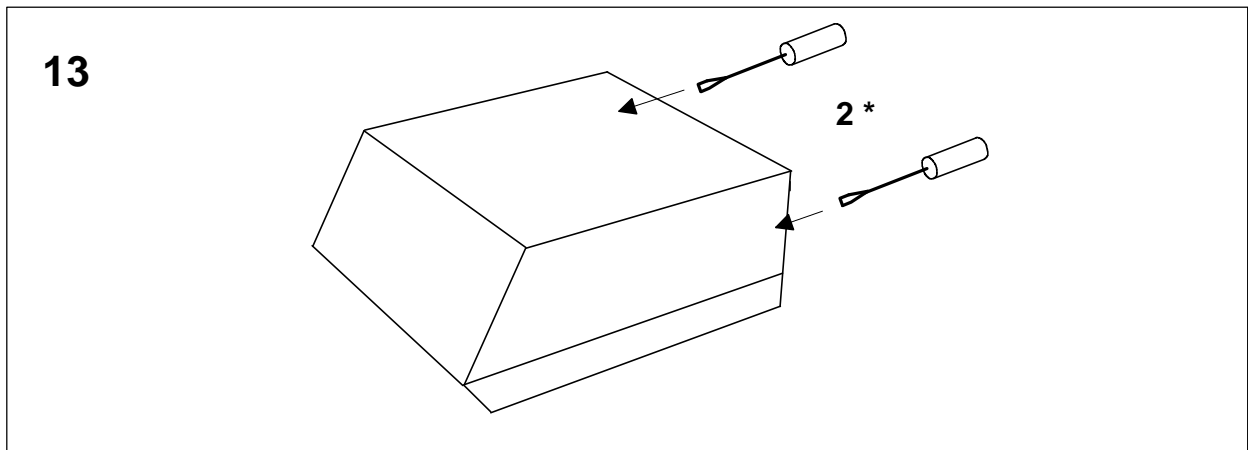
**11. Exchange of the EPROM with the firmware.**



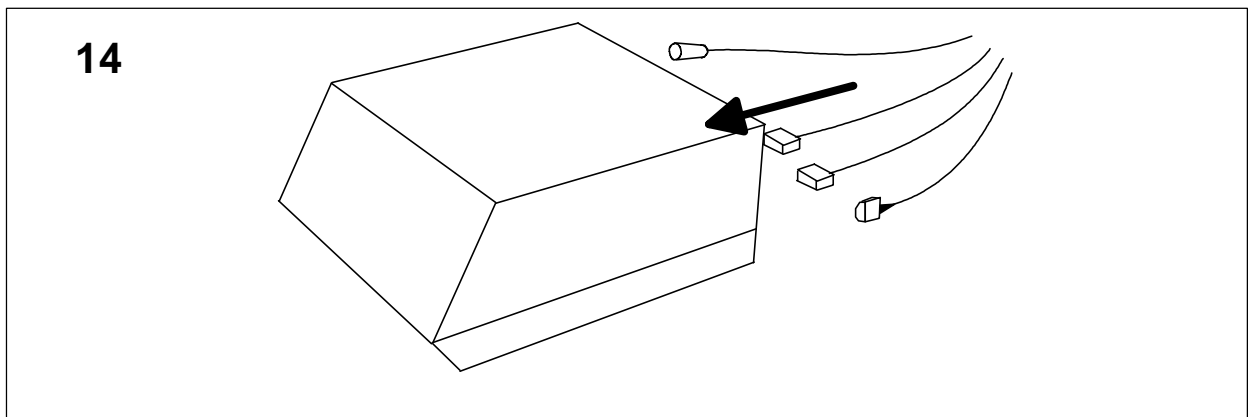
**12. Connection of the flat cable and reassembly of the monitor.**



**13.** Tighten the two screws on the back panel of the monitor.



**14.** Reconnect all cables to the monitor. Reconnect the mains cable as the last cable.



**15. Finished !**

## Connection guide for monitor C8600/C910 to PC

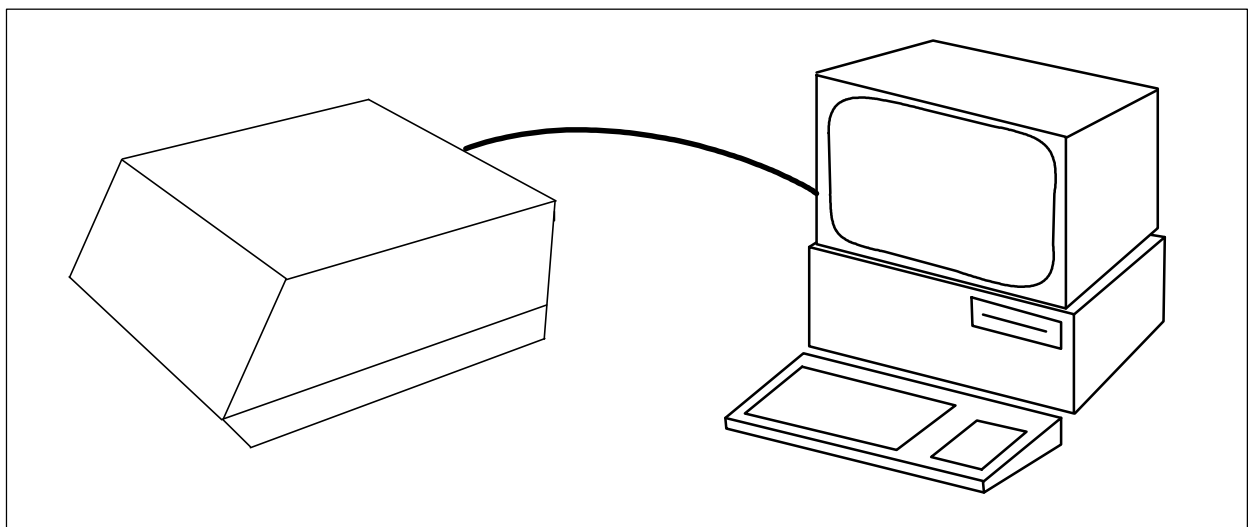


**ATTENTION:**

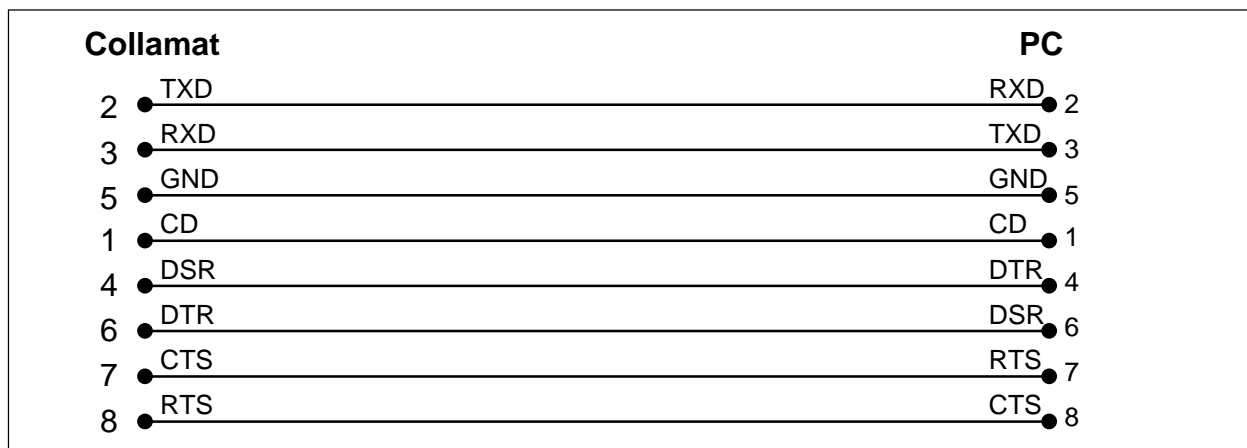
**Before working on the monitor the monitor must be switched off. It is not allowed to interconnect two monitors with the PC-connection cable. It might get damaged.**

### Procedure

The monitor must be connected to a serial port of a PC. For this purpose use the attached serial cable. The 9-pin male connector must be plugged into the monitor's rear panel (9-pin female connector). The other end of the cable has to be plugged into a serial port with 9 pins. (AT-Type) of a PC. See also the following picture:



The following picture shows the electrical connections of the 9-pole cable:



All wires are connected 1:1.

The monitor and the PC may now be turned on. On the PC a terminal software like Windows™ terminal must now be started. The communication parameters are:

| Communication parameters                | Terminal settings |
|---|-------------------|
| 9600 Baud, 8 Bit, 1 Stop Bit, No Parity | TTY, Text         |



**ATTENTION:**

If you are using a terminal software under Windows™, the PC must be fast enough to capture all data. Otherwise dataloss may occur.

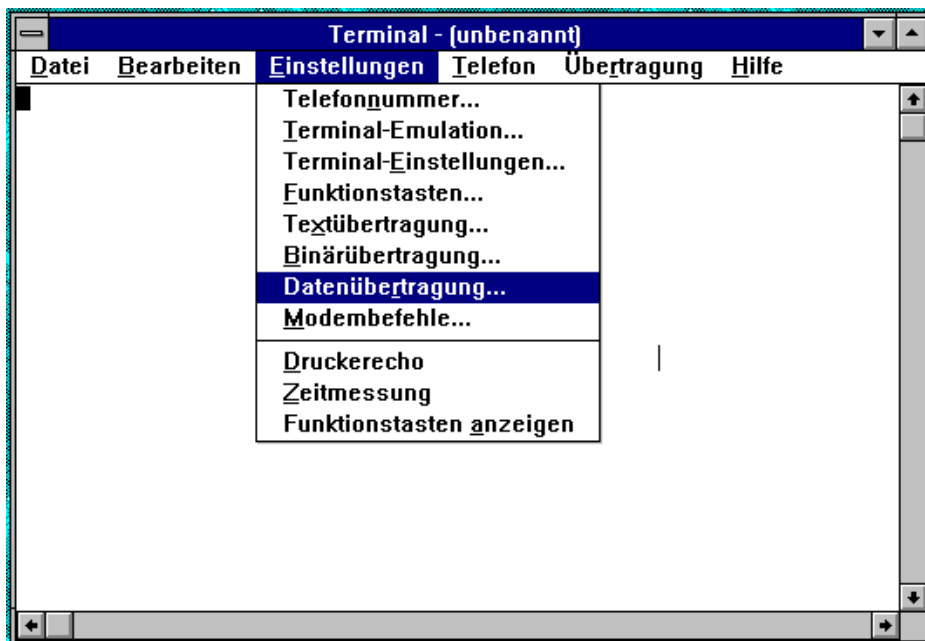
The minimum recommendations of the PC: 486, 66Mhz, 8Mbyte RAM

The following pictures show the settings for the Windows terminal. (Windows 3.1)

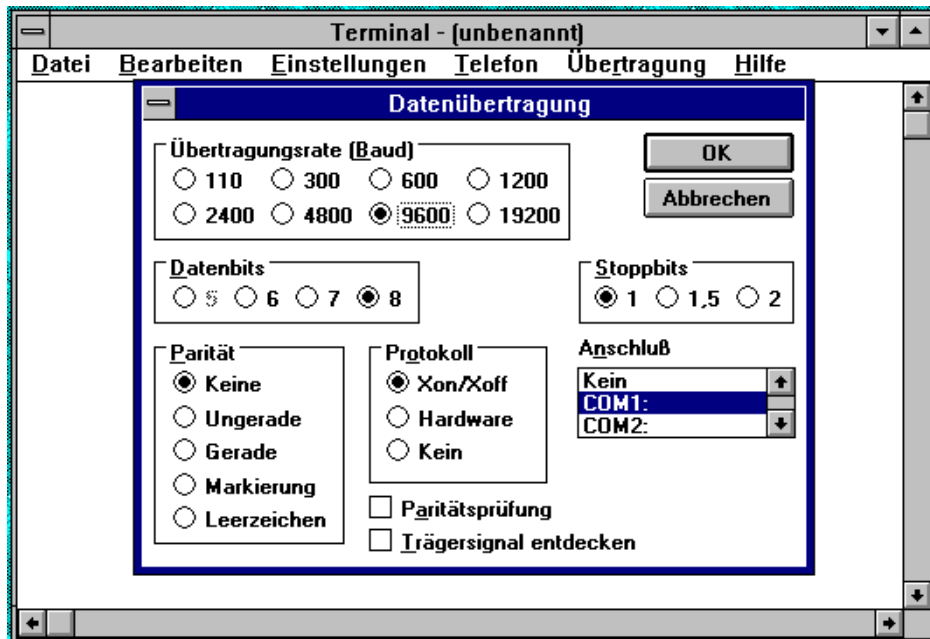
1. Select Windows™ Terminal in the program group **ACCESSORIES**:



2. Select Datatransfer in the menu **Settings**:



3. Set the following datatransfer parameters:



The port COM1 or COM2 must be the one which is connected to the monitor.  
If the terminal software is launched before the monitor is turned on, the following message will be displayed on the terminal screen. The type of monitor, the firmware release and its date are displayed:

```
: COLLAMAT 9100
: Version 1.10
: 20. Feb. 1997
```

4. To start the communication the monitor must be set to the function 'Remote Access' in the menu Service-functions. At this time the monitor displays the following message:

```
REMOTE ACCESS

Serial Port active
9600 Baud 8 Bits
```

On the terminal ':\*' will be displayed. Now the **ENTER**-key of the monitor starts the terminal-dialog.

Then the monitor displays the following message:

```
TERMINAL ACCESS
>Dump program
TX all Data
```

5. Using the arrow-keys will select a function. Then the **ENTER**-key starts the selected function.

### Dump program

This function sends all data of the actually selected program as a readable datablock to the serial port. If a serial line printer is connected to the monitor it will print out the received text. Using this text later, it will be easier to reprogram the data to an other monitor by hand. The appearance of the data matches the structure of the data in the menus. Starting this function the monitor displays the following message:

```
TERMINAL ACCESS

Sending all Data...
```

At the same time the terminal receives a datablock. The following example shows a datablock:

COLLAMAT 9100 PROGRAMM-DATA DUMP

-----  
SYSTEM DATA

-----  
Version 1.10                   Date : 20. Feb. 1997  
Serial number Controller : 00500030  
Serial number Interface : 00000064  
Working Time                   : 1 h 22 min.  
Motor running                 : 0 m  
Counter                         : 0

PROGRAM DATA

-----  
Program number                 : 1  
Program name                   : '           '  
TCY-Value                      : 30  
Label length                   : 100 mm  
Suppression Labelscanner : 0 mm  
Predispensing                 : 10.0 mm  
Position                       : 10.0 mm  
Speed measuring               : Fixed speed  
Value                          : 3.0 m/min  
Maximum speed                 : 80 m/min  
Good suppression              : 0 mm  
Labelling mode                 : Normal  
Profiling Factor               : 100 %  
Profiling Start                : 50 mm  
Profiling Length               : 30 mm

CONFIGURATION DATA

-----  
Preset Counter                 : 0  
Counter selection              : Labels  
Language                       : German  
Error handling :  
E01: S, E02: S, E03: S, E04: S,  
E05: S, E06: S, E07: S, E08: S,  
E09: S, E10: S, E11: S, E12: S,  
E13: S, E14: S, E15: S, E16: S,  
S = Stop, C = Continue, I = Ignore  
Nonstopmode                    : Off  
Adaptermagnet                 : Off  
Motordirection                 : Right  
Polarity IFEEED                : Normal

## TX all Data

This function sends all configuration data and program data of the monitor to the serial port. If the terminal software is set to receive data it may be stored to disk later. This data can then be retransmitted to the monitor later. When this function is started the monitor displays the following message:

```

TERMINAL ACCESS

Sending all Data...

```

At the same time the terminal software receives the datablock. The structure of the datablock must not be modified. The following example show a part of the datablock:

```

: COLLAMAT 9100 DATA
:040911500000000000000016000100020016
:041005D006C0032001E0000000000000000
:0420C0000000000000000000000000000000
:043000000000000101010101010101010101
:04401010101010100510050004C004F0000
:04500000001010101000000030101010101
:04601010101010101010101010101010101
:0470201010401010101010132202020202020
:P01
:140202020202020202000006400640100001E00
:14164008C0050001E00640000000000000000
:14201000001000A000A00640032001EAC0032
:9
:P02
:1403232323232323200012C0096010001F400
:14166008C0064002300640000000000000000
:14201000001000A000A00640032001E410032
:9
:
:P32
:140202020202020202000006400640100001E00
:14164008C0050001E00640000000000000000
:14201000001000A000A00640032001EAC0020
:9

```

## Datatransfer protocol for Collamat® 8600/9100 Monitors

If a monitor is in the STOP mode (Red LED RUN/STOP is on) the monitor is able to receive serial data. The communication is done with special data transfer protocol. This protocol contains commands for controlling the monitor, to store data and request data.

Data can be exchanged between a PC and a monitor or between equal monitors. This means between monitors C8600 and C8600 or monitors C9100 and C9100 respectively. Configuration data will only be stored by a monitor if the same monitor has been the data source.

This restriction helps to minimize danger of misprogramming a monitor. In this case data can be transferred to a PC and later be loaded back to the same monitor. Follow now the transfer protocol for the data exchange.

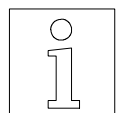


**Attention:**

**The data transmission is only recognized when the monitor stays in the STOP-mode.**

### Description of commands and data transfer

All commands and datablocks begin with a colon ':'. Then the following character determines if it's a command or a datablock. Every line or entry must be finished by a carriage-return character (\$0D).



**Note:**

**The highpen is not a content of the data transmission protocol. It is only used to display the protocol syntax.**

## Commands:

The commands are used to remote control the monitor. Data transfer is only performed when the monitor is stopped.

**Start (RUN)** : This command starts the monitor. It works similar to the RUN/STOP key. To recognize a new data transfer the monitor must first be stopped by the RUN/STOP key or by the RUN/STOP input.  
 Syntax : ':R'  
 Hex : \$3A \$53 \$0D

**Programchange** : This command is used to change a program number. The program number must have two digits. For example number 25:  
 Syntax : ':C25'  
 Hex : \$3A \$43 \$32 \$35 \$0D

**Data dump** : This command is used to start a data dump of a chosen program. The monitor sends the data in the same format as it will recognize it. For example number 12:  
 Syntax : ':D12'  
 Hex : \$3A \$44 \$31 \$32 \$0D

**Note** : Selecting number 99 will dump all programs.

**Remark** : This command helps to insert remarks into the transferred data. It helps to read comments attached to the data transferred to a PC. After the space character all characters are skipped until to the end of line. It is not allowed to insert remarks inside of data blocks.  
 Syntax : ': xxxxxxxxxxxxxxxx'  
 Hex : \$3A \$20 \$xx \$xx ..... \$0D

## Data transfer

The data transfer exchanges data of the program parameters and of the configuration of a monitor. The data contain information about the monitortype and the target address where the data have to be transferred. It is not allowed to modify the target address and monitortype. In the following examples the monitortype is declared by a 'x', the target address by a 'y'.

**Configuration** : These data are the configuration data of the monitor. The data are individual and filtered while they are received. Data of the own monitor are stored only without being filtered. Data received from another monitor are filtered and the data with no side effects are stored only. There are totally eight lines of configuration data.

```
Syntax : ':0xy00.....'
Hex    : $3A $30 $3x $30 $.. $.. .... $0D
        $3A $30 $3x $31 $.. $.. .... $0D
        .....
        .....
        $3A $30 $34 $37 $.. $.. .... $0D
```

**Programdata** : These data are the program data of the monitor. Only data of the same kind of monitor are stored. Each transfer is started first with the program number. Then the program data are transferred. The length of the data lines is constant. It must not be modified.

```
Syntax : '1xa00.....'
Hex    : $3A $31 $3x $30 $.. $.. ..... $0D
        .....
        $3A $31 $3x $32 $.. $.. ..... $0D
```

**End of data** : Each data transfer must be finished by an end of data token. The end of data closes the transfer of a data block and starts the storing process. After this token a delay of 50 ms must be passed before a new data transfer is started.

```
Syntax : '9'
Hex    : $3A $39 $0D
```

## Error messages

Error messages : Every time the monitor is stopped by an error, an error message is transferred. The message contains the number of the error and the error message which is displayed on the display. For example error 9, 'Label too long'.

Syntax : ':E Label too long'

Hex : \$3A \$45 \$20 ..... \$20 \$0D

## Examples for commands and data:

### Start:

:R

### Program change to program number 5:

:C05

### Program number 12 data dump:

:D12

### Monitor response:

:P12

:140202020202020202000006400640100001E00

:14164008C0050001E00640000000000000000

:14201000001000A000A00640032001EAC0020

:9

### Remark:

: COLLAMAT 9100 Data

### Data from/to program number 18:

:P18

:140202020202020202000006400640100001E00

:14164008C0050001E00640000000000000000

:14201000001000A000A00640032001EAC0020

:9

## Short cuts

|              |   |
|--------------|---|
| <b>ESD</b>   | <b>ElectroStatic Discharge</b>                |
| <b>RMI</b>   | <b>Radio Magnetic Interference</b>            |
| <b>GND</b>   | <b>GrouND</b>                                 |
| <b>IR</b>    | <b>Infra Red</b>                              |
| <b>LED</b>   | <b>Light Emitting Diode</b>                   |
| <b>nc</b>    | <b>not connected</b>                          |
| <b>RS232</b> | <b>Standard serial data exchange protocol</b> |

## Signal names

|              |  |
|--------------|--|
| <b>ERROR</b> | <b>Errorsignal caused by any error of the Collamat®</b>              |
| <b>FEED</b>  | <b>Signal indicating the labelling process</b>                       |
| <b>GND</b>   | <b>GrouND</b>  |
| <b>GSC</b>   | <b>Goods SScanner</b>  |
| <b>IFEED</b> | <b>Isolated FEED signal</b>  |
| <b>LSC</b>   | <b>Label SScanner</b>  |
| <b>nc</b>    | <b>not connected</b>   |
| <b>NSTPI</b> | <b>NonSToP IN-put</b>  |
| <b>NSTPO</b> | <b>NonSTop OUT-put</b>   |
| <b>READY</b> | <b>READY signal from peripheral units</b>                            |
| <b>TCY</b>   | <b>TransparenCY, control current for the label scanner IR-diodes</b> |

## Terms

**Stopping accuracy:** Accuracy of the paper transportation

**Unwinder:** Device that carries the full paperweb rolls and unwinds it

**Adapter:** Part of the labeler by which the label is peeled off from the paperweb and applied onto the products

**Rewinder:** Device that takes the empty paperweb from the traction unit and rewinds it

**CE-Mark:** Certification for the European market, means: **C**onformité **E**uropéenne

**Collamat®:** Brand name for a labeler built by Collamat Stralfors AG

**GSC: Goods S**Canner

**Flap adapter with magnet:** Adapter which moves down to the product during the labelling

**LSC: Label S**Canner

**Position:** Sticking position of a label on the good

**Predispensing:** Predispensing of a label on the peeling plate

**Motorstep:** Travelling way of the label for one motorstep

**Dispensing speed:** The speed of the goods to which the labels are stucked

**Startfrequency:** Highest possible frequency for a steppermotor to start moving without loss of steps

**Traction Unit:** Part of the dispenser with drive unit and electronic control

**The informations in this handbook reflect the state  
of the publication date.**

**We reserve the right to make design modifications.**