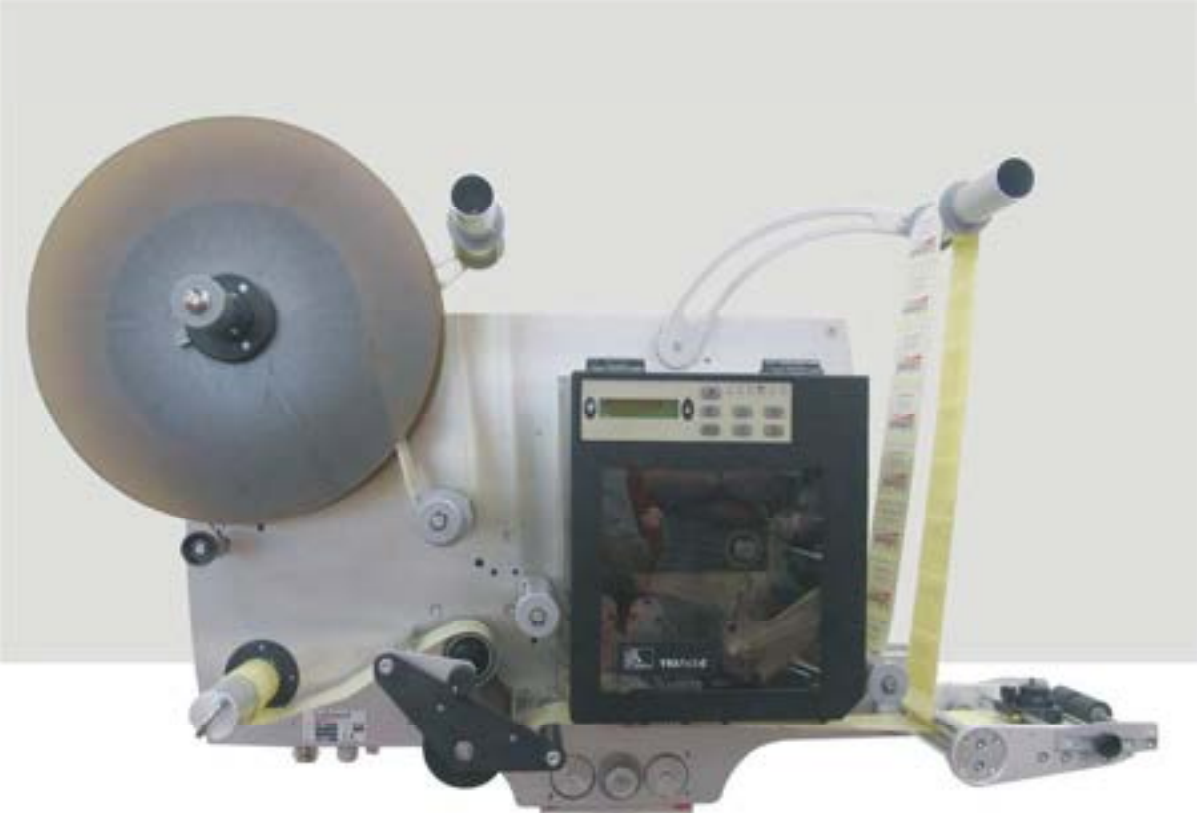
Collamat®
HM GROUP

Operating Instructions

Etiprint Inline



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These Operating Instructions are to be read before commissioning and before undertaking any work with the machine!

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1 General

1.1 Information on these Operating Instructions

These operating instructions contain important information on handling the equipment. The prerequisite for safe working is compliance with all the given safety information and handling instructions.

Beyond this, the local accident prevention regulations pertaining to the field of application of the equipment and the general safety provisions are to be complied with.

The Operating Instructions are to be carefully read through before commencing all work! They are a component part of the product and must be kept in immediate proximity to the equipment for access by personnel at any time.

When transferring the equipment to a third party, the Operating Instructions are also to be handed over.

The illustrations in these instructions, being not necessarily to scale, are to assist in depicting the facts and may deviate slightly from the actual design.

In addition to these Operating Instructions, the operating instructions for the built-in components to be found in the Appendix also apply. The information contained therein – in particular the safety instructions – must be observed without fail!

1.2 Symbol explanations

Warning notices

Warning notices in these Operating Instructions are identified by symbols. The notices are prefaced by signal words which express the magnitude of the hazard.
The notices must be complied with categorically and with caution in order to avoid accidents, personal injury and damage to property.

DANGER!
…indicates a situation of immediate danger which could lead to serious injury or death if not avoided.

WARNING!
…indicates a potentially dangerous situation which could lead to serious injury or death if not avoided.

ATTENTION!
…indicates a potentially dangerous situation which could lead to minor or slight injury if not avoided.

CAUTION!
…indicates a potentially dangerous situation which could lead to material damage if not avoided.

Tips and recommendations

NOTE!
…highlights useful tips and recommendations as well as information concerning efficient and fault-free operation.

1.3 Limitation of liability

All particulars and information in these Operating Instructions have been compiled with regard to the applicable standards and regulations, state of the art technology and our long years of experience and expertise.

The manufacturer accepts no liability for damage cause by the following:

- Failure to observe the instructions
- Non-intended use
- Deployment of untrained personnel
- Self-authorised modifications
- Technical alterations
- The use of non-approved spare parts and wear parts

The actual scope of supply can deviate from the explanations and illustrations described herein in the case of special designs, the availment of additional order options or due to the latest technical alterations.

Otherwise, the liabilities agreed in the contract of supply, the general terms and conditions of business as well as the manufacturer's conditions of supply and the statutory provisions in force at the time of conclusion of the contract, apply.

Guarantee

The manufacturer guarantees the functional capability of the applied technology and the stated performance parameters.

The period of guarantee commences from the moment of delivery of the equipment to the customer.

Wear parts

Wear parts are all those parts which come in direct contact with the material being processed or to be processed.

These components are excluded from guarantee and defect claims.

1.4 Copyright protection

The Operating Instructions are confidential. They are intended exclusively for those persons concerned with the equipment. Assignment of the Operating Instructions to a third party without prior written permission of the manufacturer is prohibited.

NOTE!

The information, texts, drawings, pictures and other illustrations contained in these Operating Instructions are copyright protected and are subject to commercial property rights. Any improper utilisation is liable to prosecution.

Reproduction in part or whole by any means or in any form as well as the utilisation and/or the communication of the contents without the explicit written consent of the manufacturer is forbidden. Violations are liable to claims for damages. The right to all other claims is reserved.

1.5 Spare parts

WARNING!
Risk of injury due to incorrect spare parts!

Incorrect or defective spare parts can lead to damage, malfunctions or complete breakdown and also prejudice safety.

Therefore:

– Only use the manufacturer's original spare parts.

Purchase spare parts from authorised dealers or directly from the manufacturer. See page 2 for the address.
A list of spare parts and wear parts can be found in the appendix.

1.6 Guarantee provisions

The guarantee provisions can be found as a separate document in the sales documentation.

1.7 Customer service

Our customer service is available for technical information.

Information on the appropriate contact person can be obtained at any time by telephone, fax, e-Mail or via the internet – see manufacturer's address on page 2

Over and above this, our staff is always interested in receiving new information arising from the application which could be valuable for the improvement of our products.

1.8 Manufacturer's declaration

See appendix for the manufacturer's declaration (in accordance with EC Machinery Guidelines 98/37/EC, Appendix II).

2 Safety

This section provides an overview of all important aspects of safety for the optimum safeguarding of personnel and also for safe and fault-free operation.

Failure to observe the handling instructions and safety information given in these instructions can result in considerable danger.

2.1 Intended use

The equipment has been conceived exclusively for the intended purpose and use as described herein.

The Etiprint Inline is a label print and dispense device for printing and applying labels and as a rule is utilised in automated packing lines for the printing and application of adhesive labels.
The equipment is fully automatic.
The working area of the equipment is to be guarded against unauthorised access.

WARNING!
Danger arising from non-intended use!

Any use beyond that for which the equipment is intended and/or any other different use can give rise to hazardous situations.

Therefore:

- Only use the equipment for the purpose intended.
- Adhere strictly to the information in the Operating Manual.
- In particular, refrain from the following applications – these are considered as non-intended use:
  - Deployment of the equipment in unsafeguarded areas.
  - Labelling of other than the aforementioned products.
  - Use of unsuitable labels.

Claims for damages of any nature arising from non-intended use are excluded.

The operating company is solely liable for all damage resulting from non-intended use.

2.2 Responsibility of the operating company

The equipment is for use in the commercial sector. The equipment operating company is therefore subject to the legal provisions with regard to health and safety y at work.

In addition to the safety at work information in these Operating Instructions, the applicable safety, accident prevention and environment protection regulations must be adhered to for the area of deployment of the equipment. It is imperative that the operating company:

- informs itself on the applicable industrial safety regulations.
- ascertains the secondary dangers when assessing a hazardous situation which result from the special working conditions at the site of deployment of the equipment.
- implements the necessary requirements for conduct given in the Operating Instructions for operation of the equipment at the site of deployment.
- regularly checks during the entire period of deployment of the equipment that the Operating Instructions compiled by it correspond to the current body of regulations.
- aligns the Operating Instructions – where necessary – with the latest legal provisions, standards and conditions of deployment.
  - explicitly regulates the responsibilities for the installation, operation, maintenance and cleaning of the equipment.
  - ensures that all employees who work on or with the equipment have read and understood the operating manual. Over and above this, the operating company must, at regular intervals, train the personnel in handling the equipment and inform them of potential hazards.

Beyond this, the operating company is responsible for ensuring that:

- the equipment is always in a technically sound condition.
- the equipment is serviced in accordance with the stated maintenance intervals.
- all safety devices are regularly inspected for completeness and functionality.

2.3 Operating personnel

2.3.1 Requirements

WARNING!
Danger of injury through inadequate qualifications!

Inexpert handling can lead to considerable personal injury and damage to property.

Therefore:

– Only allow any kind of activity to be carried out by the persons appointed for the task.

The following qualification requirements for the various areas of activity are stated in the Operating Instructions:

- **Trained persons**
  are those who have been instructed by the operating company on their assigned tasks and the potential hazards of improper conduct.
- **Specialised personnel**
  are those who, by reason of their expert training, experience and knowledge of the relevant provisions, are suitably placed to perform their assigned work and to recognise potential hazards independently.
- **Electricians**
  are those who, by reason of their expert training, experience and knowledge of the relevant standards and provisions, are suitably placed to perform work on electrical plant and to recognise potential hazards independently.
  - Electricians are specially trained for the work environment in which they are active and know the applicable standards and provisions.
  - In Germany, electricians must fulfil the provisions of the accident prevention legislation BGV A3 (e.g. electrical fitter-foreman). In other countries, the appropriate legislation applies.

Only those persons may be deployed as personnel who can be expected to carry out their work reliably. Persons whose reaction capabilities are influenced by e.g. drugs, alcohol or medicine are not to be permitted.

Furthermore, age and occupation-specific provisions applicable to the site of deployment are to be taken into account when selecting personnel.

2.3.2 Unauthorised persons

WARNING! Danger for unauthorised persons!

Unauthorised persons do not know the dangers which can come from the equipment.

Therefore:

– Keep unauthorised persons away from the working area.
– If in doubt, address the person and evict them from the working area.
– Interrupt the work for as long as the unauthorised person remains in the working area.

2.4 Personal safety equipment

The wearing of personal safety gear is necessary when working with the equipment to minimise health hazards. Therefore:

- The respective specified safety gear is to be properly donned before all work and worn during the work.
- It is imperative to note in addition the signs fitted in the working area indicating personal protective gear.

To be worn in principle

To be worn in principle with all work:

Protective clothing

Close fitting working clothes are those with minimal tear strength, close fitting sleeves and no protruding parts. They serve mainly to protect from catching in moving machine parts.

Do not wear rings, chains or other jewellery.

Protective gloves

For protecting the hands from contact with substances which are hazardous to health and when touching hot or cold surfaces.

Safety shoes

For protection against heavy falling parts and slipping on slippery surfaces.

Safety glasses with side protectors

For protecting the eyes against contact with hazardous substances and fluid spray.

2.5 Work safety and special hazards

In the following section, residual risks are stated which are the result of hazard analysis.

Observe the safety notices listed here and the warning signs in the following sections of these instructions in order to reduce health hazards and avoid dangerous situations.

Danger symbols on the equipment

The respective hazardous zones on the machine are identified by these symbols:

DANGER!
Deadly danger from electrical current!

…identifies potentially fatal situations due to electrical current. Failure to observe the safety sign can result in death or serious injury. The work to be carried out may only be performed by a qualified electrician.

WARNING!
Danger of crushing!

During operation, moving parts and objects can cause crushing resulting in extremely serious injuries and permanent bodily harm.

Therefore:

- Do not enter the hazardous area during operation.
- Always perform setting up, maintenance work and fault rectification with particular caution and attention to crushing zones.
- Wear personal safety gear during all work to protect against crushing.

Hazard symbols in the Operating Instructions

The following symbols are used in the Operating Instructions in conjunction with safety notices:

Electrical current

DANGER!
Deadly danger from electrical current!

Contact with voltage carrying parts can be fatal.

Damaged insulation or individual parts can be deadly.

Therefore:

- With damaged insulation, shut off the power supply immediately and initiate repairs.
- Only permit work on electrical equipment to be carried out by qualified electricians.
- Before all work, ensure that electrical plant is dead. Check voltage-free state!
- Before regular maintenance, cleaning and repair work, switch off the power supply and secure against re-starting.
- Never bridge fuses or render them inoperative.
- When replacing fuses, note the correct specified current strength.
- Keep dampness away from voltage carrying parts as this can lead to short circuiting.

Sharp edges and pointed corners

CAUTION!
Injury hazard at edges and corners!

Sharp edges and pointed corners can cause cuts and abrasions to the skin.

Therefore:

- Exercise caution when working near sharp edges and pointed corners.
- When in doubt, wear protective gloves.

Moving parts

WARNING!
Hazard from moving parts!

Driven, rotating or linear moving assemblies or parts can cause extremely serious injuries!

Therefore, during operation:

- The presence of persons in the hazardous area or its immediate vicinity is strictly forbidden!
- Do not remove covers such as flaps, doors, portholes or maintenance hatches.
- Do not render inoperable or bypass safety functions and/or fixtures
- Never run the equipment without closed covers or fully functioning safety equipment.
- Never reach into running machinery.

Before entering the hazardous area:

- Switch off power supply and secure against re-starting.
- Wait until all running on components have come fully to rest.
- Wait for automatic run-down and/or unloading of residual energy.

Pneumatics

WARNING!
Injury hazard from pneumatic energy (compressed air)!

Pneumatic energy can cause extremely serious injuries.

Pneumatically powered parts can move unexpectedly.

When individual components are damaged, air at high pressure can escape and e.g. cause eye injuries.

Therefore:

- Only permit trained personnel to carry out work on the pneumatics.
- Before commencing work on the pneumatic equipment, first render it pressure-free. Note the pressure receiver. This must also be emptied completely.
- Do not set pressure above the maximum values.

Sharp paper edges

CAUTION!
Injury hazard!

Sharp paper edges can cause minor to fairly serious cuts.

Therefore:

– In principle wear the prescribed personal protective gear for all work.
– Always carry out work with particular attention caution.

Falling objects

WARNING!
Injury hazard from falling objects!

During operation, objects can fall unchecked and cause injury.

Therefore:

– Do not enter the hazardous area during operation.
– Wear personal protective gear when setting up and when carrying out maintenance work or fault rectification.

Dirt and objects left lying around

CAUTION!
Stumbling hazard from dirt and lying objects!

Dirt and objects left lying around can be slipped on or tripped over and cause considerable injury.

Therefore:

– Always keep the working area clean.
– Remove objects if no longer needed.
– Identify stumbling zones with yellow/black banding.

Signs

WARNING!
Injury hazard from unreadable symbols!

Adhesive labels and signs can become dirty or unrecognisable over time.

Therefore:

– Always maintain safety, warning and operating notices in a good, readable condition.
– Renew signs or labels which have become damaged or unrecognisable immediately.

2.6 Conduct in dangerous situations or accidents

Preventative measures

- Always be prepared for accidents or fire!
- Keep first aid equipment (first aid boxes, blankets etc.) and fire extinguishers ready to hand.
- Familiarise personnel with accident alarm, first aid and rescue equipment.
- Keep access ways for rescue vehicles clear.

In the event: act accordingly

- Activate the Emergency Stop immediately.
- Initiate first aid procedures.
- Retrieve people from the danger zone.
- Inform staff responsible at the location.
- Call for doctor and/or fire brigade.
- Clear the access ways for rescue vehicles.

2.7 Safety equipment

WARNING!
Deadly danger from non-functioning safety equipment!

Safety equipment provides for the highest level of operating safety. Even when safety equipment makes working processes more awkward, under no circumstances may these be rendered inoperative. Safety is only guaranteed with intact safety equipment.

Therefore:

– Before commencing work, check that the safety equipment is fully functional and correctly installed.
– Never render safety equipment inoperative.
– Do not obstruct access to safety equipment such as Emergency Stop buttons, rip-cords etc.

NOTE!

For further information on the position of the safety equipment see section “Design and function”.

2.8 Securing against re-starting

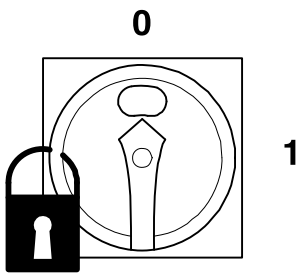


Fig. 1: Main switch "0" and secure

Securing main switch

If a main switch is installed within the safety chain, this can be secured in position "0" with a padlock against re-starting.

DANGER!
Deadly danger from disallowed re-starting!

When the main switch has been secured with a padlock, there could be persons present in the danger zone. Switching on could fatally injure these persons.

Therefore:

– Never remove the lock without authority.
– Before removing the lock, ensure that there are no persons present in the danger zone.

Switch secured with lock
on the: …….. at ……hrs.
DO NOT SWITCH ON
The lock may only be removed
by: ……
after it has been ensured that no persons are present in the danger zone.

Fig. 2: safety notice 1

Switched off
on the: …….. at ……hrs.
DO NOT SWITCH ON
Switch-on may only be implemented
by: ……
after it has been ensured that no persons are present in the danger zone.

Fig. 3: safety notice 2

Securing against re-starting:

1. Switch off power supply.
2. Where possible, secure the switch with a lock and affix a clearly visible notice on the switch as per Fig. 1.
3. The key is to be kept by the member of staff named on the safety notice.
4. If it is not possible to secure a switch with a lock, display a notice as per Fig. 2.
5. After all work has been performed, ensure that no persons are still present in the danger zone.
6. Ensure that all safety equipment is installed and fully functional.
7. Only now may the notice be removed.

3 Technical data

3.1 Dimensions of the Etiprint and monitor

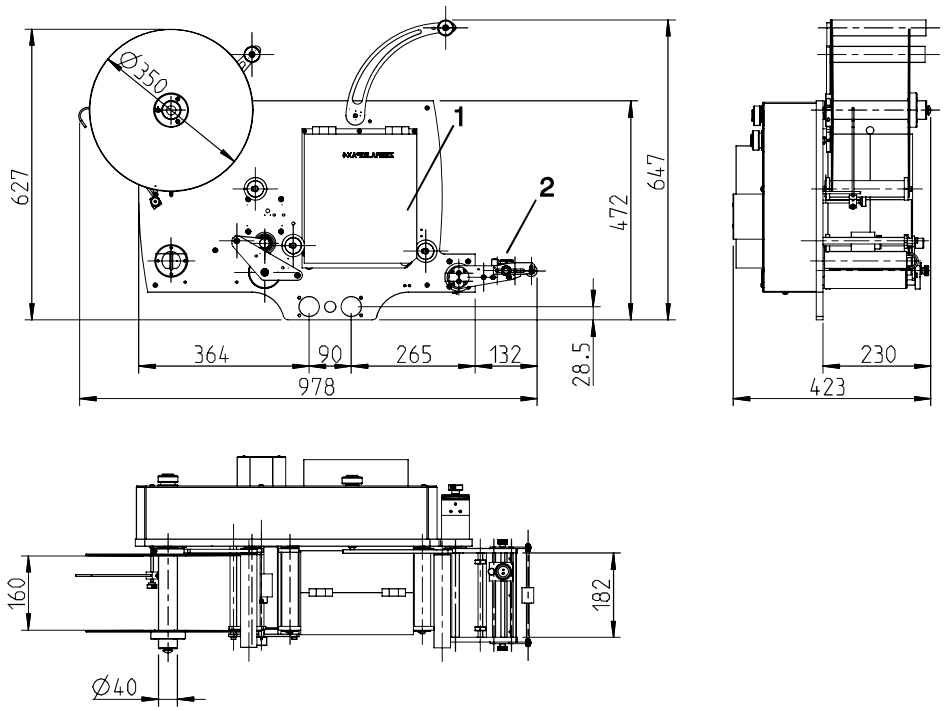


Fig. 4: Epiprint dimensions

1 Printer (make of printer can vary, customer-specific)
2 Standard applicator (applicator can vary according to deployment)

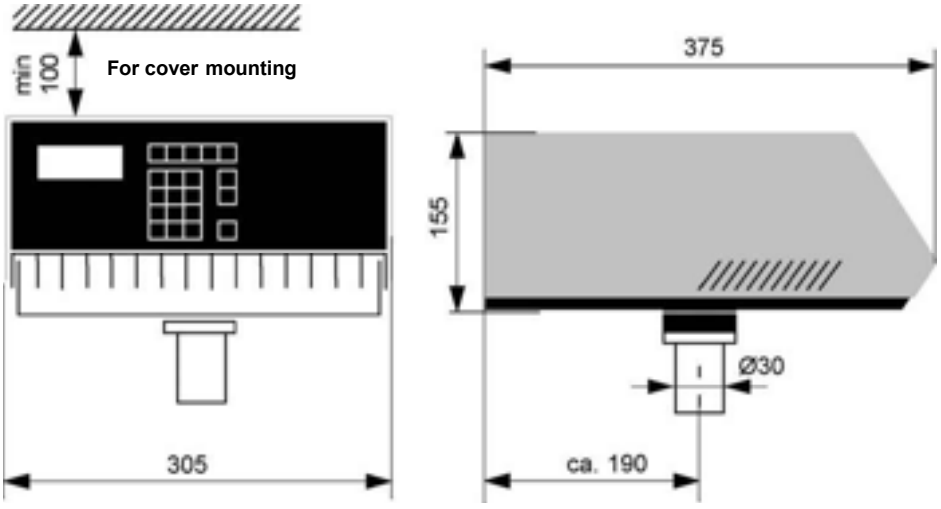


Fig. 5: Monitor dimensions

3.2 Technical data

Connected loads

Designation	Value	Unit
Connected voltage, monitor, AC	230 V/ 1~ / 50-60	V / Ph / Hz
Power consumption, max.	1,3	KVA
Current consumption, max.	5,5	A
Mains fuses, external	10	AT
Protection	IP 40	
Compressed air (service unit optional)	6	bar
Quality class to ISO 8573-1	Class 5	Dry air, non-lubricated

Operating conditions

Designation	Value	Unit
Temperature range	+5 ... +40	°C
Temperature change, max.	10	°C/h
Storage temperature	-10 ... +60	°C
Relative humidity, max., not condensed	15 - 95	%
Environment	Avoid direct sunlight, dampnes and dust exposure	

3.3 Emissions

Designation	Value	Unit
Sound level, max.	≤ 70	dB(A)

3.4 Weight

Sub-assemblies	Value	Unit
Etiprint	44,5	kg
Monitor	12,5	kg

3.5 Performance values

Designation	Value	Unit
Duration of label sequence, max.	6	s
Number of labelling sequences, approx.	720	h^{-1}
Dispensing speed	3 – 40/50	m/min

3.6 Label roll dimensions

Designation	Value	Unit
Backing band roll (Ø x width)	max. 350 x 170	mm
Backing band roll centre size	min. 40	mm
Label width	160	mm

3.7 Mounting

Designation		
Carrier	project specific	

3.8 Name plate

A nameplate is located on the Etiprint and a further one on the monitor. It states:

- Type -
- Year of manufacture 2006
- Serial number -

4 Design and function

4.1 Equipment overview

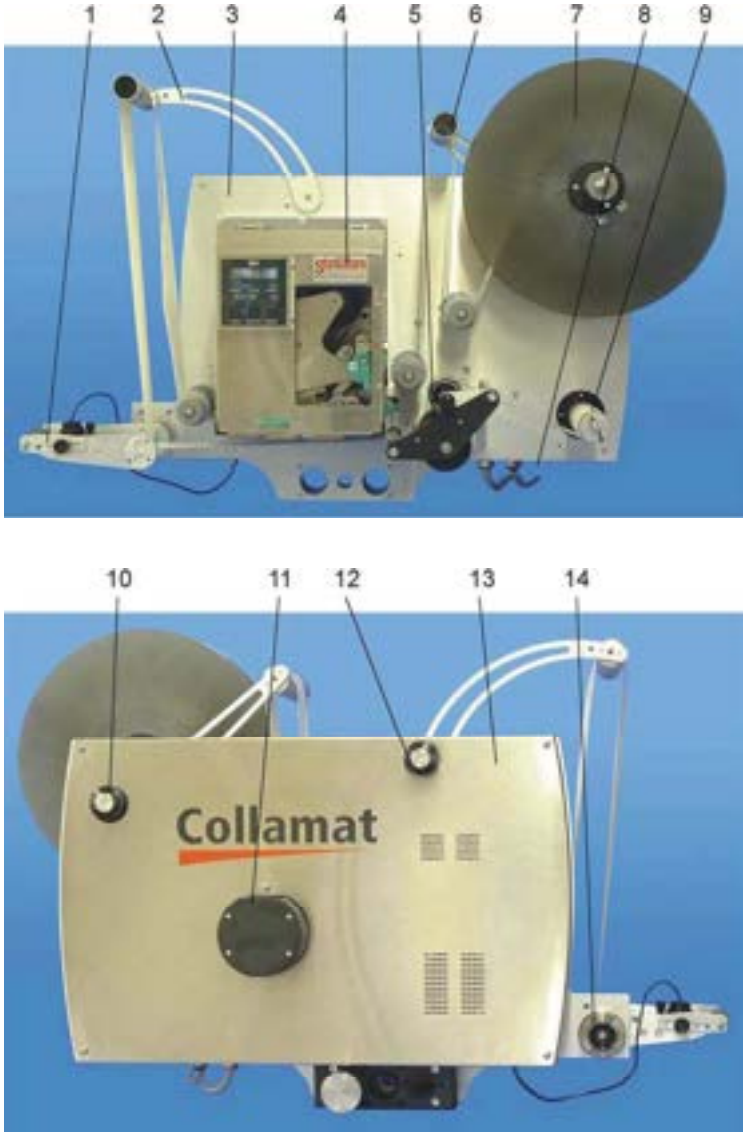


Fig. 6: Sub assembly overview

1 Applicator (variable)
2 Loop hanger
3 Base plate
4 Printer (make can vary)
5 Draw mechanism
6 Unwinding hanger
7 Unwinder
8 Printer mode switch
9 Rewinder
10 Adjusting wheel, unwinding hanger
11 Dispenser motor
12 Adjusting wheel, loop hanger
13 Cover
14 Dispensing applicator adjusting wheel

4.2 Variants

The Etiprint is available in the following variants:

- Various makes of printer
  (SATO, ZEBRA, DATAMAX, etc.)
- Plant-specific applicators

4.3 Equipment design

The printer as well as the peripheral equipment is mounted as a unit on a main plate. All mechanical parts are surface treated to resist corrosion. The draw unit roller is provided with a special coating for permanent non-slip torque transmission to the label strip backing paper. The roll up force of the rewinder is adjustable. The draw unit roller is easily rotated by hand when the dispenser is switched off (power OFF) to simplify setting up.

The Etiprint Inline can be aligned horizontally and vertically by means of linear units which can be fitted optionally.

4.4 Function

The Etiprint Inline is a label print-dispense machine for printing and applying labels.

The thermo-printer prints the labels with the specified data: text, lines, bar codes, graphics etc. The labels are unwound by a passive roller which allows various outside and inside diameters to be used.

The printed labels are drawn forward over a loop hanger to the peel-off side and applied. The empty backing paper is then led further over the draw mechanism to the rewinder.

The loop hanger has the following advantages:

- The speed of the dispenser is independent from the printing speed.
- Printing and dispensing is simultaneous and independant of each other which allows very high working speeds.
- All the advantages of the dispenser can be exploited without having to consider the printer. (For instance, “Measuring dispenser speed”; multiple labelling; over-edge labelling; and so on.)

Operating sequence

The input signal to label (at input GSC2, see circuit diagram) from the process controller triggers a dispensing sequence. The label strip is pulled forward by the draw mechanism, the label is released at the peel-off side and stuck down.

As soon as the loop becomes shorter or the hanger is pulled down, the printer starts and prints labels until the hanger has reached its upper initial position again.

On its downward travel the hanger coverers the following two steps.

- **1st step, hanger up => print start**
  The printer commences printing.
- **2nd step, hanger down => error**
  The hanger has been pulled too far down, an error message appears on the Collamat display: End of labels. The dispenser stops. After the error has been rectified and the hanger returns to its initial position, this can be confirmed with ENTER and the dispenser restarted with RUN.

See also the Collamat 8600/9100 monitor operating instructions in the appendix to this document.

4.5 Operating and display elements

Operating elements are provided at the printer and Collamat monitor (see operating instructions for the thermo-printer and the operating instruction for the monitor in the appendix).

5 Transport, packaging and storage

5.1 Safety information for transporting

Improper transporting

DANGER!
Hazard from machine falling or tipping over!

The weight of the machine can injure a person and cause serious crushing!

Therefore:

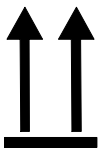
– Use a pallet to suit the self-weight and size on which the equipment can be moved with a fork lift.
– Use suitable tackle for lifting the equipment (slings etc.) which has been designed to take the weight of the equipment.
– Take care to avoid straining individual components when arranging the slings.

CAUTION!
Damage due to improper transporting

Improper transporting can cause considerable damage. Therefore:

– When offloading the packages and transporting within the works, always proceed with the greatest care and caution.
– Observe the symbols on the packing.
– Only use the slinging points provided.
– Only remove the packing immediately prior to commencing installation.

5.2 Symbols on the packing.



This way up

The arrows point to the top side of the package. These must always point upwards otherwise the contents could become damaged.

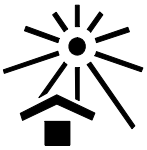
Fragile

Identifies packages with fragile or sensitive contents.

Handle the package with caution, do not drop and do not expose it to impacts.

Keep dry

Keep packages dry and protect from wetness.



Keep away from heat

Proteect packages from heat and direct sunlight.

5.3 Transport inspection

Check the delivery for completeness and damage from transport promptly upon receipt.

Where there is noticeable external transport damage, proceed as follows:

- Do not accept delivery or only conditionally.
- Note the extent of the damage on the delivery documents or the transport company's delivery note.
- Initiate claim.

NOTE!

Notify each claim as soon as it is recognised. Claims for damages can only be validated within the applicable time limit.

5.4 Transport

Transporting the Etiprint which is mounted on a plate must be done with a fork lift or suitable belts. The lifting tackle must be designed to take the weight of the equipment.

For future transporting:

- Close off all open connections with protective caps (prevents ingress of dirt and water)
- Secure loose cables
- Secure against jolting
- Drain off all process and operating media
- Fasten the equipment securely prior to transport (e.g. screw down onto a pallet)
- Transport and place the equipment using a fork lift or sling with belts and lift with suitable lifting tackle.

5.5 Packaging

Packaging

The individual packages are packed appropriately for the anticipated transport conditions. Only environmentally friendly materials are used for the packaging.

The packaging should protect the individual components against transport damage, corrosion etc. until installation. Therefore don't destroy the packaging and only remove it shortly before installing.

Dealing with the packaging material

If there has been no agreement made to return the packaging, separate the materials according to type and size and use them again or recycle them.

CAUTION!
Environmental damage due to improper disposal!

Packing materials are valuable raw materials and in many cases can be used again or sensibly prepared and recycled.

Therefore:

– Dispose of the packaging material in an environment friendly manner.
– Observe the locally applicable disposal regulations. If necessary, assign the disposal to a specialist company.

5.6 Storage

Storing the packages

Store the packages in the following conditions:

- Do not store in the open.
- Store in a dry and dust free place.
- Do not expose to aggressive media.
- Protect from direct sunlight.
- Prevent mechanical shocks.
- Storage temperature: -10 to +60 °C
- Relative humidity: max. 95%, non-condensed.
- If storing for longer then 3 months, check the general condition of all parts and the packaging regularly If necessary, refresh or renew the mothballing agents.

NOTE!

Under certain circumstances, information on storage which go beyond the requirements stated here is to be found on the packages. These are to be complied with accordingly.

6 Installation

6.1 Safety

Fundamentals

WARNING!
Injury hazard from improper installation!

Inexpert installation can lead to serious personal injury or damage to property.

Therefore:

– All installation work may only be carried out by qualified personnel authorized and instructed by the operating company.
– Ensure ample working space prior to commencing the installation.
– Have regard for order and cleanliness at the installation site! Loose parts and tools lying around or on top of each other are a source of accidents.
– During installation, ensure that:
  the arrangement and seating of the components is correct.
  all fastening elements are correctly assembled.
  torque settings for screws are adhered to.
– Before switching on, make sure that all covers and safety devices are correctly installed and function flawlessly.

Electrical plant

DANGER!
Deadly danger from electrical current!

Contact with voltage carrying components constitutes a deadly hazard.

Electrically powered components which are switched on can move unchecked and cause extremely serious injuries.

Therefore:

– Prior to commencing work, switch off the electrical power supply and secure against re-starting.
– Any work on the electrical plant, individual electrical components or the connections may only be carried out by qualified electricians.

Personnel

- The installation may only be carried out by trained specialist personnel.
- Work on the electrical plant may in principle only be carried out by qualified electricians.

Personal safety equipment

Wear the following protective gear when doing any work on the installation and initial commissioning:

- Protective work clothing
- Protective gloves
- Safety shoes
- Eye protection

Securing against re-starting

DANGER!
Deadly danger from disallowed re-starting!

The danger exists during installation that the power supply may be inadvertently switched on again. This constitutes a deadly hazard for persons within the danger zone.

Therefore:

– Prior to commencing work, switch off all electrical power supplies and secure against re-starting.

6.2 Preparation

Check before commencing installation:

- Compatibility of the local power supply with the specification on the name plate and in the technical data.
- Compliance with the specified placement conditions (→ requirements for the installed location).
- Compliance with the conditions for local surroundings (→ operating conditions).
- Agreement on the responsibilities for the installation and initial commissioning.
- All necessary documentation is on hand.
- Completeness and sound condition of the necessary tools and aids.
- Compliance with the local applicable safety regulations.

6.3 Requirements of the installed location

Foundation

The floor for the positioning of the equipment must:

- have adequate load carrying capacity
- have a non-slip surface
- be level

Positioning conditions

The equipment must be positioned so that:

- its stability is guaranteed.
- escape routes and rescue equipment are freely accessible.
- the safety of personnel is guaranteed.
- adequate lighting is available.
- all machine components are easily accessible and that adequate working space is provided for maintenance and the rectification of faults.

The installed position is to take account of keeping free the areas of movement and escape routes in compliance with the provisions of regional or country-specific regulations applying to the deployment location.

Stability

If the Etiprint Inline is to be mounted on a movable stand, this must be set up with a stability of 10° in each direction of inclination; see the following illustration.

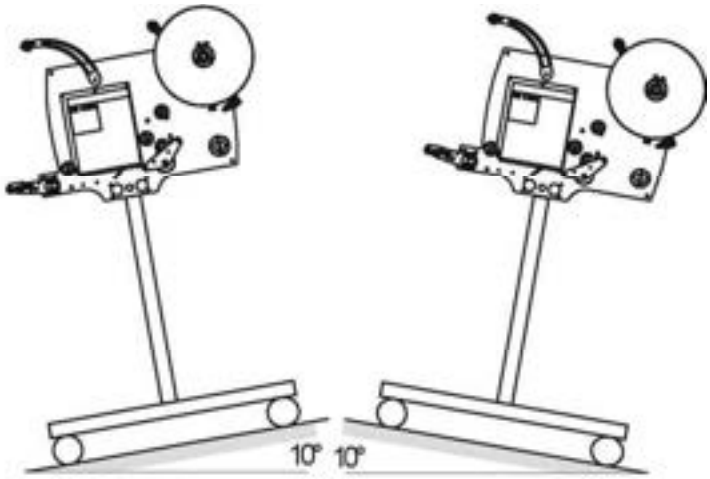


Fig. 7: Stability of the Etiprint

6.4 Installation

1. Remove all transport fixtures including adhesive tapes.
2. Position the equipment in the intended location.
3. The Etiprint Inline is fastened to the machine frame via a double column adjusting mechanism. It must be aligned parallel to the conveyor belt. This concerns the parallelity as well as the horizontal and lengthwise alignment to the conveyor.
4. Check moving parts for free running.
5. Install protective guarding provided by the operating company where necessary (→ safety equipment).
6. Connect the compressed air supply line provided by the operating company (where necessary). Have regard for the safe laying of the line.

WARNING!
Injury hazard!
Free moving components can cause serious personal injury.

Therefore:

- The equipment may not be operated without appropriate safety equipment which prevents access to the working machinery.
- The safety equipment must fulfil the following safeguarding conditions and guarantee that:
  - no hazard can emanate from opening the equipment access barrier.
  - the equipment cannot re-start independently after being interrupted.

NOTE!

The safeguarding condition is satisfied when it is certain that no labelling sequence can be triggered.

This can be achieved, for example, through a combination of the following technical and organisational measures.

- *A safety switch interrupts the pallet conveyor when the guard is opened.*
- *The pallet conveyor can only be enabled by acknowledging the interruption.*
- *The acknowledgement is made at a location outside of the danger zone.*
- *Prior to the acknowledgement a check is made to ensure that no one is present in the danger zone.*

6.5 Electrical connection

1. Connect the equipment mains cable to the local electrical power supply (see name plate for connected voltage). Have regard to stumbling hazards when laying cable.
2. Connect control lines e.g. product sensor (see electrical circuit). Have regard to the safety aspects when laying the lines.

Labeller:

The labeller signals and drive motor feeds are routed to the Etiprint Inline from the Monitor 8600/9100 via two dedicated cables. These are through connected via two cable entries. They are permanently connected to the Etiprint Inline and can only be disconnected at the Monitor 8600/9100.

The product sensors and speed detection are connected at the interface in accordance with the **Collamat 8600 Technical Handbook**. The terminals for these signals are to be found on thee interface under the Etiprint Inline cover.

The drive motor must be connected in accordance with the **Collamat 8600 Technical handbook**. The motor is also connected here at the interface.

(See also electrical circuit in the appendix)

6.6 Inspection after completion of the installation work

- Check for correct installation.
- Check operating company's installed safety equipment for completeness, condition and safe function.
- Instruct operating personnel and determine the location where the Operating Instructions are to be kept.
- After complete installation and inspection of the equipment as well as instructing the operating personnel, the equipment is ready for commissioning.

7 Commissioning and operating

7.1 Safety

Fundamentals

WARNING!
Hazard from improper initial commissioning!

The initial commissioning requires trained specialist personnel with far reaching experience.

Errors during the initial commissioning can lead to dangerous situations or cause considerable damage to property.

Therefore:

– Therefore all work for the initial commissioning should be carried out by employees of the manufacturer or their representatives or by trained personnel.
– In principle (even with later transfer to a new location), assign the necessary work accorded by a renewed installation and subsequent re-commissioning to the manufacturer or persons authorised by them.

WARNING!
Injury hazard from improper operation!

Inexpert operation can lead to serious personal injury or damage to property.

Therefore:

– Operation may only be carried out by adequately qualified personnel authorised and instructed by the operating company.
– Carry out all the operating steps in accordance with these Operating Instructions.
– Before commencing work, make sure that all covers and safety devices are correctly installed and function flawlessly.
– Never render safety equipment inoperable during operation.
– Have regard for order and cleanliness in the working area! Loose parts and tools lying around or on top of each other are a source of accidents.

Handover to the operating company is done after initial commissioning and conducting of trial runs by the manufacturer,

Thereafter, operation by the operating company for the intended use and purpose is permitted as specified in these Operating Instructions.

Personal safety equipment

In principle, wear the following with all work during operation:

- Protective work clothing
- Protective gloves
- Safety shoes
- Eye protection

7.2 Settings

Safety

WARNING!
Hazard from switched on labelling plant!
Prior to setting up the Etiprint, the labelling plant is to be switched off and secured against inadvertent re-starting (interrupting the supply voltage)!

Before the Etiprint can be taken into service, the following settings must be made.

- Height setting of the Etiprint.
- Threading the label strip
- Print mode
- Inclination of the dispensing applicator
- The dispensing applicator press-on roller
- Label sensing
- Collamat monitor for operating the dispenser

Height adjustment

The height adjustment of the Etiprint Inline has a big influence on the precise and controlled labelling of the product.

- If the Etiprint Inline is set too high above the product, the labels will not be applied properly. The labels can slip or form bubbles.
- If the Etiprint Inline is set too low, this can graze the product and damage it or lead to bottlenecking.

The exact height setting should therefore be made after a trial run.

Threading the label strip

Thread the label strip through up to the peel-off ledge as shown in the illustration (see also the threading schematic in the separate printer operating instructions):

- Draw the label strip forward by approx. 1m.
- Peel the labels from this part of the strip.
- Then open the pressure roller by rotating the knob (**1**).
- Lay the backing paper (protective paper) around the peeling ledge and thread it through as per the threading schematic.
- Tighten the winding mandrel (**2**) and close the pressure roller again.
- Adjust the side guides to the label strip edge.

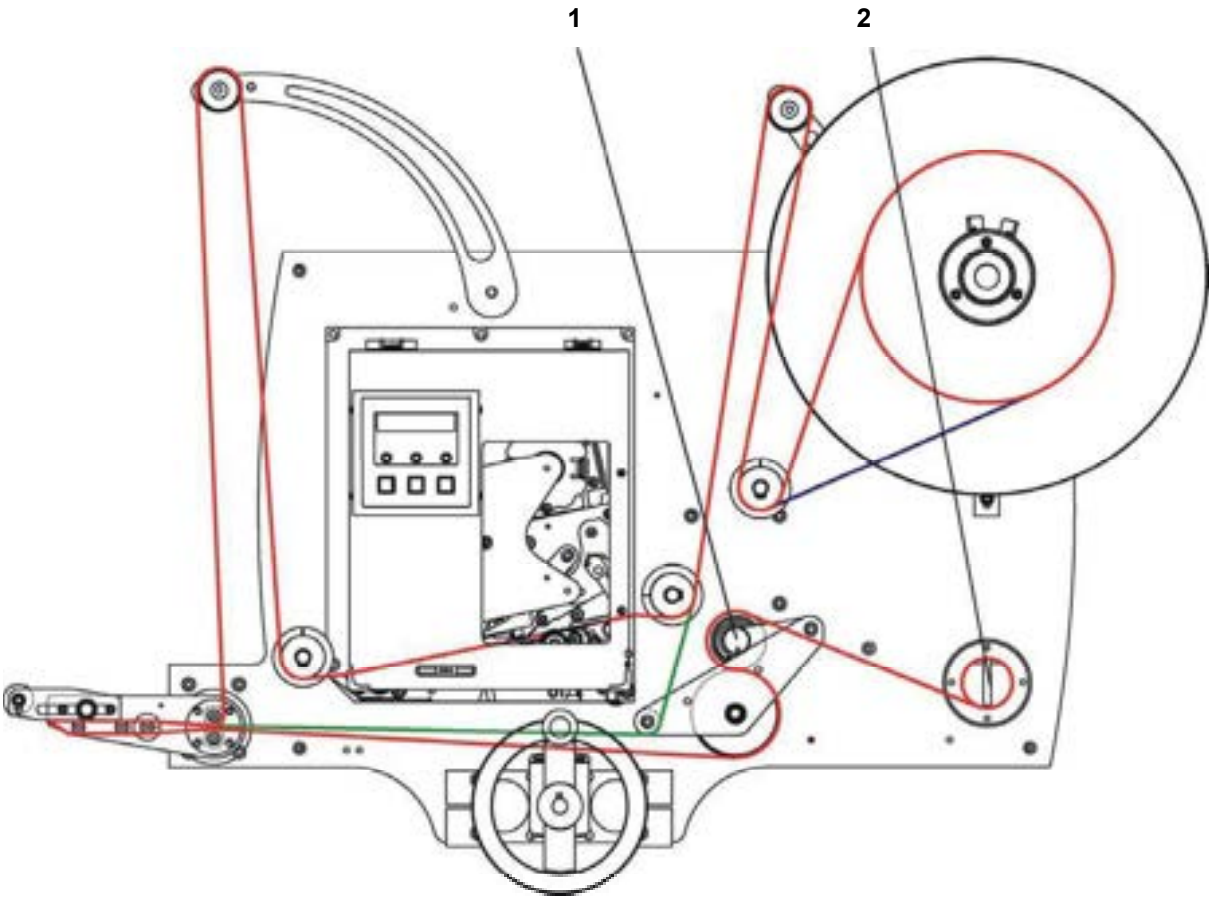


Fig. 8: Threading the label strip

Green label path: dispensing only, no label printing
Red label path: outside wound label rolls
Blue label path: inside wound label rolls

Setting print mode

The thermal printer can be controlled in two different ways. The changeover switch for the print mode is located on the lower side directly next to the cable entries.

- **REPRINT mode**
  This mode enables the “endless” printing of labels which always have the same printed content. In this mode, only one label is transmitted to the printer. This label is then printed automatically. Each time the hanger is pulled down it activates the “REPRINT” input of the printer. The printer prints the same label again. The printing data remains stored in the printer until a new label is sent to it (next job) or the printer is switched off.

NOTE!
In this mode, it is not possible to print different data as the label last entered is always printed.

- **NUMERATOR mode**
  This mode allows variable data to be printed on the labels. In this mode, the number of labels to be printed must be transmitted to the printer. In its rest position (up), the hanger activates the “PAUSE” input of the printer. So no labels are printed. Only when the hanger is pulled down is the “PAUSE” input released and the printer starts printing until the hanger comes back up again. The remainder of the print job is held in the printer and the printing continues when the hanger signals the next enable.

NOTE!
When all the labels sent have been printed, the printer stops as no more print data is available. The hanger is then pulled down by the dispensed labels and the dispenser is stopped. Therefore enough labels must be sent to the printer to avoid this error.

(See also section “Loop hanger switch”)

Setting print mode (cont.)

If labels are still present in the printer and a new job is to be started, the printer must briefly be switched off then on again to erase the “old” data not yet printed.

NOTE!

If the labels are to be numbered, it is a big advantage to use the printer’s internal numerator. Using the internal numerator, only one label is sent to the printer. The printer numerates all further labels independently. If numerating is executed by other external software, each label is sent to the printer singly. In the case of large numbers of labels, this can lead to a strain on the computer.

Setting the inclination of the dispensing applicator

The dispensing applicator dispenses the labels. At the peel-off end, the backing paper with the labels is drawn over the peel-off ledge. This causes the labels to be released from the backing paper.

The inclination of the dispensing applicator can be adjusted to improve label application.

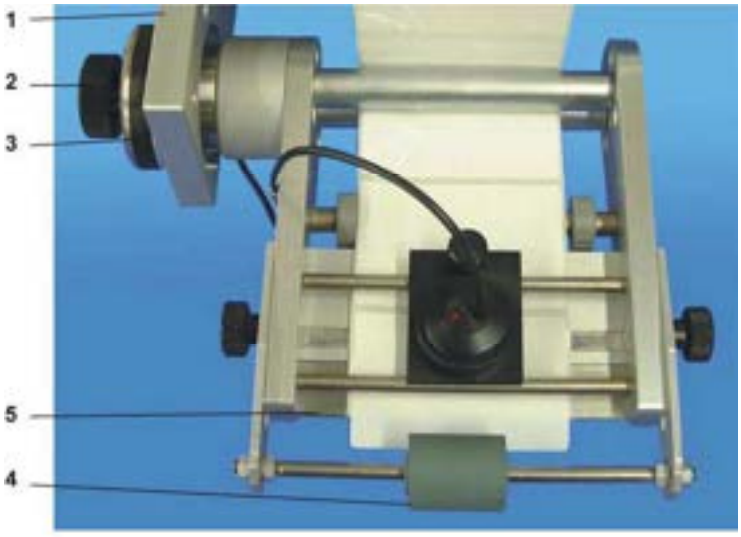


Fig. 9: Dispensing applicator

1	Base plate	**4**	Press-on roller
2	Knurled nut	**5**	Pull-off ledge
3	Cog wheel		

Setting the inclination of the dispensing applicator (cont.)

Procedure:

Loosen the knurled nut (2) **on the rotating mechanism** (3) **then pull the cog wheel out by hand. Set the desired applicator inclination and re-tighten the knurled nut**

NOTE!

If the applicator inclination is so great that the two paper strips between the two guide rollers rub against each other, then the returning backing paper should be threaded under the second guide roller.

Setting the dispensing applicator press-on roller

The applicator press-on roller must be adjusted according to label and product.

Procedure:

- horizontal adjustment with the knurled screw **1**
- vertical adjustment with the hexagon screw **2**

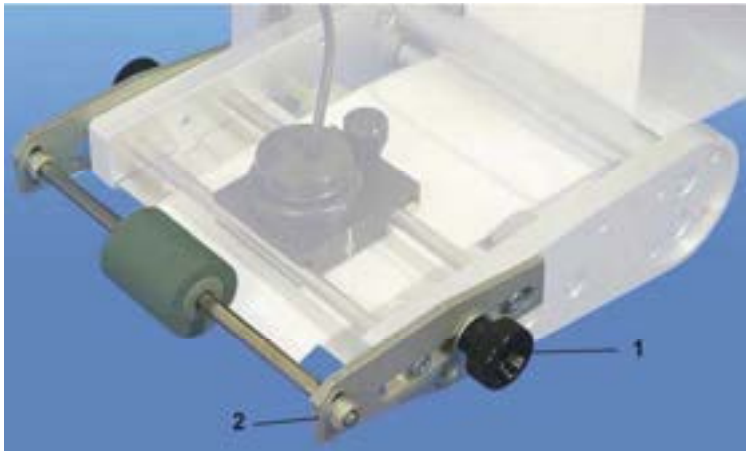


Fig. 10: Press-on roller

1 Knurled screw **2** Hexagon nut

Setting the label sensing

The optical label sensing is responsible for the precise label stop.

By loosening the knurled screw (**4**) the sensing can be pushed to the side or taken right out for cleaning. The optimum sideways position is at the middle of the label.

The optimum sensing clearance above the label is approx. 0.1mm. To set this clearance, the clamping screw (**1**) must be loosened. Then a peeled-off label is stuck on to the label lying on the backing paper. This “sandwich” is now drawn under the label sensing while the sensing head is pulled up and held there. The sensing head is then lowered on to “sandwich” and the clamping screw re-tightened

NOTE!

To achieve a high level of switching precision, the label strip must always be under slight draw tension.

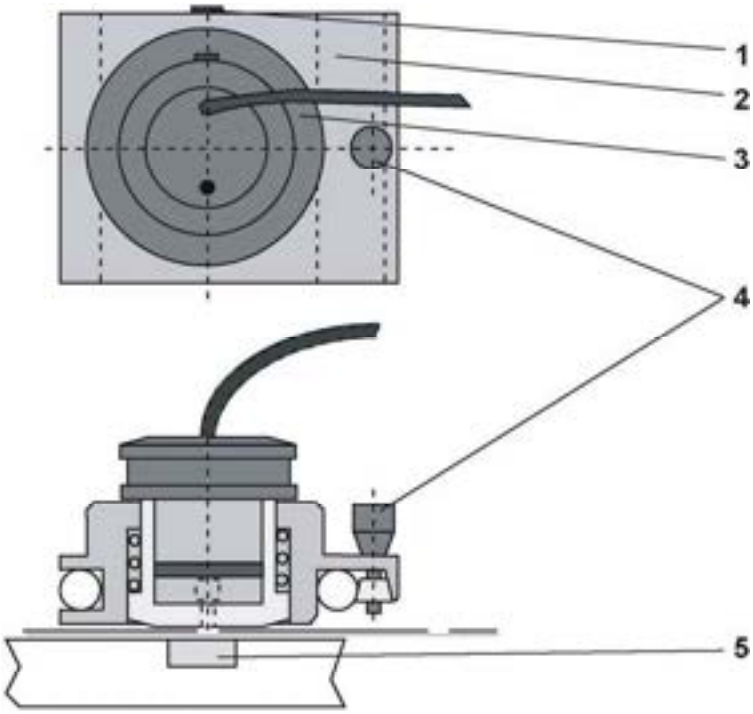


Fig. 11: Label sensing

1	Clamping screw	**4**	Knurled screw
2	Housing	**5**	Mirror
3	Sensing head		

Setting the label sensing (cont.)

Now the sensitivity of the label sensing has to be set at the monitor (see Collamat 8600/9100 monitor operating instructions).

The precision achievable and the suitability of the gaps for sensing depend on the material used.

With the automatic detection of the sensitivity, the paper strip has to be drawn forward via the **ON** button (at the monitor) until the label being sensed is standing over a grid (see illustration 15). A mark on the side of the sensing head pinpoints the exact position of the label sensing. The automatic detection is started with **ENTER** or aborted with **ESC**. After detection, the value found is displayed. If the sensing cannot be calibrated on the backing paper, an error message is displayed.

When specifying the sensitivity manually, the value is entered by hand. This function is used mainly for calibrating “difficult” labelling materials.

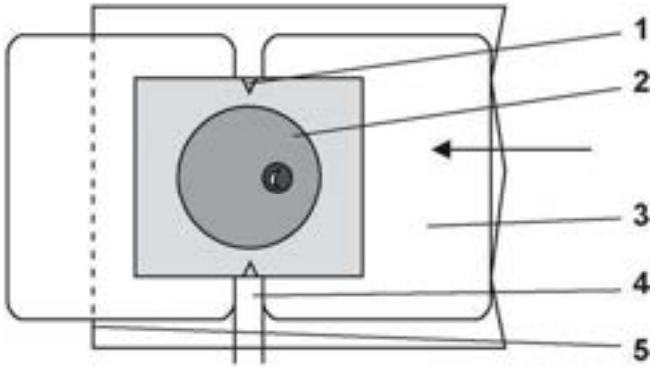


Fig. 12: Label sensing

1	Mark above the grid	**4**	Grid
2	Label sensing	**5**	Pull-off ledge
3	Label		

7.3 Setting the dispenser / monitor

The Etiprint Inline dispenser is controlled from the connected monitor. Adjusting the monitor for good labelling is described in the handbook for the Collamat 8600/9100 monitor operating instructions.
The most important settings are:

- dispensing speed (speed in m/min)
- pre-dispensing
- stick-down position (position)
- Dispensing single labels (activate label)

Setting the dispensing speed

The Etiprint Inline dispensing speed must be as fast as the conveyor belt speed.

- If the speed is too low, the commodities can become caught on the labels or the labels torn from the pull-off ledge. This can tear the backing paper. This gives rise to missing labels.
- If the dispensing speed is too high, the labels can form bubbles and creases on the product. The labelling will be poor or inexact.

The dispensing speed can be set to a fixed value or synchronised with the conveyor belt speed. More details on this can be found in the Collamat technical handbook documentation.
The adjusting and matching of the dispensing speed is described in the Collamat 8600/9100 handbook monitor operating instructions.

The dispensing speed is set via the menu option **Programming -> Speed**.
The dispensing speed lies between 3...40/50 m/min (draw mechanism motor).

The printer speed (print speed) is independent of the dispensing speed due to the loop hanger.

It must be guaranteed that the spacing selected between the products is great enough.

Setting the pre-dispensing

The pre-dispensing is the length of the label which is pushed out over the pull-off ledge.

Setting the label pre-dispensing is done via the menu option **Programming -> Pre-dispensing**.

If the pre-dispensing value is increased, this becomes effective directly after adjusting the pre- dispensing. If the pre-dispensing is set to a smaller value than that previously set, the alteration becomes effective after one label is dispensed.

NOTE!

If the pre-dispensing is set greater than the length of the label, this can lead to malfunctioning of the labeller!

Position setting

The **position setting** function serves to correct the position of the label on the product. Using this function compensates for laborious mechanical adjustment to the product sensing on the conveyor plant.

Adjustment of the position of the label on the product is done via the menu option **Programming -> Position**.

The position value enables the labelling position to be delayed by up to 1000 mm. During the delay while the position value is being anticipated, no products are detected or labelled

NOTE!

If the position value is set greater than the product spacing, not all products will be labelled!

Dispensing single labels

Single labels can also be dispensed via the monitor without triggering the product sensing. This function is called up via the menu option **Labelling operation -> Trigger label** (see Collamat 8600/9100 monitor operating instructions)

7.4 Starting up

Proceed as follows with starting up:

- Load or replenish labels.
- Switch the monitor main switch (at the back) to **ON**.
- Switch on the thermal printer.
- The settings have been correctly made and checked (see section 7.2 and 7.3).
- The labelling sequence can be effected via the enable signal from the product sensing.

7.5 Switching off

To switch off the Etiprint, proceed as follows:

- Switch the monitor main switch to OFF.
- Switch off the thermal printer.

8 Maintenance

8.1 Safety

Fundamentals

WARNING!
Injury hazard from improperly performed maintenance work!

Inexpert maintenance can lead to serious personal injury or damage to property.

Therefore:

- Maintenance work may only be carried out by personnel authorised and instructed by the operating company.
- Inform operating personnel prior to the commencement of maintenance and repair work.
- Ensure ample working space prior to commencing the work.
- Have regard for order and cleanliness at the installation site! Loose parts and tools lying around or on top of each other are a source of accidents.
- If components have been replaced:
  - Note correct fitting of spare parts.
  - Replace all fixing elements properly.
  - Adhere to torque settings for screws.
- Before switching on again, make sure that all covers and safety devices are correctly installed and function flawlessly.
- After finishing the maintenance work, check the functioning of the safety equipment.

Pneumatics

WARNING!
Injury hazard from compressed air!

Compressed air present in the pneumatic plant can escape unexpectedly or set pneumatically driven components in motion and cause serious injuries.

Therefore, before commencing any work:

- Switch off the pneumatic plant and secure against re-starting.
- All pressure carrying components are to be rendered pressure-free.

Electrical plant

DANGER!
Deadly danger from electrical current!

Contact with voltage carrying components constitutes a deadly hazard.

Electrically powered components which are switched on can move unchecked and cause extremely serious injuries.

Therefore:

– Prior to commencing work, switch off the electrical power supply and secure against re-starting.
– Any work on the electrical plant, individual electrical components or the connections may only be carried out by qualified electricians.

Personal safety equipment

To be worn in principle with all maintenance work:

- Protective work clothing
- Protective gloves
- Safety shoes
- Safety glasses

Securing against re-starting

DANGER!
Deadly danger from disallowed re-starting!

The danger exists during maintenance work that the power supply may be inadvertently switched on again. This constitutes a deadly hazard for persons within the danger zone.

Therefore:

– Prior to commencing work, switch off all electrical power supplies and secure against re-starting.

Environmental protection

The following information on environmental protection is to be observed:

- Remove escaping, used or excess grease from all greasing points which are manually supplied with grease and dispose of in accordance with the applicable local regulations.
- Collect oil from oil changes is suitable containers and dispose of in accordance with the applicable local regulations.

8.2 Maintenance plan

The maintenance work required for ensuring optimum and fault-free operation is described in the following sections. The maintenance intervals are to be adhered to.

Where increased wear is established through regular checks on components or assemblies, the operating company is to shorten the maintenance intervals in line with the actual signs of wear. Alterations to normal operation (higher power input, temperatures, vibration, noises etc) can be assumed to impair the functions. To avoid malfunctions which can bring about direct or indirect injury or damage to persons and property, the maintenance personnel responsible must be notified without delay.

With queries on maintenance work and intervals:
contact the manufacturer (see Service address → page 2).

In addition to these Operating Instructions, the operating instructions for the built-in components to be found in the Appendix also apply. The information contained therein – in particular the safety instructions – must be observed without fail!

Interval	Maintenance work	To be carried out by
Daily	Clean off dirt, dust and glue residue from the draw unit roller, pressure roller and press-on roller (see section 8.3)	Operator
	Check moving parts for free-running	
	Visual control of the equipment for condition and damage	
Monthly	Clean contamination from the entire equipment	Operator
	Inspect condition and fault-free functioning of cables, switches and safety equipment.	Electrician
Half yearly	Check all fixing screws for tightness and re-tighten where necessary. Adhere to the torque settings!	Operator
In accordance with the printer operating instructions	Service printer in accordance with the printer operating instructions (see appendix for printer operating instructions).	Operator

8.3 Cleaning

In the case of surface contamination, proceed as follows:

1. Switch off plant and secure against re-starting.
2. Remove contamination in the proper manner. Note here:
   - Do not use aggressive cleaning agents.
   - Soak up oil deposits with oil absorbing materials (e.g. sawdust).
   - Dispose of cleaning rags and process remains in accordance with the applicable local regulations.
   - After cleaning work, check that all previously opened covers and safety equipment are properly closed again and fully functional.

CAUTION!
Damage to equipment possible through improper cleaning!

Aggressive cleaning agents and implements can damage or destroy the guide plates, pneumatic hoses, electrical cables and adjacent components. Therefore:

– Do not use cleaning agents containing aggressive substances.

– Never remove glue residues using sharp-edged or pointed implements, knives or similar tools.

NOTE!

Always remove adhered labels as quickly as possible. The longer they remain adhered to the equipment, the stronger the adhesion becomes!

9 Malfunctions, repair and maintenance work

This section describes possible causes of malfunctions and their rectification.

Should, as a consequence of over-average intensive use the same malfunctions repeatedly occur, the maintenance intervals must be shortened commensurate with the actual workload.

In the case of malfunctions which cannot be rectified with the help of the following information, contact the manufacturer (→ S. 2)!

9.1 Safety

Fundamentals

WARNING!
Injury hazard from improper fault rectification!

Inexpert fault rectification can lead to serious personal injury or damage to property.

Therefore:

– All work on fault rectification may only be carried out by adequately qualified and instructed personnel.
– Ensure ample working space prior to commencing the work.
– Have regard for order and cleanliness at the installation site! Loose parts and tools lying around or on top of each other are a source of accidents.
– If components have to be replaced:
  Note correct fitting of spare parts.
  Refit all fixing elements properly.
  Adhere to torque settings for screws.
– Before switching on again, make sure that all covers and safety devices are correctly installed and function flawlessly.

Pneumatics

WARNING!
Injury hazard from compressed air!

Compressed air present in the pneumatic plant can escape unexpectedly or set pneumatically driven components in motion and cause serious injuries.

Therefore, before commencing any work:

– Switch off the pneumatic plant and secure against re-starting.
– All pressure carrying components are to be rendered pressure-free.

Electrical plant

DANGER!
Deadly danger from electrical current!

Contact with voltage carrying components constitutes a deadly hazard.

Electrically powered components which are switched on can move unchecked and cause extremely serious injuries.

Therefore:

– Prior to commencing work, switch off the electrical power supply and secure against re-starting.
– Any work on the electrical plant, individual electrical components or the connections may only be carried out by qualified electricians.

Personnel

- The work on fault rectification described here can be carried out by the operator unless stated otherwise.
- Some work may only be carried out by specially trained personnel or exclusively by the manufacturer. This will be indicated separately in the description of the individual malfunctions.
- Work on the electrical plant may in principle only be carried out by qualified electricians.
- Replacement of components and parts may only be carried out by specialist personnel.

Personal safety equipment

In principle, wear the following with all work during fault rectification:

- Protective work clothing
- Protective gloves
- Safety shoes
- Safety glasses

Securing against re-starting

DANGER!
Deadly danger from disallowed re-starting!

The danger exists during fault rectification that the power supply may be inadvertently switched on again. This constitutes a deadly hazard for persons within the danger zone.

Therefore:

– Prior to commencing work, switch off all electrical power supplies and secure against re-starting.

Environmental protection

The following information on environmental protection is to be observed during fault rectification:

- Remove escaping, used or excess grease from all greasing points which are manually supplied with grease and dispose of in accordance with the applicable local regulations.
- Collect oil from oil changes is suitable containers and dispose of in accordance with the applicable local regulations.

Conduct with malfunctions

The following apply in principle:

1. In the case of a malfunction which presents a direct danger to persons or property, actuate the Emergency Stop immediately.
2. Switch off all energy supplies and secure against re-starting.
3. Inform staff responsible at the location.
4. Depending on the type of malfunction, determine the cause from the authorised specialist personnel responsible and have it rectified.

9.2 Re-starting after fault rectification

After error or fault rectification:

1. Reset the Emergency Stop device.
2. Acknowledge error message or fault at the controller.
3. Ensure that no persons are present in the danger zone.
4. Start up in accordance with the information in the section “Starting up”.

9.3 Malfunction table

Malfunction	Possible cause	Fault rectification	To be carried out by
Equipment won't switch on	No mains voltage	Check power supply	Operator
	Mains switch on thermal printer or monitor not switched on	Switch on mains	Operator
	Fault with electrical plan	Determine cause and rectify	Electrician or manufacturer
Equipment activated but won't run	Operating company's safety equipment blocked or malfunctioning	Determine cause and rectify Finally, check that no persons are present in the equipment danger zone and acknowledge the interruption	Specialist personnel authorised by the operating company
	Fault with the safety chain for the entire plant		
Equipment doesn't label or labels incorrectly	Wrong setting at dispenser or monitor	Check settings	Operator
No printing	Printer not switched on	Switch the operating switch on the printer to "ON"	Operator
	No labels	Check label supply and load new label roll if necessary	
		Check the loop hanger setting (switch off!)	
	Fault with printer	→ Printer operating instructions	Specialist
Poor printout	Label paper unsuitable	Load new label roll	Operator
	Fault with printer	→ Printer operating instructions	Specialist
Drive motor switches off (display on monitor)	Motor overloaded	Look for cause of overloading and rectify (e.g. too high friction in labelling path)	Specialist
Motor rotates in the wrong direction	Wrong setting in ROTATION DIRECTION monitor menu	Correct setting	Operator
Motor jams at high dispensing speed	Too much friction in paper path	Check paper brake	Specialist
		Check unwinding hanger	
		Reduce friction e.g. affix Teflon tape to the pull-off ledge	
Draw unit roller loose when equipment switched on	Key in draw roller broken or worn	Check key and replace if necessary	Specialist

Malfunction	Possible cause	Fault rectification	To be carried out by
Miscellaneous faults	Plugged connection loose or defective	Check all plugged connections for correct seating and function	Electrician Pneumatic specialist

9.4 Performing maintenance and repair work

Maintenance and repair work which can be carried out by a specialist or electrician is itemised below (see appendix for spare parts).

Safety

DANGER!
Deadly danger from disallowed re-starting!

The danger exists while working on the equipment that the power supply may be inadvertently switched on again. This constitutes a deadly hazard for persons within the danger zone.

Therefore:

– In principle, energy supplies (electrical current, pneumatics) to the equipment are to be switched off and secured against inadvertent re-starting prior to commencing the work.

9.4.1 Positioning the pressure roller

NOTE!

The pressure roller is fitted with a self-aligning ball bearing – it is therefore important that the pressure roller runs centrally on the paper path.

9.4.2 Adjusting the rewinder clutch force

The rewinder clutch force is factory set. If adjustment is necessary, proceed as follows:

NOTE!
Before removing the winding mandrel, any backing material present must be removed.

Procedure:

- Remove the winding mandrel (**1**) after undoing the screw (**2**).
  - Rotate screw (**3**) inwards = harder clutch
  - Rotate screw (**3**) outwards = softer clutch

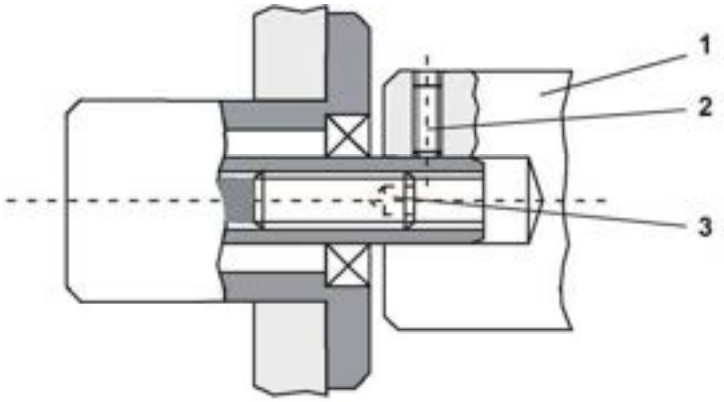


Fig. 13: Set clutch force

1 Winding mandrel
2 Fixing screw
3 Adjusting screw

9.4.3 Setting the hanger spring tension

The spring tension is to be set o that the retraction force is not greater than required by the hanger to return itself. To adjust, push in the rotating knob (1) and set it to the appropriate spring tension. The hanger should be held firmly while adjusting the spring tension. Finally, let the rotary knob go and it will detent in the new position.

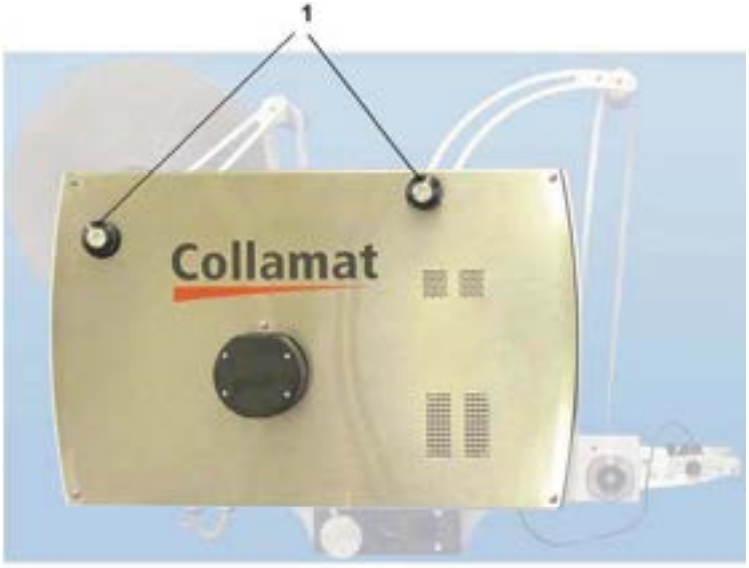


Fig. 14: Setting the hanger spring tension

1 Rotary knob for adjusting the spring tension

9.4.4 Changing the pressure roller

The pressure roller is a wear part which, depending on load and handling can become less or more quickly worn out. With labelling, it should be noted that the backing paper runs between the pressure roller and the draw unit roller. If the backing paper is wider than the pressure roller, this should sit centrally on the backing paper.

Procedure:

- Remove the cover on the reverse side.
- Carefully undo the front plate (6) and remove it.
- Loosen rotary knob (7) and pull it off.
- On the reverse side, undo the lugged axle (5) and remove it to the front.
- Undo the screw (2) on the pressure roller (3) and pull the pressure roller forward from the pinch roller axle (1).
- Push the new pressure roller onto the pressure axle and fit.

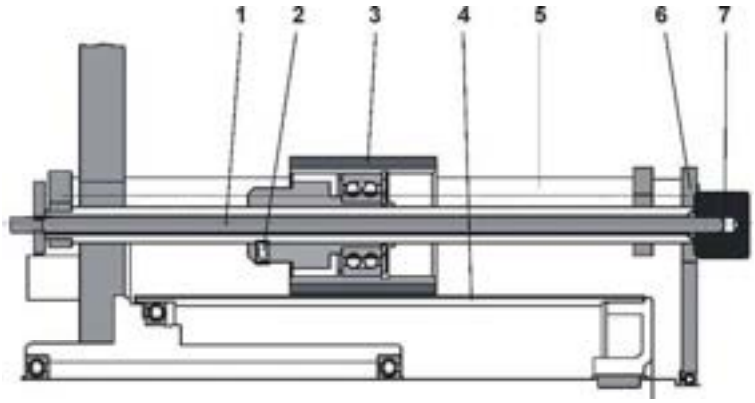


Fig. 15: Changing the pressure roller

1	Pinch axle	5	Lugged axle
2	Screw	6	Front plate
3	Pressure roller	7	Rotary knob
4	Draw unit roller		

9.4.5 Changing the draw unit axle

If the draw unit axle is damaged, this will have to be replaced.

Procedure:

- Undo the front plate (**9**) and remove.
- Remove the retaining ring (**7**) from the draw roller axle.
- Pull the draw roller (**3**) from the roller bearing flange (**2**) and the drive shaft (**4**).
- Be careful not to damage the key (**6**).
- Refitting the draw unit roller is carried out in reverse order

CAUTION!

When refitting, use a new key where possible. The key is a wear part!

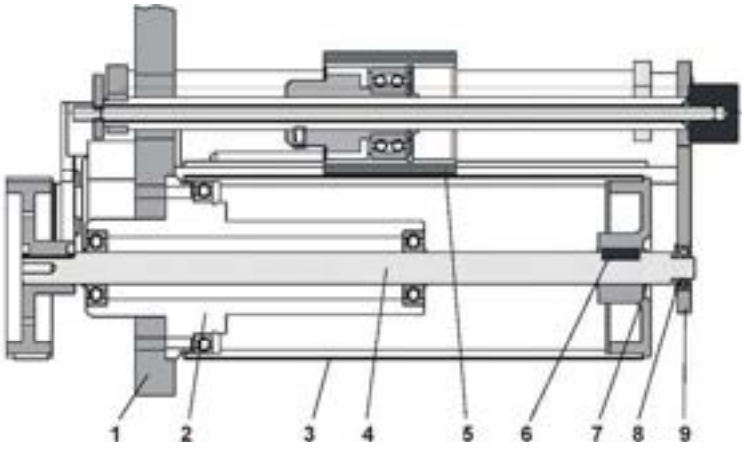


Fig. 16: Changing the draw unit roller

1	Base plate	**6**	Key
2	Roller bearing flange	**7**	Retaining ring
3	Draw unit roller	**8**	Ball bearing with flange
4	Drive shaft	**9**	Front plate
5	Pressure roller		

9.4.6 Setting the loop hanger switch

The loop hanger activates two successive micro-switches via adjustable curves. The curves are mounted directly on the hanger axle. Each switch-point is individually adjustable.

Switch 1: Print enable

This switch enables the printing. The switch-point is mainly dependant on the label length and throughput of the labeller. If the throughput rate is high, then the switch-point must be as far up as possible to enable the buffering of a large label reserve. It must be noted that in the rest state, when the labels are finished printing, the label strip always remains slightly under tension. The hanger must not move onto its stop!

Switch 2: Stop printing

This switch stops the label printing with the display message **End of labels.** This switch is a safety switch which prevents the labels being torn from the printer. If this error occurs, the ERROR relay, which can be tapped at the rear of the Collamat monitor, also closes sand the equipment stops. After the error has been rectified and the hanger returns to its initial position, the error message can be erased with ENTER and restarted with RUN*.

Cause of switch-off via the loop hanger switch:

- End of labels / end of film
- Print head is opened
- Print job has ended.
- Other errors (displayed on monitor)

The switch-point should be set as low as possible so that the hanger is only one label length away from the lower stop.

Adjustment: Adjusting the cams for the micro-switch triggering.

Fig. 17: Micro-switch at the loop hanger

1 Switch 1
2 Switch 2
3 Switch 3

* See also Collamat 8600/9100 monitor operating instructions

Switch 3: (Reserve)

9.4.7 Changing the mirror in the applicator

If the mirror can no longer be cleaned or is damaged, it must be replaced.

Procedure:

- Undo the seven screws (**8**) on the outer applicator lever plate (**1**).
- Loosen the mirror (**3**) from the dispener bar and replace it.
- Refit in reverse order.

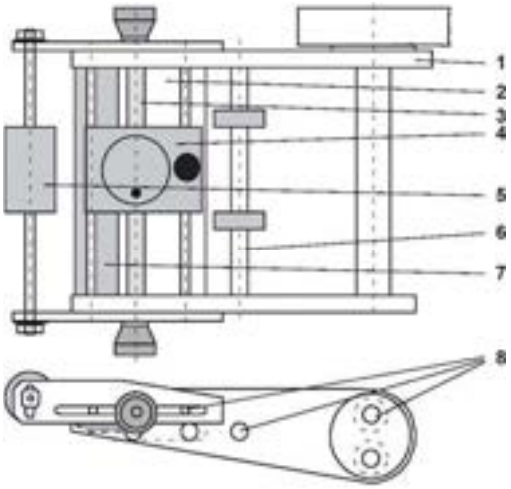


Fig. 18: Changing the mirror

1	Applicator lever	**5**	Press-on roller
2	Dispenser bar	**6**	Guide shaft
3	Mirror	**7**	Pull-off ledge
4	Optical label sensing	**8**	Screws

9.4.8 Replacing the pull-off ledge

If the pull-off ledge is damaged or worn, this will have to be replaced.

Procedure:

Undo the seven screws (**8**) on the outer applicator lever plate (**1**). (see Fig. 18)

Undo the two screws on the pull-off ledge (**7**) and replace it.

Refit in reverse order.

NOTE!

When fixing the pull-off ledge (7) under the dispenser bar (2), the pull-off ledge must be fitted precisely into the step in the dispenser bar.

9.4.9 Adjusting the belt tension

If the label strip is not being conveyed correctly, the toothed belt may have to be readjusted.

Procedure:

- Remove the cover of the Etiprint on the reverse side. Undo the screws for this.
- The labeller belt tensioning is adjusted via a belt tensioner (**1**) at the toothed belt (**2**).
- The tensioning screw (**3**) for adjusting the belt tension is slackened with a Torx screw driver. The belt tensioner is now displaced until the toothed belt runs stretched over the toothed wheels.
  - If the belt tension is too low, the toothed belt will not be driven properly.
  - If the belt tension is too high, the stepped motor can become jammed

NOTE!

The belt tension must be set tight enough so that the toothed belt doesn't jam when the drive motor is turning.

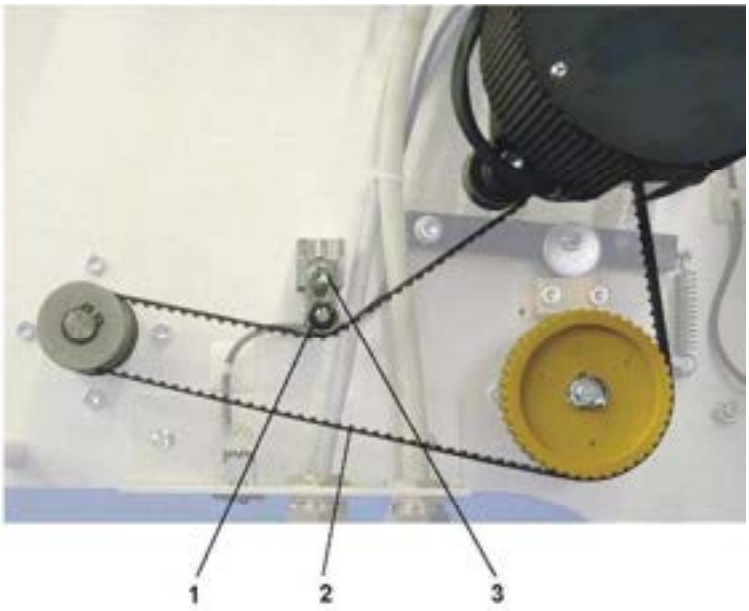


Fig. 19: Adjusting the belt tension

1 Belt tensioner
2 Toothed belt
3 Tensioning screw

9.4.10 Changing the toothed belt

If the toothed belt is damaged, it will have to be replaced.

Procedure:

- Remove the cover of the Etiprint on the reverse side. Undo the screws for this.
- The tension of the toothed belt (**2**) is slackened right off at the belt tensioner (**1**). Then the toothed belt can be taken off the toothed wheels and replaced.
- When refitting, it must be noted that the toothed belt (2) is lying correctly on the motor drive cog (3) and runs centrally between the toothed cog flanges.
- The toothed belt must be re-tensioned correctly.
  - If the belt tension is too low, the toothed belt will not be driven properly.
  - If the belt tension is too high, the stepped motor can become jammed

NOTE!

The belt tension must be set tight enough that the toothed belt doesn't jam when the drive motor is turning.

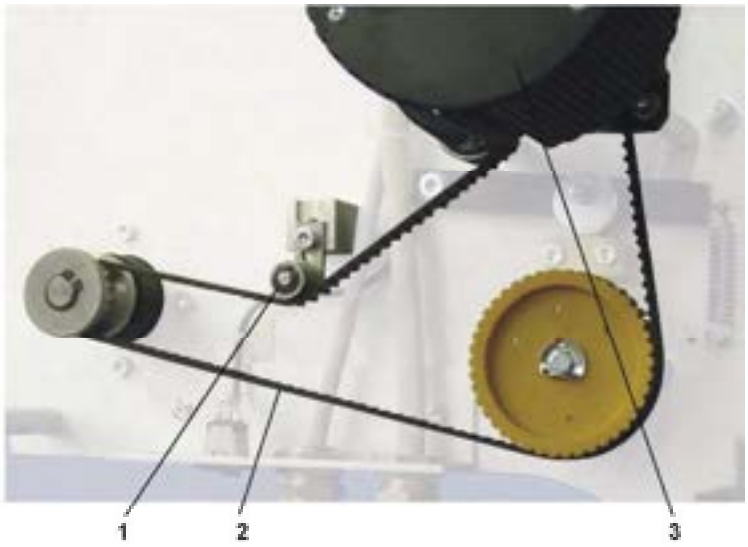


Fig. 20: Changing the toothed belt

1	Belt tensioner	**3**	Motor
2	Toothed belt		

9.4.11 Changing the drive motor

If the drive motor is defective, it will have to be replaced.

Procedure:

- Remove the cover of the Etiprint on the reverse side. Undo the screws for this.
- All electrical connections to the motor are detached from the terminals at the interface (**1**). The connecting cable (**2**) is freed up (replace the cable ties after refitting). The motor guard (**5**) is removed by undoing the fixing screws (**3**). Then the motor can be removed by undoing the fixing screws (**4**) and replaced.
- Refit in reverse order. The motor connecting cable must be re-routed using cable ties.

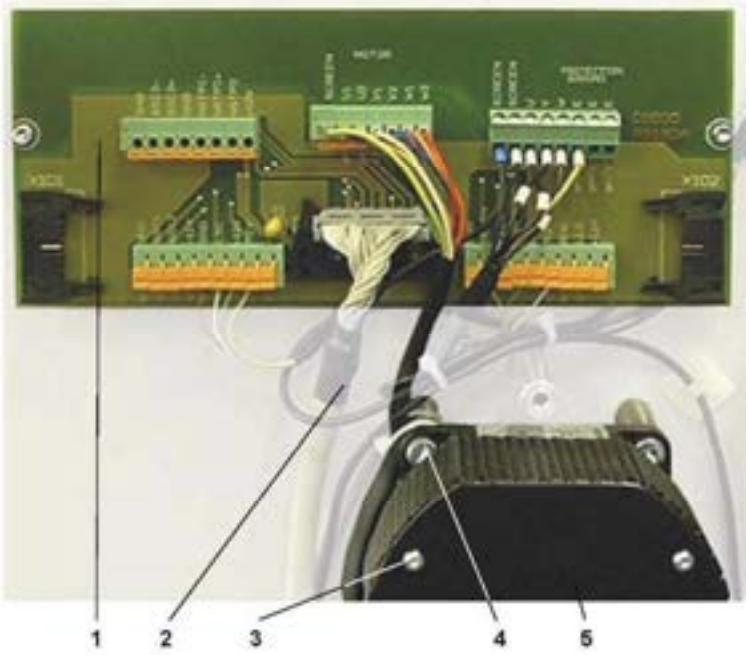


Fig. 21: Changing the drive motor

1	Interface	**4**	Fixing screw
2	Connecting cable	**5**	Guard
3	Fixing screw		

9.4.12 Clearing the printing head

If the equipment is not to be used for some time, the printing head on the thermal printer is to cleared (see the operating instructions for the relevant thermal printer in the appendix).

10 Decommissioning and disposal

An Etiprint Inline which is no longer serviceable should not be disposed of as a single unit, but dismantled and recycled as individual parts according to type of material. Non-recyclable materials are to be disposed of in an environment-friendly manner.

- Before decommissioning and disposal of the Etiprint Inline, it must be completely disconnected from the electrical and pneumatic mains.
- Dismantling the Etiprint Inline may only be carried out by specialist personnel.
- If dangerous or poisonous substances have been labelled, the Etiprint Inline must be decontaminated before disposal.
- The Etiprint Inline must be disposed of in compliance with the relevant country-specific provisions.

11 Register of documents in the Appendix

Reg.	Designation	Article no.
A	CE Statement of Conformity	
B	Replacement parts / Wear parts	
C	Electric circuit drawing with SATO printer	
D	Electric circuit drawing with ZEBRA printer	
	Component Operating Instructions	
E	Collamat 8600/9100 Monitor Operating Instructions	
F	Collamat 8600/9100 Monitor Technical Handbook, extract pages 15-55	
G	Thermal Printer (only on CD)	

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Register A

Manufacturer’s declaration

Manufacturer’s declaration

CE – Declaration of incorporation

The manufacturer: **Collamat AG**
Bodenmattstrasse 34
CH-4153 Reinach – Switzerland

declares, that the machinery / machinery component named below as:

Series:	**Etiprint Inline I50**
Serial number:	**from 0068**
Year of manufacture:	**from 2010**

is intended to be assembled with other machinery / machinery components to constitute machinery, witch shall not be put into service until the assembled machinery has been declared in conformity with the provisions of the EC Council Directive on Machinery **2006/42/EG** (including there changes and extensions):

Appendix I: article: 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.5.1.

The above mentioned machinery relates furthermore to the regulations and directives of:

2006/95/EG (low voltage directive) and **2004/108/EG** (electromagnetic compatibility directive – EMC).

Applied harmonized standards, in particular are:

EN ISO 12100-1	Safety of machinery – Basic concepts, general principles for design – Part 1: Basic terminology, methodology
EN ISO 12100-2	Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles
EN ISO 60204-1	Safety of Machinery – Electrical Equipment of Machines – Part 1: General Requirements-IEC 60204-1: 1997;
EN ISO14121-1	Safety of machinery – Risk assessment principles

A technical documentation set of this piece of machinery is available on demand - in electronic form (for governmental use only). The corresponding documentation to this piece of machinery has been issued according to appendix VII part B.

Responsible person for the composition of all technical documents according to Appendix VII – chapter B of the Directive on Machinery 2006/42/EG is:

Collamat AG, Paul Schneider, Bodenmattstrasse 34, CH-4153 Reinach, Switzerland

Issued in Reinach: 01. September 2011 by:

Collamat AG – Bodenmattstrasse 34, CH-4153 Reinach, Switzerland

Authorized persons: CEO – Frank Ankersen

Manufacturer’s declaration

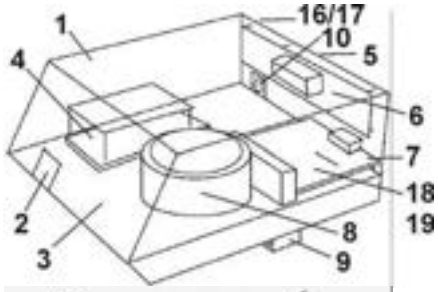
Register B

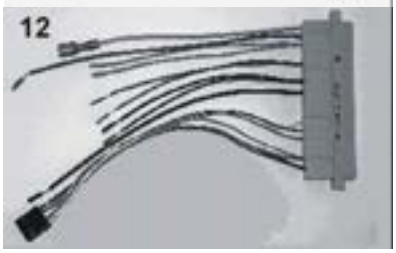
Replacement parts / Wear parts

Replacement parts / Wear parts

Monitor

R = replacement part, W = wear part

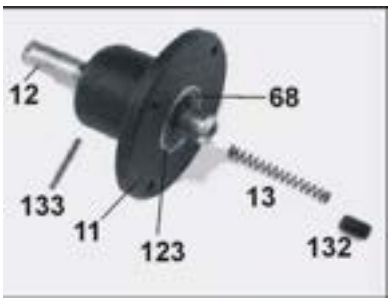


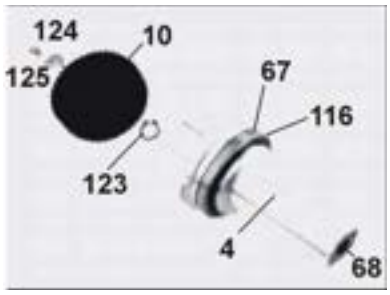


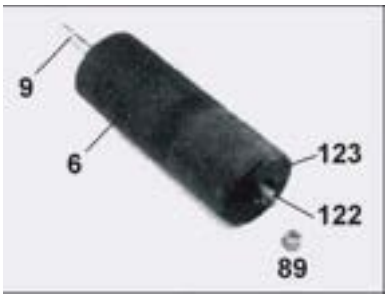
Item	Article no.	Designation	
1	5216.4100-00	Cover	R
2	5851.1622-00	Lettering strips	R
3	5216.4000	Controller	R
4	5216.4022	Motor output stage	R
5	5216.4122	Back	R
6	5216.4011	Mains filter print	R
7	5216.4033	Interface C8600	R
8	7408.0000-00	Transformer	R
9	5216.4155	Carrier bracket set	R
10	7402.0000	Motor socket	R
11	5216.0755	Earth cable set	R
12	5216.4166	Wiring loom, motor interface	R
13	5216.4300	Plug clamp	R
14	5216.4177	Controller cable	R
15	5216.0722	Plug set	R
16	7403.0822	Primary fuse (230V) 5AT	R
17	7403.0833	Primary fuse (110V) 10AT	R
18	7403.0277	Interface fuse (24V) 2.5 AT	R
19	7403.1216	Interface fuse (120V) 3.15 AT	R
20	7402.0011	Cable equipment plug	R
			R

Draw mechanism parts

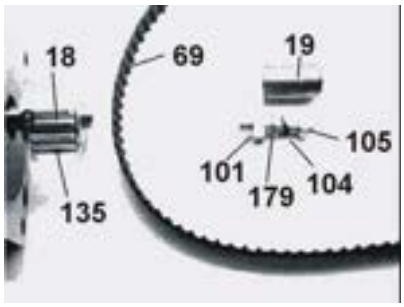
R = replacement part, W = wear part







Item	Article no.	Designation	
4	5215.0038	Roller bearing flange	R
6	5215.3846	Draw unit roller 160	W
9	5215.8100-01	Drive shaft 160	R
10	5215.0095	Toothed belt wheel	R
11	5215.0110	Clutch bearing flange	R
12	5215.0127	Clutch shaft	R
13	5215.0135	Clutch spring	R
14	5215.0143	Clutch pressure plate	W
15	5215.0151	Clutch, felt washer	W
16	5215.0168	Toothed belt wheel	W
17	5215.0176	Clutch plate	W
18	5215.0184	Toothed belt wheel, motor Z=17	R
19	5215.0192	Belt tensioning roller	R
21	5215.8111-01	Holder, counter roller 160	R
22	5215.8122-01	Shaft for counter roller 160	R
23	5215.0232	Tension spring	R
24	5215.0240	Pressure roller	W
25	5215.0257	Bearing bush	R
26	5215.0265	Opening plate	R
28	5215.8133-01	Axle 160	R
43	5215.6855	Winding mandrel 160	R
44	5215.6877	Tension bracket	R
63	5215.0613	Rotary knob	R
64		Signal distributor print	R
65	7407.0000	Motor C8600	R
67	5842.1667	Groove ball bearing 6810 2RS	R
68	5842.1131	Groove ball bearing 6001 2RS	R
69	5215.0410	Toothed belt	R



Item	Article no.	Designation	
70	5842.1083	Needle roller bush HK 1210	R
71	5842.1650	Hanger ball bearing	R
76	7401.1647	Bolt with threaded stud M4	R
88	5215.8211	Strap	R
89	5842.1731	Groove ball bearing	R
94	5216.4477	Motor cable C8600	R
95	5216.4488-00	Control cable C8600	R
101	NS008011Z	Cap screw M5x20	R
104	NS270001Z	Serrated washer M5	R
105	NS241003Z	Hex. nut M5	R
110	NS325000B	Locating dowel pin 4x16	R
116	NS283015Z	Snap ring INA D050	R
122	NS300007U	Woodruff key 4x4x14	R
123	NS295007Z	Retaining ring D=12	R
124	NS122035Z	Hex. head screw M5x6	R
125	NS291501Z	Tab washer M5	R
132	NS166027Z	Grub screw M8x12	R
133	NS322032B	Dowel pin D=3x25	R
135	NS166004Z	Grub screw M4x5	R
140	NS170001Z	Grub screw M5x12	R
143	NS296002Z	Retaining ring D=35	R
144	NS295003Z	Retaining ring D=15	R
145	NS008013Z	Socket head screw M6x8	R
164	NS006011Z	Socket head screw M4x8	R
175	NS169001Z	Grub screw M4x8	R
176	NS283013Z	Spring washer M5	R
179	NS290504Z	Washer M5	R
183	NS008015Z	Socket head screw M6x16	R
184	NS283012Z	Spring washer M6	R

Draw mechanism spare parts (cont.)

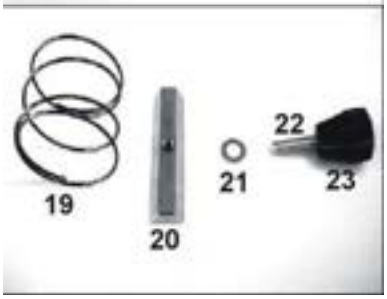
Unwinder spare parts

R = replacement part, W = wear part

Item	Article no.	Designation	
26	5208.3302	Spring cup	R
27	5208.3092	Adjusting wheel	R
28	5215.0970	Spring fastening flange	R
29	29 5829.1402 5829.1410	Torsion spring, right Torsion spring, left	R
31	5215.2160	R. disc, 350 adjustable	R
32	5215.2241	R. disc, 350 fixed	R
35	5842.1520	Groove ball bearing D22/8x7	R
109	NS04.5007B	C/sunk screw M6x8	R
118	NS32.4007B	Push-in grooved pin D=2x6	R

Applicator spare parts

W = Wear part

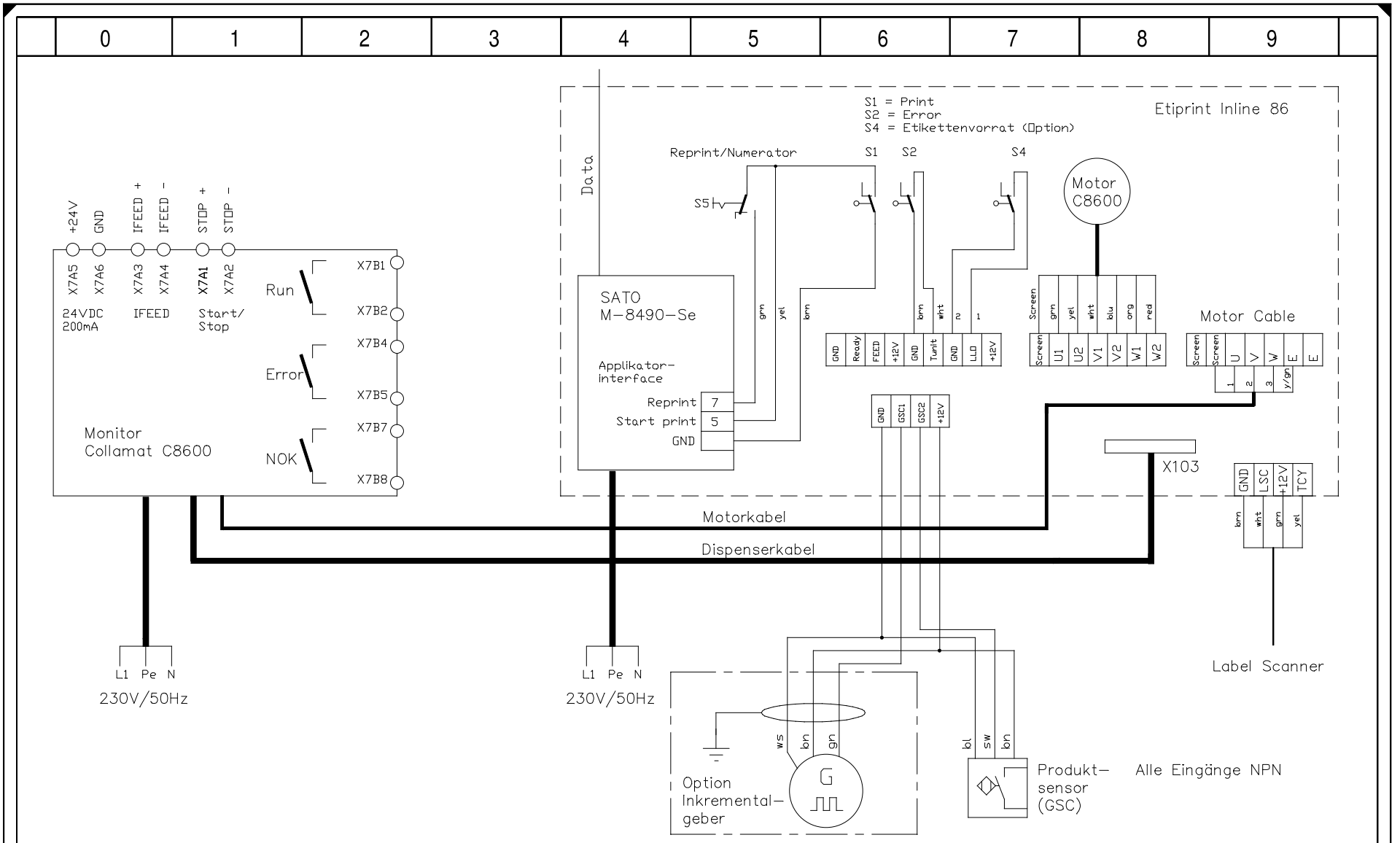


Item	Article no.	Designation	
1	5216.1792	Sensing bar PLEXI 16	R
2	5216.1784	Pull-off ledge	W
3	5850.0552	Knurled nut M8	R
4	5215.1407	Cog wheel	R
5	NS29.0005Z	Washer M8	R
6	5829.2067 5829.2083	Torsion spring, right Torsion spring, left	R
7	5216.1613	Lifting plate	R
8	5216.1638	Driving flange	R
9	NS04.5015B	C/sunk screw M4x8	R
10	NS04.1049B	C/sunk screw M4x5	R
11	5842.0435	Needle roller bush HK 1010	R
12	5216.1735	Stop ring	R
13	NS29.0504Z	Washer M5	R
14	5850.0536	Knurled screw	R
15	7401.0650	Cable clip D=4 C1104	R
16	NS28.1001B	Ribbed washer M3	R
17	NS00.0002Z	Socket head screw M3x6	R
18	5208.3246	Press-on roller	R
19	5829.2075	Pressure spring	R
20	5216.2472	Clamping strap	R
21	NS29.0503Z	Washer M4	R
22	NS16.6037Z	Grub screw M4x25	R
23	5822.0551	Knurled nut	R
24	5216.0633	Label sensing, print + cable	R

Register C

Electric circuit drawing with printer type SATO

Electric circuit drawing with printer type SATO

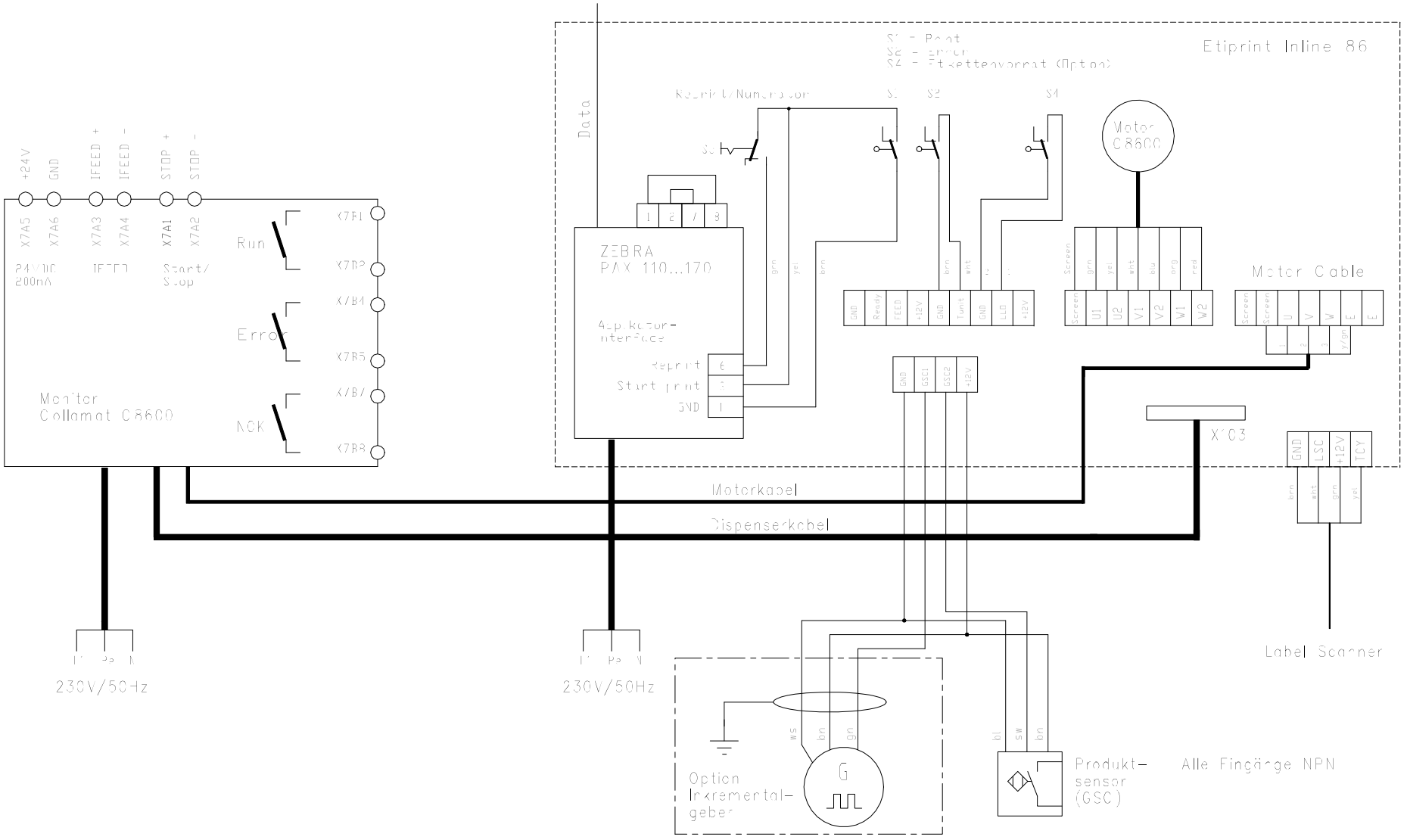


Nr.	Aenderungen	Datum	Projekt: Etiprint Inline SATO	Collamat HM GROUP Pfeffingerring 201 CH-4147 Aesch Tel.061-756 28 28 Fax 061-756 29 29	Gez.: DM	Datum:5.10.2006	Seite
					Kunde:	Nr. 0801.0244-3	1

Register D

Electric circuit drawing with printer type ZEBRA

Electric circuit drawing with printer type ZEBRA



Nr.	Aenderungen	Datum

Projekt: Etiprint Inline ZEBRA

Collamat
Bodenmattstrasse 34 CH-4153 Reinach
Tel.+41 61-756 28 28 Fax +41 61-756 29 29

Gez.: DM	Datum: 5.10.2006	Seite
Kunde:	Nr. 0801.0244-3	1

Register E

Collamat 8600/9100 Monitor Operating Instructions

HM Collamat AG
Pfeffingerring 201
CH-4147 Aesch
Switzerland

Phone +41 61 756 28 28
Fax +41 61 756 29 29
contact@collamat.ch
www.collamat.ch

Collamat 8600/9100

Operating instructions Monitor

5999.530-01F

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1 General information

The entire electronic operating and control system is installed in a modern, elegant monitor. Its SMD-design guarantees high operation safety. The monitor can be operated in all installation positions, because the front panel can be mounted reversibly. Monitor and labeller are connected with two cables. One cable feeds the stepper motor, the other connects the labeller peripherals with the monitor. A microprocessor controls all labeller functions. To facilitate entering values in noisy environment, the foil keyboard is provided with action point contacts. There are no potentiometers or controllers inside the monitor. All parameters can be set via keyboard. (The stepper control was developed and produced by a well-known manufacturer of stepper motor drives.) The monitor can be started or stopped by a signal from outside. The operating mode is displayed to the outside by relay contacts.

1.1 Special characteristics of the Collamat 8600/9100 monitor

- Modern menu-driver operation
- No controller or potentiometer
- All important parameters can be set during labelling
- 32 program memories
- All values and parameters can be stored
- Two user levels
- Modern design
- Variable installation in systems
- Due to amply dimensioned heatsink no fan is necessary
- Connection to labeller with only two cables
- Modern fail-safe electronics
- Electric modular design with SMD-components
- Variable labelling speed by incremental encoder or measuring light barrier
- Nonstop operation with two Collamat
- Remote control possible by SPC
- Relay contacts for operating state indication

2 Safety advices

2.1 Important warnings

Before installing and operating the Collamat 8600/9100read the following safety instructions.

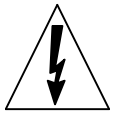
- **The monitor C8600/C9100 is exclusively intended to control the labeller C8600/C9100.**
- **Install the labeller C8600/C9100 only by a trained specialist considering the national specific regulations of**
  - **prevention of accidents**
  - **construction of electrical and mechanical systems**
  - **noise suppression (RMI)**
- **Take notice of the technical data of the Collamat 8600/9100. Especially the environment conditions must be observed.**
- **Install the Collamat 8600/9100 at a dry location, protected from splashing water.**
- **Operate the Collamat 8600/9100 only by trained personnel.**
- **In case of non-authorized modifications the guarantee will become void.**
- **Before connecting non-standard products, ask your competent technical supporter.**
- **Peripherals to the Collamat 8600/9100 must only be connected to the mains socket of the monitor. These devices must be approved by Collamat Stralfors AG. The specifications of the mains socket are specified in the Technical Appendix.**

2.2 Danger notes

- **The safety symbols and the danger advices on the Collamat 8600/9100 and in this manual must strictly be observed.**
- **The Collamat 8600/9100 must only be set up in switched off condition.**
- **Before connecting or disconnecting the labeller C8600/9100 to or from the monitor switch off the monitor.**
- **Monitor and distribution box are only allowed to be opened by authorized personnel.**
- **Danger of pinching hair, jewellery, ties, clothes etc. into the traction unit !**
- **Danger of injury by cutting fingers in the paper web zone !**
- **Danger of injury in the dancer roller zone of the Collamat 8600/9100 rewinder and unwinder !**
- **Danger of injury in the case of non-expert use of the Collamat 8600/9100 in the paper stock control zone.**

2.3 Symbol description

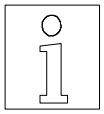
ATTENTION
Indicates danger of damaging the Collamat 8600/9100 or other system components, with a potential consequential danger of injuries.
DANGER
Indicates an immediate hazard for persons.



DANGER
Shock hazard due to high voltage at component.

DANGER
Hazard due to high temperature component.

ATTENTION
ESD warning (ElectroStatic Discharge). The PC boards or components may only be touched in an electrostatically protected environment.



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

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The information in this documentation reflects the state at the publication date.
Subject to technical alterations.

3 The monitor

The monitor may only be opened by trained personnel. It contains no parts to be handled by the operator.

The monitor contains live parts. Hazard of contact due to high voltages of the assemblies.

The monitor contains electrostatic (ESD) sensitive assemblies. Unsafe contact may destroy these assemblies.

The monitor consists of a solid metal housing. Its front panel contains the controls. The mains switch is installed on the back panel and is intended to connect the labeller and power. The following figure is a front view A and a rear view B of the monitor.

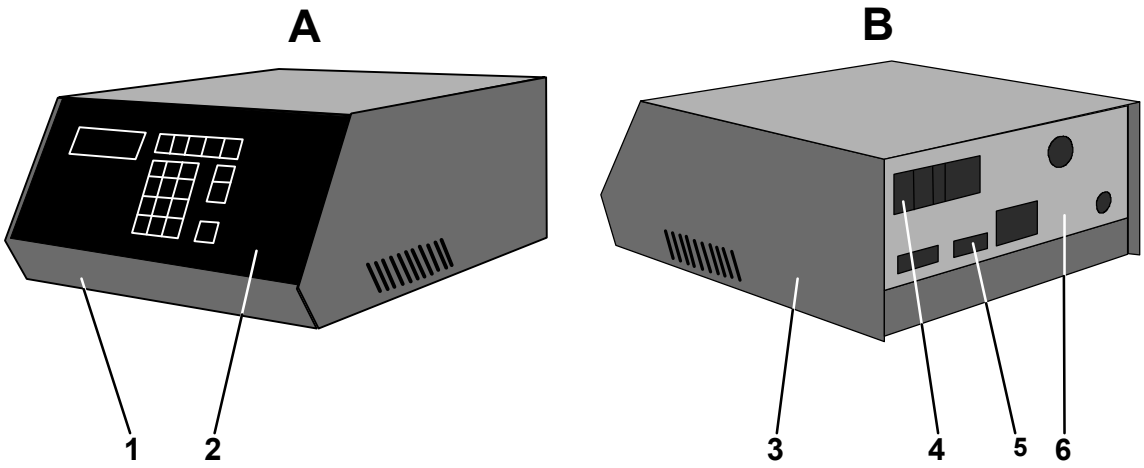


Figure 1: Monitor

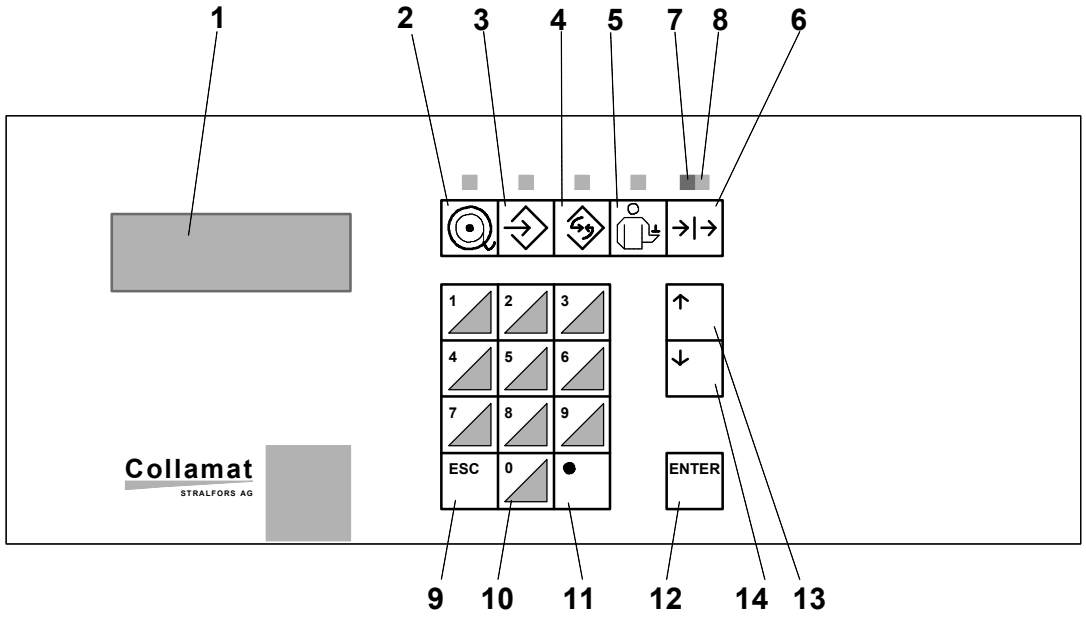
Legend

1. Heatsink
2. Front panel
3. Cover
4. Mains switch
5. Sockets
6. Back panel

3.1 The controls of the monitor

The mains switch of the monitor is installed on the back panel. Before switching on check labeller and system signals for correct connection.

All functions and data of the labeller are entered via the controls of the monitor. Monitor data and states are indicated by a background lighted LCD-display with four lines with 20 characters each. A foil keyboard is used to enter data. The keys have a well sensible action point allowing also correct inputs in a noisy environment. The controls of the monitor are shown on the following figure:



Legend

1. 4 line LCD
2. **Labeling mode** key
3. **Programming** key
4. **Configuration** key
5. **Service indication** key
6. **RUN/STOP** key
7. **STOP** LED
8. **RUN** LED
9. **ESC** key
10. Keyboard **0...9**
11. '•' Key
12. **ENTER** key
13. **UP** key
14. **DOWN** key

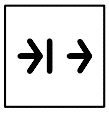
3.1.1 LCD display

The LCD-display is used to **enter** and indicate data and operating states of the monitor and labeller. The background illumination increases the legibility and shows at the same time, that the monitor is on. A **cursor** helps to select and enter data. **Orientation arrows** on the border of the LCD help to pass through the function trees and to select menu items.

3.1.2 Function keys

The monitor is operated by five function keys. A LED function display is assigned to each function key showing that the operator is moving in an assigned function tree. In a function tree it is possible to access to particular function through branches.
If changing from one function tree to another, the actual branch, in which the operator works, will be temporarily memorized, so that upon a call of the previous function tree he is in the previous branch. The particular function keys and the parameters which can be selected by each function key are described below.

3.1.3 RUN/STOP key (6)



The RUN/STOP key is used to start (RUN) or stop (STOP) the Collamat . The RUN state is indicated by a green LED (8). The STOP state is indicated by a red LED (7). In RUN state it is not possible to change all functions, because faults could occur during labelling. But in STOP state all functions can be changed.

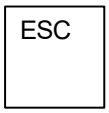
3.1.4 Numerical keyboard (10)

With the numerical keys 0...9 all numerical data can be directly entered via the keyboard. A decimal point ',' can be entered by key (11).

3.1.5 ENTER key (12)

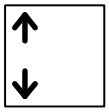
With the ENTER key the inputs are terminated. The ENTER key is also used to select the menu item, on which the cursor is actually positioned.

3.1.6 ESC key (9)



The **ESC** key is used to **abort** the input of data and to jump back to the **previous branch** of the function tree.

3.1.7 UP (13) and DOWN (14) keys

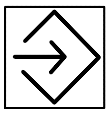


These two keys are used to select a function within a function tree. When entering **data** the indicated value can be **increased** (**up** key) or **reduced** (**down** key) with these keys.

3.1.8 LABELLING MODE function key (2)

This key is used to select the labelling mode function. When depressed, the **LED** placed above lights up and indicates that the monitor is in labelling mode. The Collamat parameters are entered in this mode. The Figure "LABELLING MODE" menu tree (page 11) shows the function tree of the labelling mode.

3.1.9 PROGRAMMING function key (3)



This key is used to select the **programming** function. When depressed, the **LED** placed above lights up and indicates that the monitor is in programming mode. The parameters of labeller and labelling are entered in the programming mode. The Figure "PROGRAMMING menu tree" (page 14) shows the function tree of the programming mode.

3.1.10 CONFIGURATION function key (4)

This key is used to select the configuration function**.** When depressed, the **LED** placed above lights up and indicates that the monitor is in configuration mode. In this mode the Collamat is adapted to the customer's requirements. The "CONFIGURATION menu tree" (page 25) shows the function tree of the configuration mode.

3.1.11 SERVICE DISPLAY function key (5)

This key is used to select the **service display** function. When depressed, the LED placed above lights up and indicates that the monitor is in service mode. The "SERVICE FUNCTIONS menu tree" (page 30) shows the function tree of the service mode.

3.2 Entering data with the keyboard

The numerical keys of the keyboard (**10**) are used to enter data. If the value to be entered is a decimal, enter the decimal point with the key ' •' (**11**).

Confirm the input with the **ENTER** key (12) to validate it. If the data range is exceeded, this is indicated for a short time and the original value does not change.

```
Warning

 Exceeding value
```

```
Warning

Short falling value
```

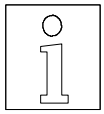
Now entering can be continued. The next permissible value of the decimal place is calculated and indicated.

The indicated data can also be increased or reduced step by step with the arrow keys **up** (13) and **down** (14). The change of data with these keys has to be terminated by depressing the **ESC** key (9).

Then the last indicated data are taken. Here takes place a continuous control of the data range, so that unacceptable data can be avoided.

The **ESC** key (9) allows to abandon entering data by keyboard. Then the original value, valid before the change will be indicated.

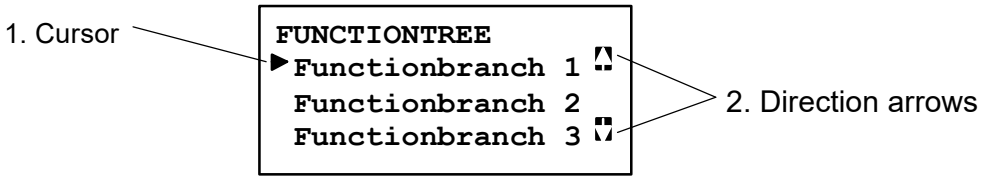
The **ESC** key (9) is used to jump back to the previous branch after having entered a value.



Note:
All minimum and maximum values of the functions are shown in the value tables of the Technical Appendix.

3.3 Selecting a branch in the function tree

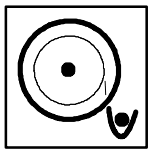
Use the up (13) and down (14) keys to select a branch of the function tree. With these two keys a little cursor (1) can be moved up and down on the left of the LCD-display. The line, where the cursor is positioned, points at the branch of the function tree, which can be selected as next with the ENTER key. On the right side of the LCD-display a little direction (arrow) (2) informs, whether it is possible to move further up or down.



NOTE:
Not all functions can be changed in the labelling mode. In the description of the function is noted, which one is only changeable in start or stop state of the labeller.
Not all functions can be selected in the operating mode. In the description of the function is noted, which one is changeable in the operating mode or in the programming mode.
In the value table in the Technical Appendix is shown, which modes in the considered function are permitted.

4 The 'LABELING MODE' menu tree

The functions necessary for the labelling mode can be called up and operated in the **'LABELLING MODE'** menu tree. The **'LABELLING MODE**' menu tree comprises the following functions:



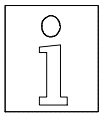
LABELLING MODE
- **Label Jog**
- **Select program**
- **Information Display**
- **Reset Counter**
- **Preset Counter**
- **Select Counter (Labels / Goods / External)**
- **Nonstop**
  - **Nonstop display**
  - **Nonstop Reset**

4.1 Label jog

With this function a label can be dispensed for test purposes by the keyboard. The dispensing speed corresponds to the set fixed speed. The label is dispensed by depressing the **ENTER** key when the cursor is placed on this line:

```
LABELLING MODE
▶Label Jog
 Select program
 Information display
```

User level: **programmer/operator**
Operating mode: **RUN/PASSIVE**



Note:
When setting up in nonstop mode the labels have to be triggered with this function so that the nonstop counter of the master does not become asynchronous.

4.2 Select program

This function allows to select one labelling program out of 32 possible programs:

```
SELECT PROGRAM

Number  1
Name        50x80x3
```

User level: **programmer/operator**
Operating mode: **STOP**

4.3 Information display

This function allows to indicate the most important labelling parameters on the LCD-display. The program number, the actual dispensing speed, the count and the label position on the good are shown here. It is not possible to change any data. They are only indicated and updated. The arrangement of the information display is made in the User Menu in the CONFIGURATION menu tree. The **ESC** label key terminates this indication mode:

```
Program   1      RUN
Speed        3.0m/Min
Counter        000000
Position      10.0 mm
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

4.4 Reset counter

This function allows to reset the counter to zero. ENTER resets the counter.

```
Counter cleared !
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

4.5 Preset counter

This function allows to activate and set the preset counter. Entering a value greater than zero activates the preset counter. After entering return to the counter menu by depressing the ESC key.

```
ENTER PRESET

Value :        123456
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

4.6 Select counter

This function allows to select what should be counted by the counter. The counter input can distinguish between three different input signals:

- Products (goods) (GSC2)
- Labels (LSC)
- External signal (GSC3)

The selection can be done by the arrow key and terminated by ESC.

```
SELECT COUNTER

Choice: Products
```

User level: **programmer/operator**
Operating mode: **STOP**

4.7 Nonstop

The nonstop function is used to superwise the nonstop labeling in a nonstop environment - it also keeps track of the number of products between the Master- and the Slave-goodscanner to ensure a perfect switching from Master to Slave and vice versa. The function is different for the Master and Slave.

4.7.1 Nonstop display

The nonstop display is used to display the nonstop status. The major display in a nonstop configuration is the display of the Master. The Master is the first Collamat in the product flow direction. It shows the actual running settings of the master, the slave and of the nonstopcounter.
The Master shows the following display:

```
NONSTOP        MASTER
GSC2-3:             1
Activ:         MASTER
Change over [.]
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

- The first line indicates a Master labeler
- The second line shows the nonstop counter GSC2-3: whereas the value represents the amount of goods between the goodscanner of the Master and the Slave
- The thirt line indicates the status of the nonstop function. (Master or Slave active)
- The fourth line shows the switch over key command (' • ' key of the monitor keyboard). This key is used to switch from the active labeler (Master) to the passive labeler (Slave)

The nonstopdisplay of the Slave is different to the display of the Master. Because GSC2-3 counting is only done in the Master, the line GSC2-3 will not be shown in the Slave nonstopdisplay:

The Slave shows the following display:

```
NONSTOP        MASTER

SLAVE:         passive
Change over [.]
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

The **'•'** key can be used to force a switch over to the momentary passive labeler

```
NONSTOP         SLAVE
Labeler-change....
SLAVE:         passive
Change over [.]
```

- The first line of the slave-display indicates a Slave labeler. The second labeler in a nonstop-configuration is always the Slave
- Line three of the slave-display represents the status of the slave only
- Line four of the Slave display shows the switch over key command (**'•'** key of the monitor key-board). This keycommand is used to switch from the active labeler Slave to the passive labeler Master. As soon as the dot-key is pressed the Slave display indicates this special mode with the message **Labeler-change...** on line two of the display, until the Master has switched over the labeling mode (Master is active, Slave is passive)

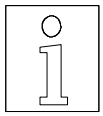
4.7.2 Nonstop Reset

The **Nonstop Reset** is used to reset the internal nonstop counter when in nonstop mode. In case that at the moment of start there are products between the master and the slave the counter can be set to the appropriate quantity. (This function helps a lot in case of labeling endless products like formulars or foils or when the conveyor cannot be emptied)

Nonstop Reset has to be called up when a fault has occurred in nonstop mode to guarantee a perfect labelling of the goods. The **Nonstop Reset** is called up with **ENTER.** The following indication confirms the execution of the reset.

```
NONSTOP RESET
Goods between
Master-Slave:      0
```

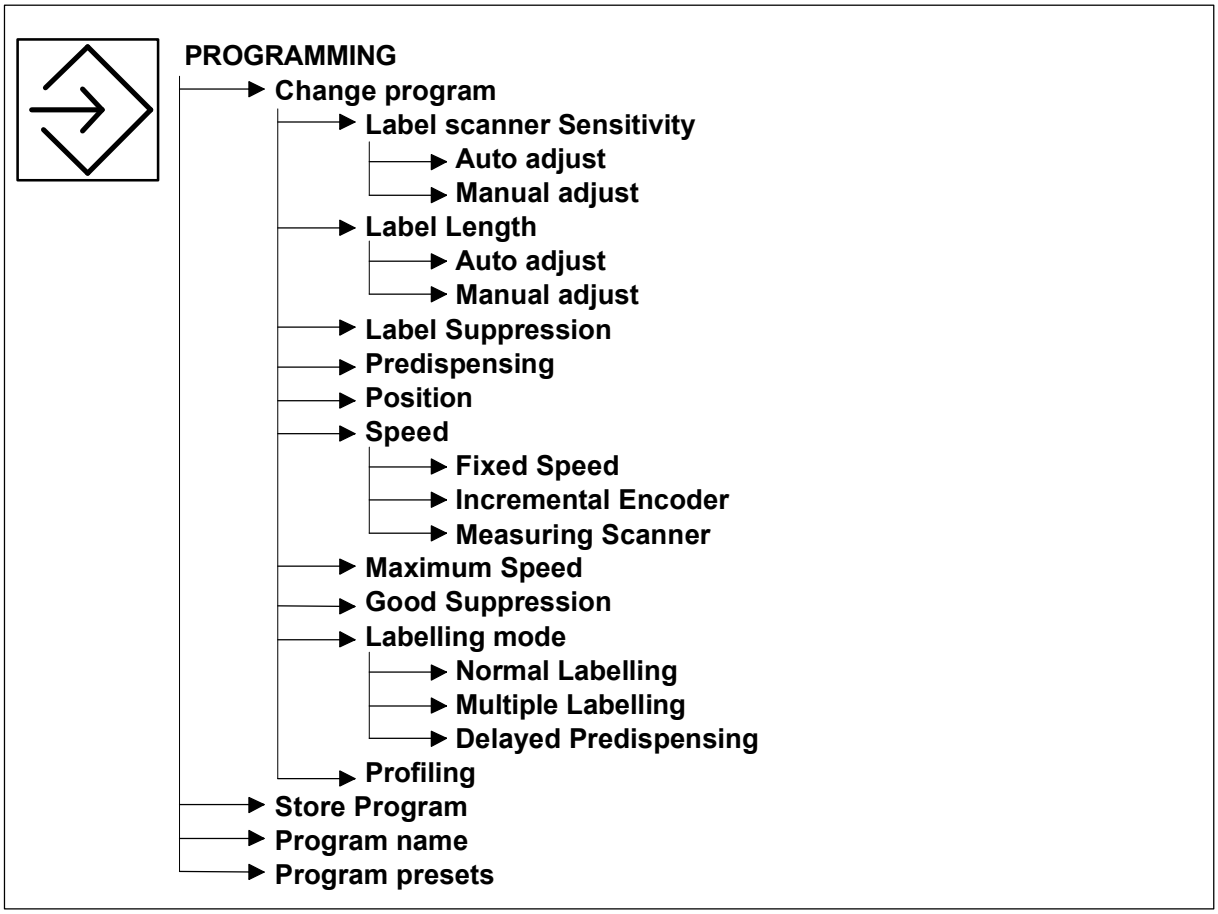
User level: **programmer/operator**
Operating mode: **RUN/STOP**



Note:
This function can be selected only in switched on nonstop mode.
The Nonstop reset can only be done on a Master Collamat.

5 The 'PROGRAMMING' menu tree

The **'PROGRAMMING'** menu tree is used to call up and operate the functions necessary for programming.



The **'PROGRAMMING'** menu tree has the following indication:

```
PROGRAMMING
 Change Program
 Store Program
 Program name
 Program Preset
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

5.1 Change program

The **Change program** function is used to branch in an additional menu by calling up further parameters to be changed:

```
CHANGE PROGRAM
 Labelscanner Sens.
 Label Length
 Label Suppression
 Predispensing
 Position
 Speed
 Max. Speed
 Good Suppression
 Labelling Mode
 Profiling
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

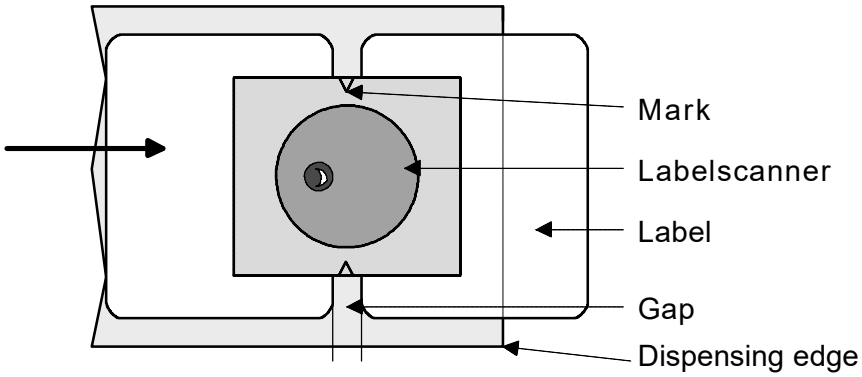
5.2 Label scanner sensitivity

The **Label scanner sensitivity** function is used to adjust the label scanner sensitivity manually or automatically. This function is not necessary for mechanical label scanning.

```
LABEL SCANNER SENS.
▶Auto adjust
 Manual adjust
```

5.2.1 Auto adjust

When adjusting the sensitivity automatically, the paper web has to be pulled forward by depressing the **up** key, until the label scanner is positioned over the gap. A lateral mark on the scanner head shows the position of the label scanner. The automatic adjustment is started by depressing the **ENTER** key or abandoned by depressing the **ESC** key. After adjustment the found value is indicated. If the scanner can not be adjusted on the paper web, an error message will be issued.




```
AUTO ADJUST
Move Label with
to the Gap and then
press [ENTER] Key
```

```
AUTO ADJUST DONE

TCY-Value        50 %
```

User level: **programmer/operator**
Operating Mode: **STOP**

5.2.2 Manual adjust

When adjusting the sensitivity manually, the value is entered by hand. Entering can be aborted by depressing the **ESC** key. This function will especially be used above all for the adjustment of labels made of 'difficult' material.

```
LABEL SCANNER SENS.

TCY-Value        50 %
```

User level: **programmer**
Operating mode: **STOP**

5.3 Label length

The Label length function is used to adjust the length of the label manually or automatically.

```
LABEL LENGTH
▶Auto adjust
 Manual adjust
```

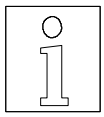
5.3.1 Auto adjust

When adjusting the label length automatically, the measuring has to be started by the **ENTER** key. The adjustment can be aborted by depressing the **ESC** key. After starting the adjustment, the paper web is pulled forward by 2 gaps to measure the label length. If no gap is detected, an error message appears and the label length is set to 100 mm.
mm gesetzt.

```
AUTO ADJUST

Adjust Label length
with [ENTER] Key
```

```
LABEL LENGTH
Auto adjust done
Length  :     100 mm
```

User level: **programmer**
Operating Mode: **STOP**



Note:
The measured label length should only be considered as an approximate value. When using this value a fault message may appear, because due to mechanical slippage the traction roller may cover a distance exceeding the label length. When the labeller stops are exceeded an error message appears.
Normally after automatic measurement the double or triple label length is entered by hand. The advantage is that the labels not existing on the backing paper are compensated.

5.3.2 Manual adjust

When adjusting the label length manually, the value is entered by hand. Entering can be aborted by depressing the ESC key. This function is advantageously used after the auto automatic length measurement. (The label length should be entered twice or three times longer than the actual label length. Thus labels missed on the backing paper web

```
LABEL LENGTHSCANNER

Length :       100 mm
```

User level: **programmer**
Operating mode: **STOP**

5.4 Label suppression (suppression of label scanner)

This function is used to enter the length forcing the label scanner to suppress the signals from the backing paper web and the label after having detected the leading edge of the label. Entering can be aborted by the **ESC** key. This function is used above all when relatively transparent labels are used, for which the optical label scanner is disturbed by the print on the labels. This function also allows to suppress the rebounding signals of mechanical label scanners.

```
SUPPRESSION OF THE
LABEL SCANNER

Length   :      10 mm
```

User level: **programmer**
Operating mode: **STOP**

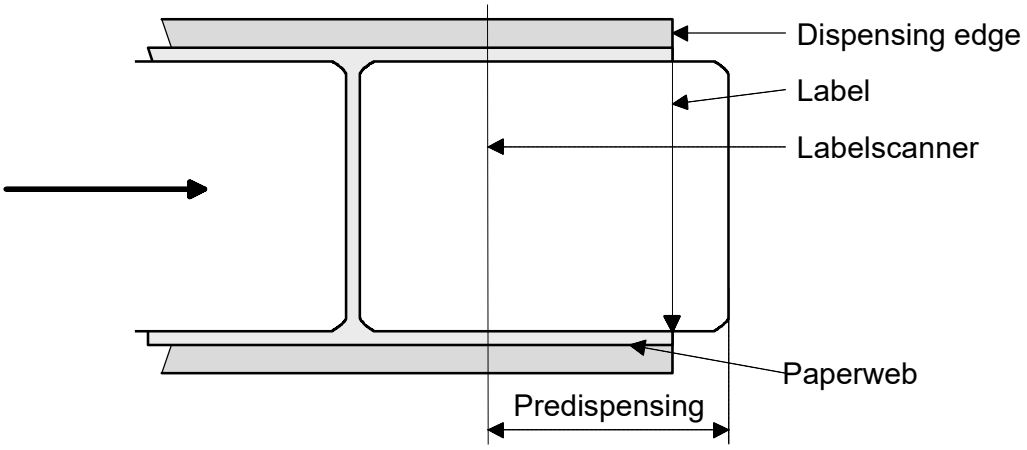
5.5 Predispensing

The Predispensing function is used to adjust the predispensing length of the label. This length specifies the distance by which the leading edge of the label is pulled forward after scanning.

```
PREDISPENSING

Value :      25.4 mm
```

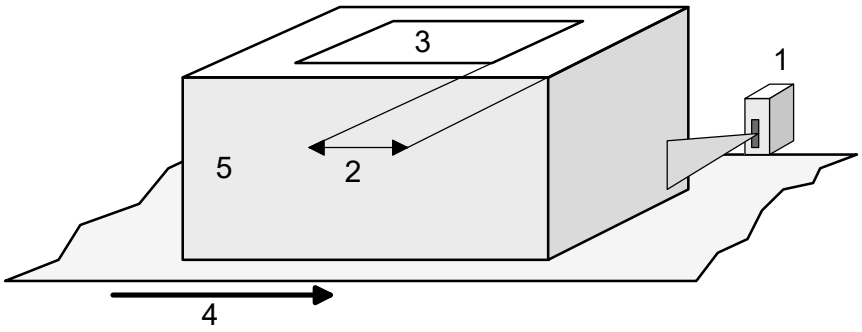
User level: **programmer/operator**
Operating mode: **RUN/STOP**

Attention:
If a predispensing length exceeding the label length is entered, a malfunction of the labeller may occur because the label gap is scanned at the wrong time. See diagram 'Predispensing' in the Technical Appendix.



5.6 Position

The **Position** function is used to set a speed dependent labelling delay. This delay 2 causes a speed-independent positioning of the label 3 on the good 5 in feed direction 4. With this function it is not necessary to shift the goods scanner 1 to obtain a change of the label position on the goods.




```
POSITION

Value :       10.0 mm
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

Note:
If the value of the position adjustment exceeds the goods distance, a malfunction will occur, because not each good is labelled.

Predispensing and position influence the placement of the label on the goods. For a good result, first adjust the predispensing and then the position of the labels. (If afterwards the predispensing is changed, the position of the goods will also be changed.)

Attention:

Die position setting must not be used to compensate long distances. Otherwise goods will not be labeled correctly if the goods distance is shorter than the position setting.

The position value is speed-independent. If with high speed the calculated position value is too small this will be indicated as an error. See diagram 'Position' in the Technical Appendix.

5.7 Speed and type of measurement

The **Speed** function is used to select the type of speed measurement and to adjust the method of measuring. Three types of measurements are available:

- Fixed speed
- Incremental Encoder
- Measuring Scanner

5.7.1 Fixed speed

At fixed speed the goods are labeled with a constant labeling speed. This speed is also used when dispensing a label with the **Label jog** function of the Labeling Mode menu.

```
SPEED
Method of measuring
Choice:  Fixed
Dispensing Speed
```

```
DISPENSING SPEED

Value :   20.0 m/Min
```

User level: **programmer/operator**
Operating Mode: **RUN/STOP**

5.7.2 Inkremental encoder and measuring light barrier

When measuring the speed with an incremental encoder or by a measuring light barrier, the speed of the goods is measured and they are labelled with this speed:

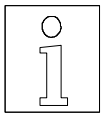
```
SPEED
Method of measuring
Choice:
Incremental encoder
```

```
INCREMENTAL ENCODER

Distance between
two Pulses : 1.00 mm
```

```
SPEED
Method of measuring
Choice: Measuring
Scanner
```

```
DISTANCE BETWEEN
the Lightbeams

Value :      14.0 mm
```

User level: **programmer**
Operating Mode: **STOP**



Note:
The distance of 14 mm applies for the standard light barrier of Collamat Stralfors AG.
For more informations about the calculation of the speed measuring, refer to the technical handbook Collamat 8600 and 9100

5.8 Maximum Speed

The Maximum Speed function limits the max. dispensing speed to the entered value. This function is necessary, if the goods speed is not stable or if labelling is problematic due to difficult label material with higher speed than usual. For labelling using speed measuring the dispensing speed is limited automatically to this value.

```
MAX. SPEED

Value :    50  m/Min
```

User level: **programmer**
Operating mode: **STOP**

5.9 Good suppression

The Good Suppression function is used, when a good (e.g. cartons for eggs) can supply more than one start pulse for labelling. Entering can be aborted with the ESC key.

```
GOOD SUPPRESSION

Length :      100 mm
```

User level: **programmer**
Operating mode: **STOP**

5.10 Labelling mode

The Labelling mode function allows the choice of three labelling modes:

- Normal labelling
- Multiple labelling
- Delayed predispensing

5.10.1 Normal Mode

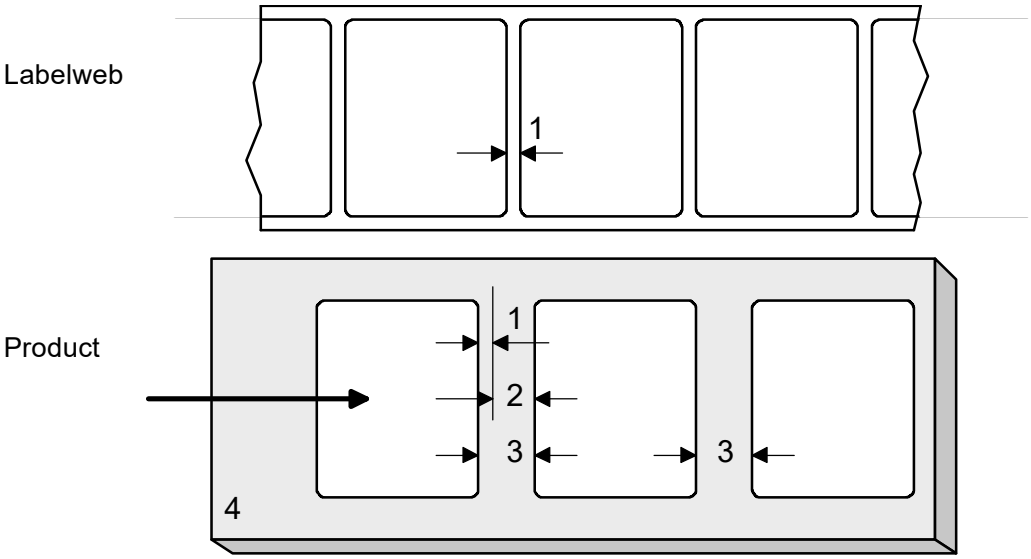
As a rule the Normal labelling mode is switched on and it is labelled without any special function.

```
LABELLING MODE

Choice : Normal
```

User level: **programmer**
Operating mode: **STOP**

5.10.2 Multiple labelling mode

In the **Multiple Labelling** mode, several labels are sticked on the goods **4** in the same distance **3**. This mode is especially useful for labelling forms or multiple packages. After activating the multiple labelling mode, first the quantity and then the distance **2** between the labels has to be entered. On the goods the distance **3** between the labels is composed from the entered value **2** plus the gap **1**. The shortest distance between leading and trailing edge of the labels on the goods is the gap distance.




```
LABELLING MODE

Choice : Multiple
```

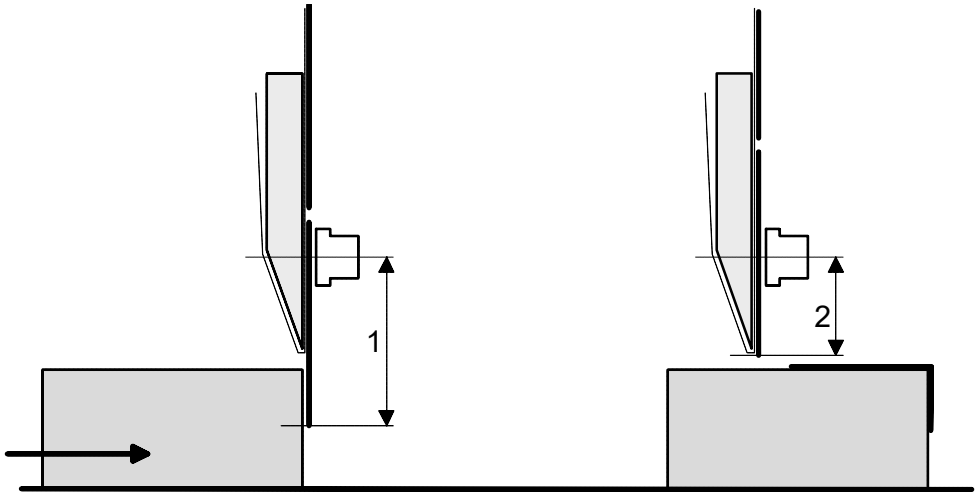
```
LABELLING MODE
MULTIPLE

Count  :       4 Pcs
```

```
LABELLING MODE
MULTIPLE

Distance:     10 mm
```

User level: **programmer**
Operating Mode: **STOP**

5.10.3 Delayed Predispensing

In the **Delayed Predispensing** mode the predispensing **1** will only be tripped after release of the label scanner. Thus the following label will not be sticked on the good being still under the adapter.
After having selected the **Delayed Predispensing** mode, the stop value **2** has to be entered so that the label is perfectly dispensed and the following label does not contact. This value should not exceed the label length. It can be smaller or greater than the predispensing. Under **'Stop at'** specify after which length labelling should be stopped and passing of the goods should be waited for.



LABELLING MODE	DELAYED PREDISPENS.
Choice : Delayed Pre	Stop at 25 mm

User level: **programmer**
Operating mode: **STOP**

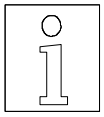
Course:

The dispensing process is started after the positioning delay and the goods have passed the goods scanner. In the first phase the label will be pulled forward as specified for the value **'Stop at'**. When the good leaves the goods scanner, dispensing will be continued to the next positioning delay with a fixed speed until predispensing.

Conditions:

- Multiple labelling mode and delayed predispensing mode exclude themselves mutually
- The position adjustment should be smaller than the goods length. If not, the second phase follows immediately the first one without waiting for the trailing edge of the goods.
- The minimum distance between the goods must be greater than the position value plus predispensing of the second labelling phase.
  This distance is calculated as follows:

Predispensing - Stop position	(When the predispensing length exceeds the stop position length)
Label length - stop position	(When the predispensing length is smaller than the stop position length)



Note:
If the goods distance is shorter no labelling will be carried out !

5.11 Profiling (C9100 only)

The **Profiling** function is used, when a good with uneven surface should be labelled continuously. The dispensing speed is constant when labelling with even surface. The speed has to be varied during labelling of goods with not even surface, so the label can be sticked on without folds. After having activated Profiling enter the speed factor, then the start point and the length to be labelled with normal speed. When the trailing edge of the label is reached before profiling is finished, it is braked with normal brake ramp until predispensing. If the factor is set to 100 %, the function is not activated. The function can be aborted with the ESC key. For more details see Technical Appendix.

```
PROFILING

Factor :      100  %
```

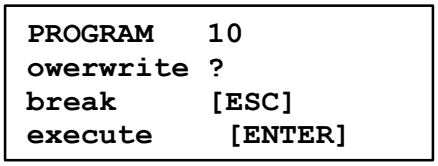
```
PROFILING

Start :       50  mm
```

```
PROFILING

Length :      30  mm
```

User level: **programmer**
Operating mode: **STOP**

5.12 Store program

The **Store program** function allows to memorize the actual labeller and labelling parameters under a program number. 32 memory locations or program numbers are available. The actual program number is indicated as proposal. It can be overwritten or changed on the keyboard. Before memorizing a safety inquiry prevents a program to be overwritten by mistake. Entering can be aborted by the **ESC** key. By depressing the **ENTER** key, the data are memorized under the entered program number.

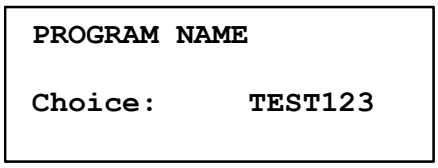


User level: **programmer**
Operating mode: **STOP**

5.13 Program name

The **Program name** function is used to file a descriptive designation or an identification under a labelling program. The program name is entered with the numerical keyboard and terminated with the **ENTER** key. The figures **0...9** as well as the capital letters from **A....Z** and some special characters can be entered. When entering a character always start with a figure from 0...9. If a letter should be entered, the figure can be modified by the **UP** and **DOWN** keys until the wanted letter appears. The next number has to begin again with entering a figure. After having finished, terminate the function with the **ESC** key. The length of the program name is limited to 7 characters.

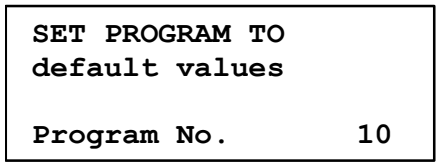
Example:
To enter the letter **A** proceed as follows:
Enter **1**. Then increase the figure with the **UP** key until the letter **A** appears, then release the key. In this way all seven digits can be entered one after the other.

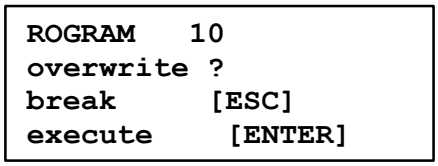


User level: **programmer**
Operating mode: **STOP**

5.14 Program presets (Setting default values of program)

The **Program Presets** function deletes all parameters and values of a program and resets them to the default value. The actual program number is shown as indicated as a proposal. It can be overwritten or changed with the keyboard. Before setting the default values a safety inquiry prevents a program to be overwritten by mistake. Entering can be aborted by the **ESC** key. By depressing the **ENTER** key, the data are memorized under the entered program number.





User level: **programmer**
Operating mode: **STOP**

6 The 'CONFIGURATION' menu tree

In the **'CONFIGURATION'** menu tree the functions required to configure the labeller can be called up and operated. The **'CONFIGURATION** menu tree comprises the following functions:

CONFIGURATION
- **User Menu**
- **Language**
  - **Language (Deutsch/English/Français/Italiano)**
- **User Level**
  - **Change Level**
  - **Change Password**
- **Error Handling**
- **Nonstopmode**
  - **Function (On / Master / Slave)**
- **Adaptermagnet (ON / OFF)**
  - **Adaptermagnet Release Delay**
- **Motor Direction (Right / Left)**
- **Polarity IFEED (Normal / Inverse)**

The indication of the **'CONFIGURATION'** menu tree is as follows:

```
CONFIGURATION
 User Menu
 Language
 User Level
 Error Handling
 Nonstopmode
 Adaptermagnet
 Motor direction
 Polarity IFEED
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

6.1 User Menu

The **User menu** function is used for the layout of the **Information display** menu indication. A varying content can be assigned to each indication line by the arrow keys. **ENTER** fixes the content and it is passed to the next line. With **ESC** the function is abandoned. The following figure shows an example of the layout.

The topmost line indicates the program number and the operating condition:

```
USER MENU        >1<
Speed.     50.0 m/Min
Counter        123456
Position      10.0 mm
```

User level: **programmer**
Operating mode: **STOP**

The following texts can be selected:

- **Speed xx.xm/Min**
- **Position xxxx.x mm**
- **Mode Normal/Delayed Predisp./Multiple**
- **Preset Value xxxxxx**
- **Counter xxxxxx**
- **Name: xxxxxxx**
- **Predisp. xxxx.x mm**
- **Goods GSC2-3 xxx**

6.2 Language

The **Language** function is used to select the user language by means of the arrow keys. **ESC** terminates the selection.

```
USER LANGUAGE

Choice : English
```

User level: **programmer/operator**
Operating mode: **STOP**

6.3 User level

The **User Level** function is used to define the access authorization of the programming functions and operating functions. It is distinguished between **programmer** and **user**. The **programmer** is authorized to program and change all parameters and functions of the labeller, but the **operator** is not authorized to make use of all functions.

```
USER LEVEL
▶Change level
 Change Password
```

If a function or a value is selected by the operator without having the permission for access the following warning is displayed:

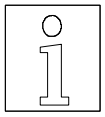
```
Warning

Illegal access !
```

6.3.1 Change level

With the **up** and **down** keys it is possible to change the levels. With the **ESC** key the selection can be aborted or terminated:

```
USER LEVEL

Choice : Operator
```

User level: **programmer/operator**
Operating mode: **STOP**



The difference between the user levels is only active, when a password is activated. The complete 'USER LEVEL' menu tree does not appear on the display and is not active, if a key operated switch is installed. In this case the authorization is accessed by the key operated switch.

6.3.2 Change password

This function allows to enter or change a password. The password serves to distinguish between the user levels. Enter the password with four digits. It is not indicated as plain text but the figures are replaced by # characters. If a password is already programmed, this must be entered before entering a new password.

```
CHANGE PASSWORD

Password old :  ####
```

User level: **programmer**
Operating mode: **STOP**

When entering a new password, it has to be confirmed once again. Enter the figures **'0000'** to delete the password.

```
CHANGE PASSWORD

Password new :  ####
```

```
CHANGE PASSWORD

Confirmation : ####
```

6.4 Error Handling

The Collamat 8600/9100 is able to report up to 16 different errors. The way a labeler is acting after an error has taken place, depends on the function **Error Handling**. This function can be programmed in three different ways (for each of the 16 different errors):

' • ' ignore the errormessage (do not show the message and do not act)
' 0 ' show the corresponding errormessage as a warning on the display – only
' 1 ' show the corresponding errormessage as a error on the display and stop the labeler immediately

Each error is indicated and **must** be acknowledged by the **ENTER** key. Each error can be programmed so that the labeller **STOP**s o the error message is only indicated. If the labeller is stopped due to an error, then the signal relays **ERROR** and **NOK** are energized. If the labeller is not stopped, only the relay **NOK** is energized. With the error key the error No. can be selected. Press **0** or **1** key to select **Continue** or **Stop**. Press the dot ' • '-key to suppress the error identification (**ignore**).

```
[ / ] Error-No.
[0/1/.] Cont./Stop
Continue at
Label Stock
```

User level: **programmer**
Operating mode: **STOP**

The following types of errors can be selected for error handling:

- Not Ready
- TUNIT / Paper end
- Position too short
- Max. Speed
- Label Stock
- Rewinder full
- No LSC-Adjust.
- Nonstop mode
- Label too long
- LSC Counter
- Drive not ready
- Undervoltage
- Profiling Speed
- Time Control
- Division by zero
- Predispensing too short

The exact description of the error messages and their prevention are described in the chapter 'Error messages' in the Technical Appendix.

6.5 Nonstop mode

The **Nonstop mode** function allows continuous labelling with two labellers. The dispensers are connected together and exchange signals. There is a difference between the two dispensers. The first labeller in feed direction is the **MASTER** labeller and controls the second labeller called **SLAVE** labeller. When selecting the nonstop mode the labeller has to be defined as **MASTER** or **SLAVE** with **up** or **down** key:

```
NONSTOPMODE

Function : MASTER
```

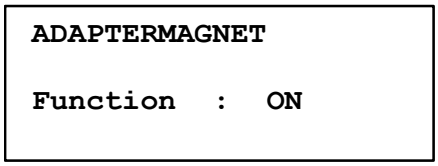
User level: **programmer**
Operating mode: **STOP**

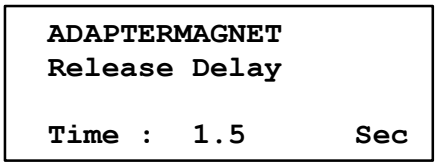
Now to the **Error handling** in a nonstop-configuration:

- a **WARNING** at one of the two labelers will normally activate a **switch-over** from the faulty active labeler to the passive labeler. The supervision of the correct switching time is always managed by the Master. The controlsignal relais output **NOK** of the faulty active labeler will switch to **ON**
- a **ERROR** at one of the two labelers will normally activate a **switch-over** from the faulty active labeler to the passive labeler. The supervision of the correct switching time is always managed by the Master. The faulty labeler will stop (red LED on) immediately. The controlsignals **ERROR** and **NOK** will switch to **ON**
- If the master-labeler runs into problems (**ERROR**), the slave-labeler is still able to complete the remaining job
- If the slave-labeler has a problem (**ERROR**), the conveyor has to be stopped, because products between the master and the slave will stay clear (no label on it)! - except while using the dot-command to switch from slave to master (enforce mastercontrol). The controlsignals **ERROR** and **NOK** will switch to **ON** to indicate the corresponding ERROR- and NOK-conditions

6.6 Adapter magnet (only Collamat 9100)

The **Adapter magnet** function is used to switch on and off the adapter magnet. If set to **ON**, the adapter is folded towards the good for each labelling operation. The time delay to reset the magnet has to be entered in the following menu. When set to **OFF**, the adapter remains in rest position. The function can be switched on and off by **UP** and **DOWN** keys. The **ESC** key terminates the function:

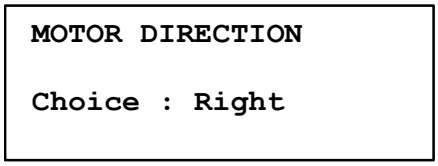




User level: **programmer**
Operating mode: **STOP**

6.7 Motor direction

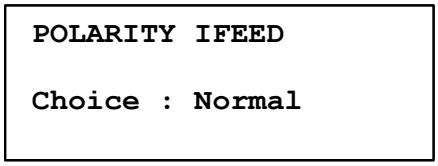
The **Motor direction** function is used to specify the direction of rotation of the labeller motor with the arrow keys: right-hand rotation for right-hand labeller version, and left- hand rotation for left-hand labeller version.



User level: **programmer**
Operating mode: **STOP**

6.8 POLARITY IFEED

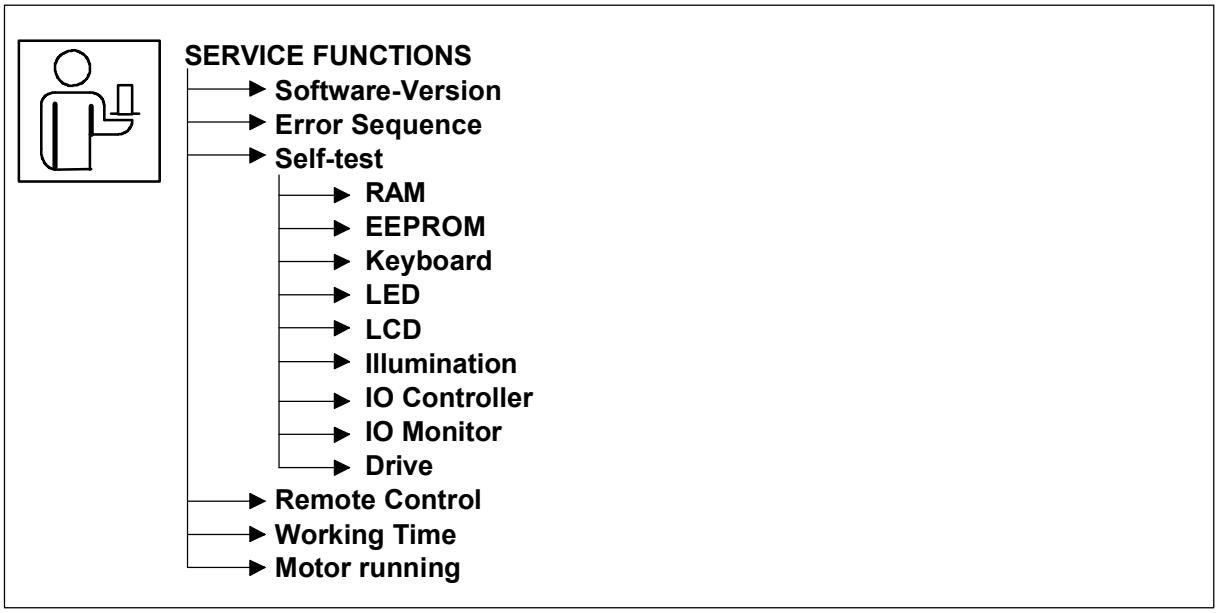
The **Polarity IFEED** function is used to fix the polarity of the monitor **IFEED** signal used to communicate with an outside control. The polarities **Normal** or **Inverse** can be selected with the arrow keys.



User level: **programmer**
Operating mode: **STOP**

7 The 'SERVICE FUNCTIONS' menu tree

The functions necessary for service and test of the labeller can be called up and operated in the **'SERVICE FUNCTIONS'** menu tree.



The **'SERVICE FUNCTIONS'** menu tree is indicated as:

```
SERVICE FUNCTIONS
 Software-Version
 Error Sequence
 Selftest
 Remote Access
 Working Time
 Motor running
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

7.1 Software-Version

With this function the actual **Software version** of the monitor can be interrogated. It is indicated during 3 seconds after switching on the monitor.

```
COLLAMAT 9100

Version 1.20
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

7.2 Error sequence

The **Error sequence** function is used to indicate the sequence of errors, occurred since calling up this function. The last 21 errors are indicated at the most. The type of error is listed in the Technical Appendix **'Error messages'**. The display only indicates the error number.
The cause of a labelling error and a labeller failure can mostly be determined thanks to the error history. The following figure shows an example of such an indication:

```
ERROR LOGFILE
 9, 0,14,14, 9, 9, 0
 5, 7, 9, 9, 2, 8, 3
 0,11,12, 9, 3, 8, 9
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

7.3 Self-test

The **Self-test** function is used to test the electronics of monitor and drive. The Self-test makes an own menu available.

The **'SELF-TEST'** menu tree indications are as follows:

```
SELFTEST
 Test RAM
 Test EEPROM
 Test Keyboard
 Test LED
 Test LCD
 Test Backlight
 Test I/O Controller
 Test I/O Monitor
 Test Drive
```

User level: **programmer**
Operating mode: **STOP**

7.3.1 Test RAM

The **Test RAM** function is used to test the RAMs of the monitor. A detected RAM error is indicated as follows.

```
TEST RAM

Test ok
```

7.3.2 Test EEPROM

The **Test EEPROM** function is used to test the EEPROMs of the monitor. A detected EEPROM error is indicated as follows.

```
TEST EEPROM

Test ok
```

7.3.3 Test keyboard

The **Test keyboard** function is used to test the keyboard of the monitor. All keys have to be depressed once for the test. The sequence for the test is indicated. Keys F1...F5 are the function keys.

```
TEST KEYBOARD
F1  F2  F3  F4  F5

Press all Keys
```

```
TEST KEYBOARD
1 2 3 4 5 6 7 8 9 0
ESC  .   ▲ ▌  ▼   ENTER
Press all Keys
```

7.3.4 Test LED

The **Test LED** function is used to test the LED on the front panel. After selection of this function, all LEDs flash, until the function is aborted with the ESC key.

```
TEST LED

Test in progress
Quit with [ESC]
```

7.3.5 Test LCD

The Test LCD function is intended to test the LCD of the control panel. After selection of this function, all elements of the LCD flash, until the function is aborted with the ESC key.

```
TEST LCD


Quit with [ESC]
```

7.3.6 Test Illumination

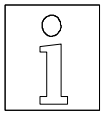
The **Test Illumination** function is used to test the background illumination of the LCD. After selection of this function, the illumination of the LCD flashes, until the function is aborted with the **ESC** key.

```
TEST ILUMINATION


Quit with [ESC]
```

7.3.7 Test IO Controller

The controller p.c.board of the monitor can be tested with this function by a special test adapter. The function is only tested at the manufacturer of the monitor controller p.c.board. All inputs and outputs are tested in pairs. If an error is found, the faulty signal pair is shown on the display. But in built-in state of the controller p.c.board in the monitor, the following indication appears:

```
TEST I/O CONTROLLER

CSEE  -> GSC1
Test failed
```

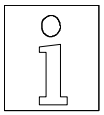


Note:
This function should not be called up without test adapter, otherwise the results will not be meaningful.

7.3.8 Test IO Monitor

The interface p.c. board and the connections of the monitor can be tested with this function by an additional diagnosis connector. All inputs and outputs are checked in pairs. If an error is found, the faulty signal pair will be indicated on the display. A defective interface p.c.board must be replaced. If no diagnosis connector is connected, the following indication will appear:

```
TEST I/O MONITOR

FEED   -> GSC1
Test failed
```



Note:
This function should not be called up without diagnosis connector, otherwise the results will be wrong.

7.3.9 Test drive

The stepper motor of the traction unit and the motor driver can be tested with the **Test Drive** function. For this test the paper web has to be removed. The speed of the stepper motor can be increased or reduced with the arrow keys. The test is terminated with the **ESC** key.

```
TEST DRIVE

Unload paper
Start with [ENTER]
```

```
TEST DRIVE

Speed ▲ ▼
Stop with [ESC]
```

7.4 Remote Control

The **Remote Control** function is used to adjust the labeller via the serial interface. This function is used to set the configuration in the factory. The monitor remains in remote mode until the menu is abandoned with the **ESC** key. In remote control mode the labeller is not operating.

```
REMOTE CONTROL

Serial Port active
9600 Baud 8 Bits
```

User level: **programmer**
Operating mode: **STOP**

7.5 Working time

The **Working time** function is used to indicate the total operating time of the monitor.

```
WORKING TIME

Totaly:     25:16 hrs
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

7.6 Motor running

The **Motor running** function is used to indicate the total feed length of the motor. The total length is indicated in km.

```
MOTOR RUNNING

Totaly:     12.025 km
```

User level: **programmer/operator**
Operating mode: **RUN/STOP**

8 Technical appendix

8.1 Adjusting the predispensing

Predispensing is the length by which the label is pulled forward after detection of the leading edge of the label. Its value can be entered in 0.1 mm steps. The predispensing is normally used to optimize the label position. Adjust it so, that the label is sticked to the goods at the time, when it has the same speed as the goods. Only so the label position on the goods is always exact and does not vary.
If a new value is entered exceeding the old one, the label is pulled forward correspondingly.
But if the new value exceeds the old one, predispensing will be corrected only after one label has been dispensed.
If the entered predispensing length exceeds the label length, a malfunction of the labeller may result since the gap between labels is measured at a wrong time.
The minimum predispensing depends on the maximum labelling speed. The labeller needs more time at high labelling speed to brake the label after having detected its leading edge. The following diagram shows predispensing vs. labelling speed:

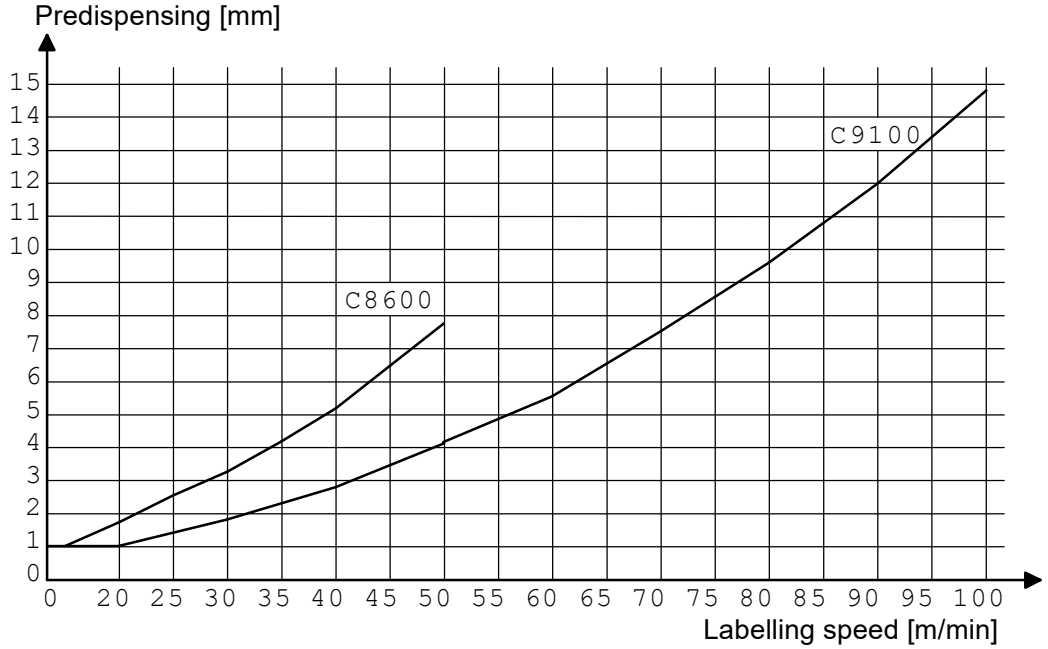


Diagram predispensing vs. labelling speed.

8.2 Adjusting the label position

The position value defines which distance the goods travel after scanning (detection) until the label is sticked on. With this function it is not necessary to shift the goods scanner to change the label position on the goods.
As the adjustment of the position value depends on the labelling speed, it has to be monitored continuously. The following values are monitored:

- Position value when entering a fixed speed
- Fixed speed with too small position value
- At measured labelling speed, the minimum position value

The minimum position value depends on the maximum labelling speed. The labeller needs more time at high speed to accelerate the label after detection of the goods. The following diagram shows the position value vs. labelling speed:

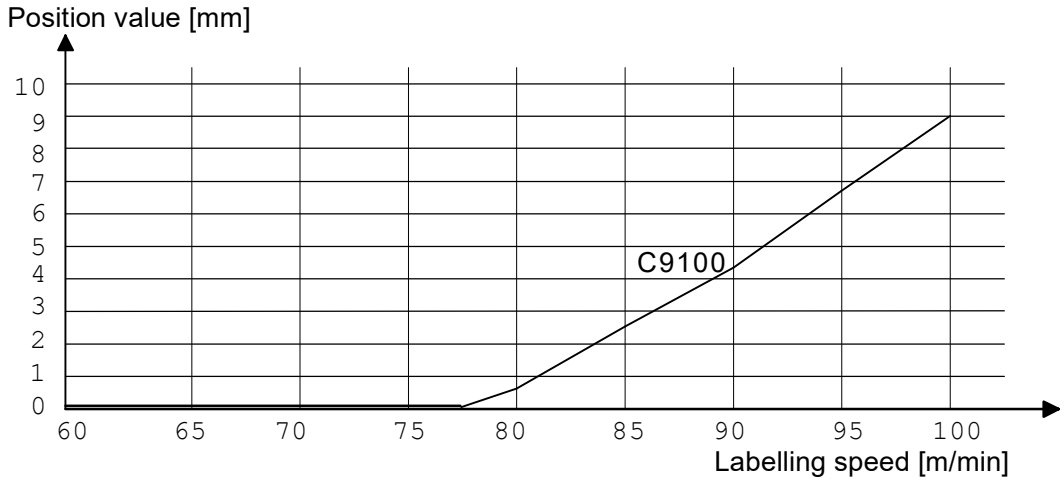


Diagram of label position vs. labelling speed (only Collamat 9100)

Attention:
Four encoder steps are required at least when measuring the speed with the incremental encoder to calculate the actual speed. That means, that the minimum possible position is four times the encoder step length.
If the value of the position adjustment exceeds the distance between the goods, not each good will be labelled as the goods scanner is not monitored during labelling.

Note:
The position value and the predispensing influence both the position of the label on the goods. If predispensing is increased, the label will also be sticked more downstream.

8.3 Adjusting the Profiling

The Profiling function is used, if an uneven good has to be labelled continuously. The dispenser speed has to be varied according to a trapezoidal profile when labelling arched goods to stick on the label without folds. The Profiling can be adjusted in a broad range to label different good shapes. The ratio between the goods speed and the labelling speed, the beginning and length of action can be adjusted.
First the speed factor has to be entered. This factor depends on the inclination surface of the goods surface at the leading edge of the label. The factor is specified in percent of camber. 100 % correspond to the goods speed, and 200 % to the double speed (P1 in diagram below).
The beginning of the profile (P2 in diagram) and the length of the profile (P2 - P3 in diagram) are now entered for normal speed labelling. In this case the value of labelling speed and of the goods speed are equal.
After having passed the length of profile (P3), the labelling speed is increased (4) to the speed entered with the factor (P4), until the trailing end of the label is detected. From this point to predispension it is decelerated (5). If the trailing end of the label is reached before the profile is finished it is stopped normally to predispensing.

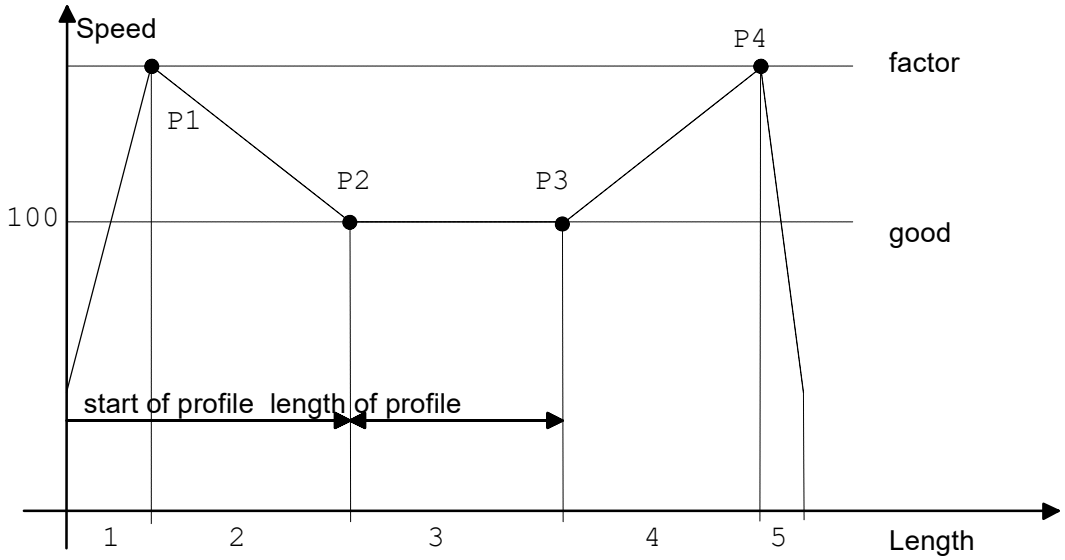


Abbildung: Geschwindigkeitsprofil

To adjust profiling optimally, first labelling takes places normally so that the center of the label is placed in the wanted position. Then the function is optimized for best result by modifying the values **factor**, **start** and **length**. The position of the label is influenced by the change of the dispensing speed. Therefore the position must possibly be adapted to the dispensing speed.

8.4 Error messages

If during operation an error occurs, this will be indicated on the LCD by an error message. Each **error message** has to be acknowledged by the **ENTER** key. If several errors occur at the same time, they have to be acknowledged one after each other. All events causing an error message stop the labeller or only a warning message appears. An error causing a **labeller stop** activates the **ERROR** and **NOK** relay signals. If only a **warning** is indicated, only the **NOK** relay signal is activated. The acknowledgement with the **ENTER** key **deactivates** these signals.
The following table shows all possible error messages with their error number.

Error #	Error message	Error cause
1	Not Ready	External signal READY not ready
2	TUNIT / Paperend	Traction unit not closed, end of paper reached
3	Position too short	Position value shorter than calculated (speed)
4	Max. speed	Measured speed higher than permitted max. value
5	Label Stock	No label stock
6	Rewinder full	Rewinder full
7	No LSC-Adjust	No adjustment of label scanner possible
8	Nonstopmode	Error in one of the labellers in nonstop mode
9	Label too long	Label dispensed longer than entered label length
10	LSC Counter	A further gap was scanned during predispensing
11	Drive not Ready	Motor driver card signals an error or is not ready
12	Undervoltage	Undervoltage of mains scanned
13	Profiling speed	Speed higher than max. speed
14	Watchdog Timer	Internal processor monitoring
15	Division by zero	Internal software error
16	Predisp. too short	Predispensing is too short for the actually measured speed

8.5 Error diagnosis

In the service part of the error sequence menu, all errors and warnings will be registered and indicated. This is helpful to trace back the error history of the labeller. Thus, if an error happens frequently, it can be better identified and eliminated. The error history also helps the technical operator in case of inquiries. Note the error numbers in indicated order for further inquiries.
The description of the particular error numbers and their error texts, causes and elimination will follow.

Error #1 Not ready

Cause:
A peripheral appliance (flat printer, hotstamp etc.) has not yet released the signal **READY** at the starting time of the labelling.
Solution:
Reducing the cadence. Reducing the time activated by the READY signal. If a G&S flat printer GS077D is used, reducing the printing time by trimmer P1.

Error #2 TUNIT / Paperend

Cause:
1. The lock in the traction roller or the paper brake is open.
2. The label roll is empty.

Solution:
1. Close lock of traction roller or paper brake.
2. Insert a new label roll.

Error #3 Position too short

Cause:
The position value is too low for the actual labelling speed. The label is sticked in false position on the goods.
Solution:
Increasing the position value or reducing of labelling speed.

Error #4 Max. Speed

Cause:
The measured goods speed is higher than the entered max. labelling speed. Labelling becomes faulty.
Solution:
Reducing the goods speed or, if possible, increasing the max. labelling speed.

Error #5 Label stock
Error #6 Rewinder full

Cause:
The label stock of the unwinder is empty or the rewinding disk of the rewinder is full.
Solution:
Replace empty paper roll or remove backing paper roll from rewinder disk.

Error #7 No LSC-adjust

Cause:
Adjustment of label scanner not possible. The scanner is defective or it is scanned on label instead of gap, or the backing paper is not transparent enough.
Solution:
Shift gap under label scanner and adjust it again. Possibly exchange defective scanner.

Error #8 Nonstopmode

Cause:
One of the labellers has an error. The nonstop mode does not function correctly. The error can be triggered by all error messages.
Solution:
Eliminate the error on the labeller. **Nonstop reset at both monitors**.

Error #9 Label too long

Cause:
A leading label edge could not be scanned within the entered label length. The cause of this error can be as follows:
- Missing labels on the paper web
- Slippage of the traction unit or loss of steps of the stepper motor due to hits on the paper web or too high frictional force
- Value of label length is entered too short
- Predispensing greater than label length
- Value of label length shorter than suppression of label scanning
- Error of label scanning

Solution:
The following items may be helpful:
- Enter in general double or three times the value of the label length
- Correct predispensing
- Adjust suppression of label scanning
- Check label scanner and possibly clean it
- Use unwinder with double dancer roller
- Reduce friction force of entire paper web

Error #10 LSC Counter

Cause:
When braking the label, a gap was detected during predispensing. This happens in the case of transparent or very reflective labels.
Solution:
Adjustment of suppression of label scanner
Optimizing the positioning of label scanner
Optimizing the label scanner sensitivity

Error #11 Drive not Ready

Cause:
The motor drive card indicates that it is not ready to drive the stepper motor.
Solution:
Switch off the monitor. Wait 10 seconds before switching on again. If the error did not disappear, the monitor is damaged and has to be repaired by a specialist.

Error #12 Undervoltage

Cause:
During labelling a mains occurred causing the data to be backed up.
The monitor continues to operate normally.

Error #13 Profiling speed

Cause:
The max. profiling speed exceeds the maximum permissible labeller speed.
Solution
Reduce the goods speed or possibly increase the max. labeller speed.

Error #14 Watchdog Timer
Error #15 Division by zero

Cause:
An internal protective circuit has detected that the calculation time provided is exceeded or a calculation error is in the processor. The cause may be a very strong electromagnetic disturbance or a program error.
Solution:
Switch off and on the monitor. If the error persists, please note all monitor settings and contact your technical supporter.

Error #16 Predisp. too short

Cause:
At the actual measured speed the brake ramp exceeds predispensing.
Solution:
Reduce the good speed or increase predispensing.

8.5.1 Operating warnings

Entering an exceeding or short falling value by keyboard the following warning message is displayed:

```
Warning

Excceding value
```

```
Warning

Short falling value
```

If a function or a value is selected by the operator without having the permission for access the following warning message is displayed:

```
Warning

Illegal access !
```

8.6 Nonstop - configuration and setup

Collamat	Mode	Item
Master + Slave	Configuration	Select language
Master + Slave	Configuration	Select user level
Master + Slave	Configuration	Set adapter magnet on/off
Master + Slave	Configuration	Set motor direction
Master + Slave	Configuration	Set polarity IFEED
Master	Configuration	Adjust error handling
Slave	Configuration	Adjust error handling
Master	Configuration	Set Nonstop mode to Master
Slave	Configuration	Set Nonstop mode to Slave
Master + Slave	Programming	Label length adjustment
Master + Slave	Programming	Label scanner sensitivity adjustment
Master + Slave	Programming	Predispensing adjustment
Master + Slave	Programming	Position adjustment
Master + Slave	Programming	Speed adjustment
Master + Slave	Programming	Max. speed adjustment
Master + Slave	Programming	Good suppression adjustment
Master + Slave	Programming	Labeling mode adjustment
Master + Slave	Programming	Profiling off
Master + Slave	Programming	Store program

8.6.1 Error handling configuration of a Nonstop-installation

Error / Warning		Master	Slave
1	Not Ready	Ignore error # 1	Ignore error # 1
2	TUNIT / Paperend	Stop at error # 2	Stop at error # 2
3	Position too short	Ignore error # 3	Ignore error # 3
4	Max. Speed	Ignore error # 4	Ignore error # 4
5	Label Stock	Continue at error # 5	Continue at error # 5
6	Rewinder full	Continue at error # 6	Continue at error # 6
7	No LSC-adjust	Ignore error # 7	Ignore error # 7
8	Nonstopmode	Stop at error # 8	Stop at error # 8
9	Label too long	Stop at error # 9	Stop at error # 9
10	LSC Counter	Ignore error # 10	Ignore error # 10
11	Drive not Ready	Stop at error # 11	Stop at error # 11
12	Undervoltage	Ignore error # 12	Ignore error # 12
13	Profiling speed	Ignore error # 13	Ignore error # 13
14	Wstchdog Timer	Ignore error # 14	Ignore error # 14
15	Division by zero	Ignore error # 15	Ignore error # 15
16	Predisp. too short	Ignore error # 16	Ignore error # 16

Remarks to the error #:

1	if READY-signal is used, set Master/Slave to "Stop at..."
3	set to "Continue at..." for setup/programming, set to "Ignore..." in production
4	If conveyor speed is not checked externally, set Master/Slave to "Stop at...."
7	set to "Continue at..." for setup/programming, set to "Ignore..." in production
8	This error is not used anymore (Version 1.20 and later)
10	set to "Continue at..." for setup/programming, set to "Ignore..." in production
16	set to "Continue at..." for setup/programming, set to "Ignore..." in production

8.7 Value table

Parameter	Value range	Default	Resolution	R/S	P/O
Speed C8600 fixed+measured C9100	0.5-50.0 m/min 0.5-80.0 m/min	3.0	0.1 m/min	R/S	P
Speed with C8600 encoder C9100	0.0-50.0 m/min 0.0-80.0 m/min	- -	0.1 m/min	R/S	P
Step length of encoder	1.00 - 9.99 mm	1.00	0.01 mm	S	P
Distance measuring light barrier	10.0 - 99.9 mm	14.0	0.1 mm	S	P
Max.speed C8600 C9100	3 - 50 m/min 3 -100 m/min	50 80	1 m/min	S	P
Predispensing C8600 C9100	1 - 1000 mm	10.0 10.0	0.1 mm	R/S	P/O
Position	0 - 6000 mm	0	0.1 mm	R/S	P/O
Label scanner sensitivity	0 - 99	30	1	S	P
Label length	5 - 2500 mm	100	1 mm	S	P
Label suppression	0 - 2500 mm	0	1 mm	S	P
Goods suppression	0 - 25000mm	0	1 mm	S	P
Adapter magnet time (only C9100)	on/off 0.0 - 2.0s	off 0.0	- 0.1 s	S	P
Labelling mode normal multiple delayed	on/off on/off on/off	on off off	- - -	S	P
Multiple quantity distance	2 - 24 pcs. 0 - 5000 mm	1 10	1 pcs. 1 mm	S	P
Delayed stop at	1 - 250 mm	10	1 mm	S	P
Profiling factor start length	100 - 200 % 1 - 500 mm 1 - 500 mm	100 50 30	1 % 1 mm 1 mm	S	P
Programs	1 - 32	1	-	S	P/O
Program identification	7 digits	blank	-	S	P
User levels	2	1	-	S	P/O
Password	0000 - 9999	0	-	S	P
Languages	9	De	-	S	P/O
Direction of rotation	left / right	R	-	S	P
Polarity IFEED	pos. / neg.	pos.	-	S	P
Nonstop mode	on/off	off	-	S	P
User menu	3 lines	-	any	S	P
Error handling	16 messages	0	any	S	P
Counter	999.999	-	1	R/S	P/O
Preset counter	999.999	0	1	R/S	P/O
Counter selection	GSC, LSC, EXT	LSC	-	S	P
R = RUN		**S** = STOP			
P = Programmer		**O** = Operator			

9 Maintenance

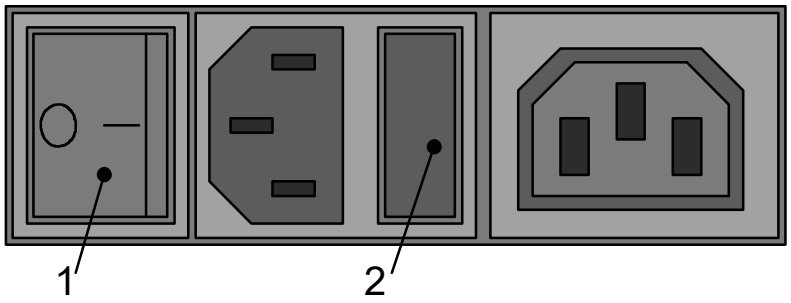
9.1 Cleaning

Clean the control panel with a cleansing agent without solvent. Be carefully that no cleansing agent or humidity penetrates into the monitor what may damage electronic components.

9.2 Fuses

The 2 mains fuses are installed on the rear panel near the mains switch. The monitor must be switched off and disconnected from the mains to exchange the fuses. The figure below shows the fuse holder. The fuses must be replaced by the same type.

Mains voltage	Rating	Part Number
110....120V AC	10AT/250V slow blow. (2 fuses)	7403.0833
220....240V AC	5AT/250V slow blow. (2 fuses)	7403.0822



1 Mains switch
2 Fuse holder

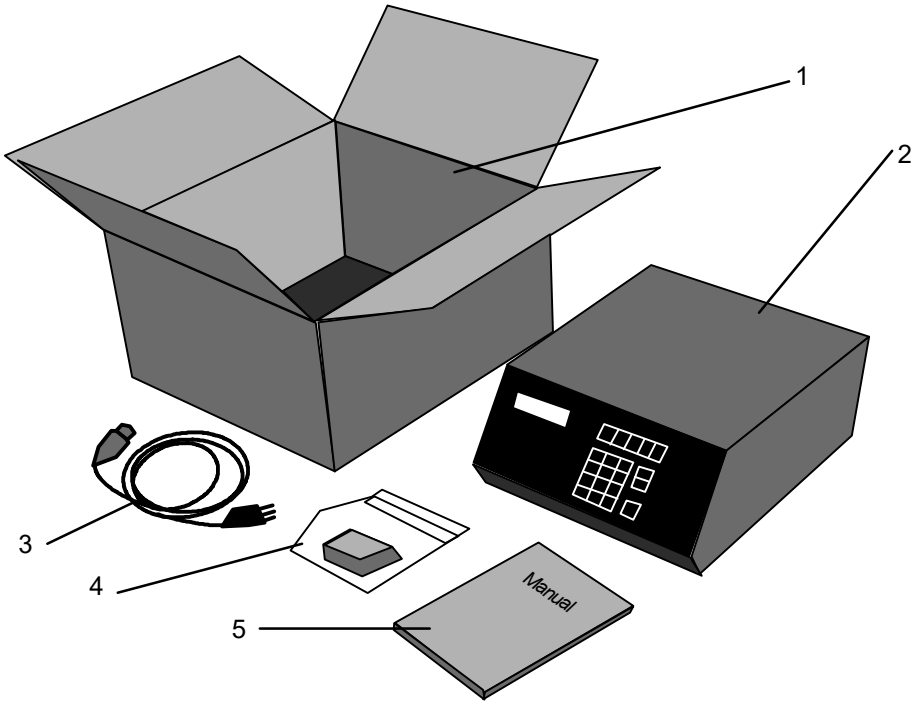
9.3 Repairs

A defective monitor may only be opened and repaired by special trained personnel!
Repair indications and instructions to eliminate errors are contained in the Technical Manual.

The guarantee will become void in case of improper repairs and interventions.

9.4 Packing

The monitor is shipped in a special shock-proof package. For shipping, only this package may be used. For damages due to wrong packing and shipping we refuse any guarantee. The following figure shows all parts which are shipped in the package:



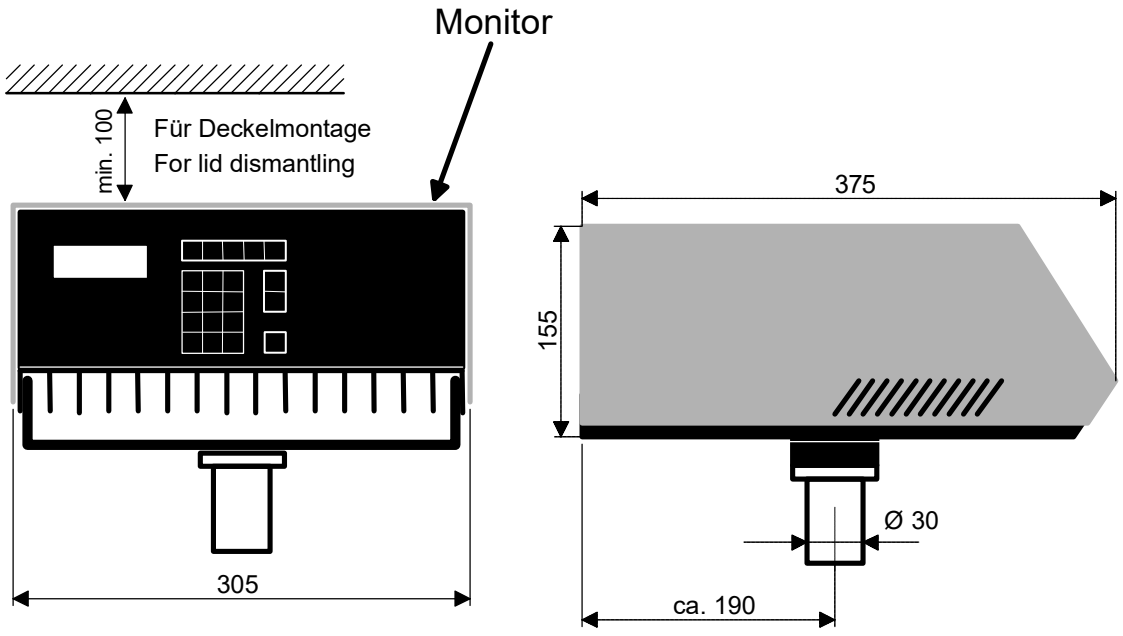
1. Packing box
2. Monitor C8600 or C9100
3. Power cord
4. GSC and Relay connectors unassembled
5. Operating Instructions Monitor C8600/C9100

For unpacking place the packing box **1** on a stable table or platform and open it carefully. Be careful that the monitor **2** is not scratched by tools. Now take the monitor **2** carefully out of the package and place it on its heatsink in the position as shown in figure above. The monitor must not be placed on its back panel. This may damage it. Now unpack the Operating Instructions **5**, the power cord **3** and the relay connector **4**, and place it on the table as shown in the figure above.
The packaging material and the packing box should be kept for later shipping.
For packing proceed in reverse order. First place the power cord and the relay connector in the box. Then fix the monitor in the packing box with the packing material and as last put the Operating Instructions behind the monitor. Now the packing box can be closed for shipping.

For shipping damages due to wrong packing no guaranty will be given. The monitor must be shipped in its original transportation packing.

9.5 Technical data of monitor

Data	C8600	C9100
Dimensions	375 * 305 * 155	
Weight	15 kg	15.5 kg
Ambient temperature	5....+40 °C	
Storage temperature	-10....+60 °C	
Air humidity	15...95% not condensing	
System of protection	IP40	
Supply voltage	110, 120, 130, 220, 230, 240V AC	
Voltage tolerance	± 10%	
Power consumption	305 VA	480 VA
Fuse rating 110-120V AC 220-240V AC	2 fuses 10AT (slow blow) 2 fuses 5AT (slow blow)	
Frequency	50-60 Hz	
Mains socket 110-130V AC 220-240V AC	2 A max. 1 A max.	



10 Trouble shooting checklist

Machine/device type:		Ser. No. Monitor:	Ser. No. Labeller:
Ser. No of Controller p.c. board:	Software version:	Ser. No. Motor driver:	Ser. No. of Interface p.c.board:
Environment	Mains voltage:	Frequency Hz:	Temperature °C:
	Humidity %:	EMC level (burst):	ESD level (static):
Labels	Width:	Length:	Gap:
	Thickness:	Transparency:	Material:
Paper web	Width:	Thickness:	Transparency:
Goods	Kind:	Material:	Shape:
	Length:	Width:	Height:
	Speed m/min	Length in transport direction:	Distance:
Labeller	Speed m/min:	Pieces / min.:	Measuring:
Settings	Predispensing:	Position mm:	Suppression:
	TCY value:	Label length:	Suppression:
Particularities:			
Machine environment	Goods transport:	Feeder:	Downstream machine:
	Other machines in vicinity:		
Peripherals	1.	2.	3.
Screening	Mains cable:	Sensor cables:	
ESD phenomena	Description:		
Description of mal-functions:	Fault frequency	continuous: repeated: ..... sec. sporadic:	
Date / possibly date and time of last faults:			
Comments:			
Fault registered by Name: Date:			

Please copy this list before filling it in

Register F

Collamat 8600/9100 Monitor Technical Manual, extract pages 15-55

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Collamat 8600

Technical handbook

5999.545-01G

6 The Monitor C8600

The monitor must be unplugged from the mains supply before it is opened. Inside of the monitor charged capacitors can lead to shock hazard. Wait at least 10 seconds before opening the monitor.

6.1 Construction

All the controller electronics for the Collamat 8600 labeler are built in to a stable steel cabinet. This cabinet contains no adjustable controls inside. All settings can be done by keyboard. After removing the two screws from the backpanel the cover can be separated from the heatsink.

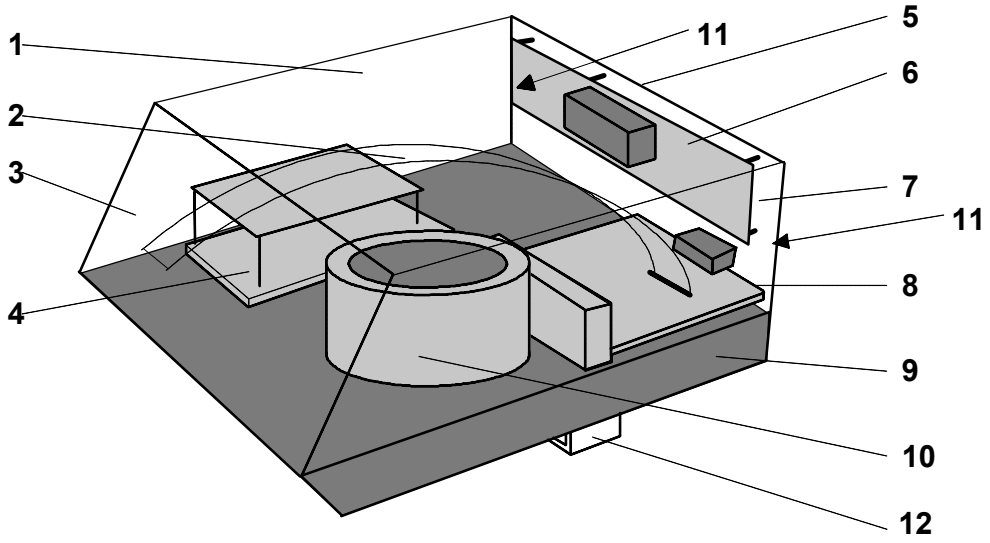


Figure 11: Monitor

Legend

1.	Cover	**7.**	Mains switch
2.	Flatcable	**8.**	Interfaceboard
3.	Control panel	**9.**	Heatsink
4.	Motordriver	**10.**	Transformer
5.	Backpanel	**11.**	Locker screws
6.	Mains filter board	**12.**	Mounting clamp

The cover **1** carries the control panel **3** and protects the parts inside the monitor. It can be removed after unlocking the screws **11** and slightly shifting the cover to the front side of the heatsink **9**.

ATTENTION:
The cover must be removed carefully. Otherwise the flatcable 2 or its connectors can be damaged.

ATTENTION:
The electronic components of the control panel must not be touched without ESD safety precautions. The controller is sensitive to electrostatic discharge.

6.2 The control panel

The control panel of the monitor C8600 is a standalone unit that contains a microprocessor. It is at the same time frontpanel and the control- or administration processor. All settings and adjustments of the Collamat 8600 are programmed and handled in this unit. The settings and adjustments are stored in the control panel even if the power is turned off.
It is possible to install the monitor in two different positions. Due to this the frontpanel can be installed in two ways. (See figure 12). Therefore the panel is hold with six fixing bolts to the cover. It can be removed or assembled by clicking it out or in from or onto the cover. Take care to the flatcable. It must not be wrenched or squeezed.

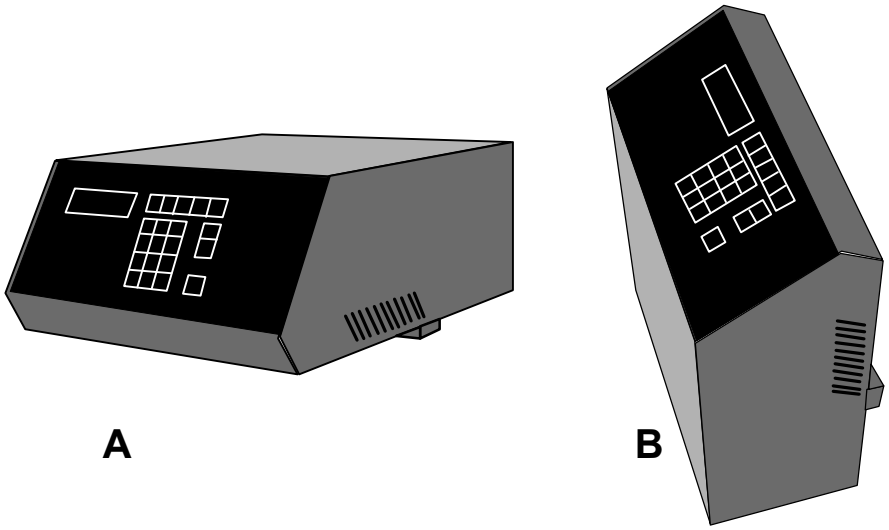


Figure 12: Installation modes

When the frontpanel is removed from the cover, keep care that the fixing bolts are not damaged. After reassembling the frontpanel with the cover, open the fixing bolts a bit with a little screwdriver or a tool that fits the little slots of the bolts by hand without taking too much force. The frontpanel must fit tight to the cover.

ATTENTION:
While assembling or disassembling the frontpanel, the copperside or the frontside can be damaged. You must not use sharp tools like knives or screwdrivers.
Keep care to the ESD safety precautions.

6.3 Construction

The control panel contains ESD sensitive components. Take precautions against ESD while working with the control panel.

If a control panel is defective, it must be exchanged. Any repairs not made by HM Collamat AG will expire the guarantee.

The control panel builds together with the frontpanel one unit. This unit is connected with one 50 pole flatcable to the interfaceboard. The flatcable leads all signals to the interfaceboard and the power supply to the control board. All electronic components are soldered in SMD technology onto the board.
The frontpanel contains the keyboard. This keyboard is equipped with switchcontacts under the front foil. The contacts have a clicking function. This helps to feel the function of the keys. So it is easier to operate in a noisy environment.
The LCD-display is, like the LED's for the operationmode display, covered behind the front foil. Figure 13 shows the rear view of the controlboard. All SMD components, the LCD-display and the flatcable connector are placed here.

6.4 Hardware

The circuit is built around a microcontroller H8/532. This controller serves the LCD-display, the keyboard and the control signals to the motordriver and to the labeler. All in- and outputs of the board are protected against electromagnetic interference's (RMI) with filters. This secures a safe operation and prevents the board from radiate RMI. Figure 12 shows the components on the component side of the control board.

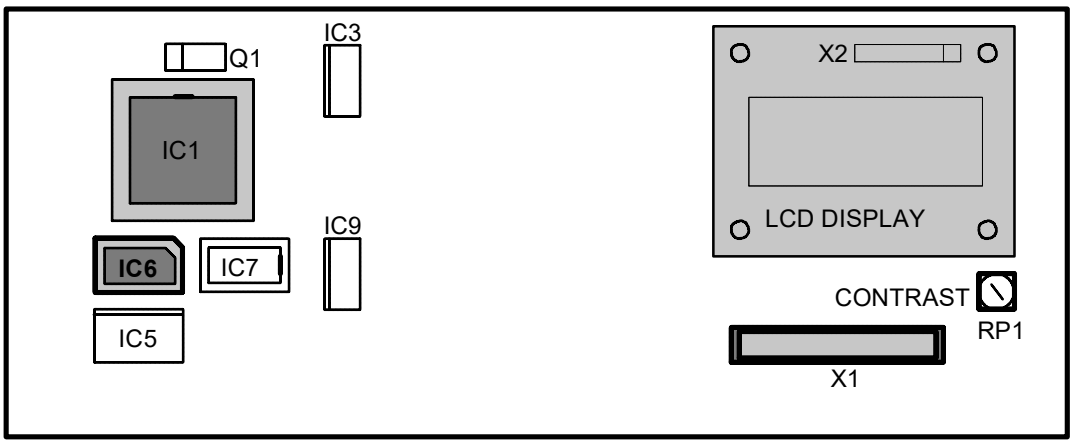


Figure 13: Rear view of the control board

6.4.1 Firmware memory IC6, EPROM 128 Kbytes

The firmware is programmed into a 27C010-type EPROM. This EPROM has a PLCC-package. For exchanging the EPROM you need a special PLCC extracting tool. The position of the EPROM is shown in figure 13.
While inserting the EPROM, keep care that the diagonal edge of the package fits the diagonal side of the socket. Press the EPROM into the socket by a slight pressing with your finger until you feel it snaps in.
The program memory IC6 is programmed with the firmware of the two Collamat 8600 and 9100. The firmware makes out the connected interfaceboard by a specific code of the board.

If the EPROM is extracted with the wrong tool, the socket may be damaged.

6.4.2 The LCD-Display

The LCD-display has four lines with 20 character types. It shows all the user information and the labeler conditions. The backlight illumination can be turned on and off by the microcontroller. The illumination gives a good reading of the informations of the display in dark environment.

6.4.3 Adjusting the contrast

For this adjustment the little trimmer RP1 on the component side is used. (See also figure 12). This trimmer must be operated with a special screwdriver for SMD components. If you use another kind of tool, the trimmer can be damaged. Never apply force to the trimmer !

6.4.4 Exchanging a defective LCD

First all four fixing screws of the LCD must be removed. Then all the 16 solder points of the connector X2 must be unsoldered from the soldertin. The new LCD is now inserted over the 16 contact pins and fixed with the four fixing screws. Before you resolder all the pins, watch the parallelism of the LCD to the front foil.

Before you change the LCD, watch the guarantee regulations. For broken LCD's no guarantee is given! Unauthorized soldering on assemblies while guarantee time, lapses the guarantee.

6.5 The backpanel

On the backpanel the mains connectors and the connectors for the labeler can be found. The mains connectors are connected to the mains filter board. This board contains the mains connector, the mains switch, the mains filter and outlet and an additional noisefilter for the motordriver.

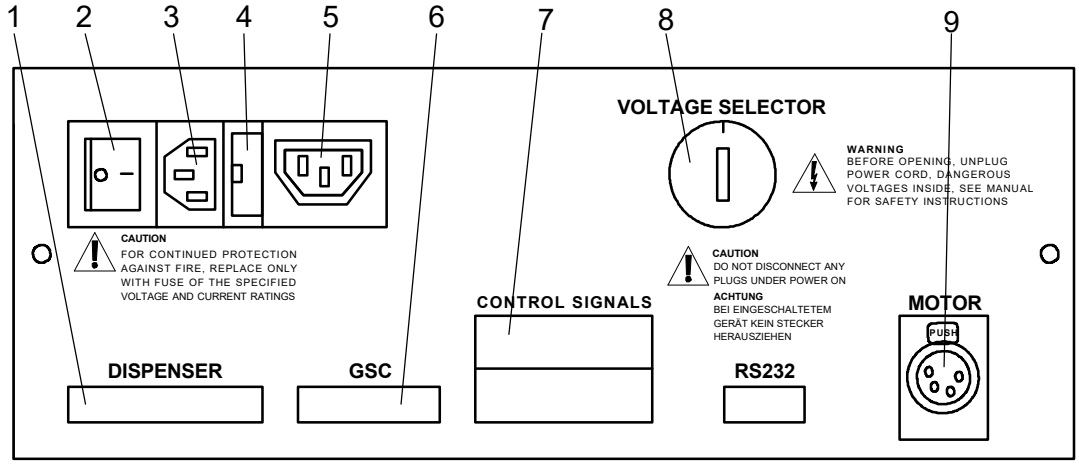


Figure 14: Backpanel Monitor C8600

Legend

1. Labeler connector
2. Mains switch
3. Mains plug
4. Fuse holder
5. Mains socket
6. Blind cover
7. Signal relais connector
8. Voltage selector
9. Motor connector

Only units approved by Collamat Stralforsare allowed to be connected to the mains socket **5**. The following table shows the fuse current ratings and the maximum permissible current for the mains socket:

Mains-voltage (VAC)	Mains-fuse	Peak-current	Monitor-fuse	Max. load current
110/120 VAC	20 AT	30 Â, 20 ms	**10 AT**	2 A
220/230/240 VAC	10 AT	30 Â, 20 ms	**5 AT**	1 A

The monitor must be the first unit which is switched on in a heavy loaded mains. Otherwise the inrush current may blow the mains fuse.

The signal relay contacts 7 only may be used to signalize operation conditions of the Collamat. These contacts must not be used to switch self-powered or dangerous units.

6.6 The mains filter board

The mains filter board is used to give a clean filtered mains voltage to the transformer. The board is mounted onto the backpanel and contains components on both sides.
The mains filter board carries a high efficiency mains filter, the voltage selector, the mains connectors, the mains sockets for the transformer and the mains fuses. The mains filter board also carries the RMI-filters for the motordriver. Figure 14 shows the mains filter board.

DANGER:
Before opening the monitor the mains connector must be unplugged. The mains filter board leads mains voltage! Danger of shock hazard due to high voltage at components.

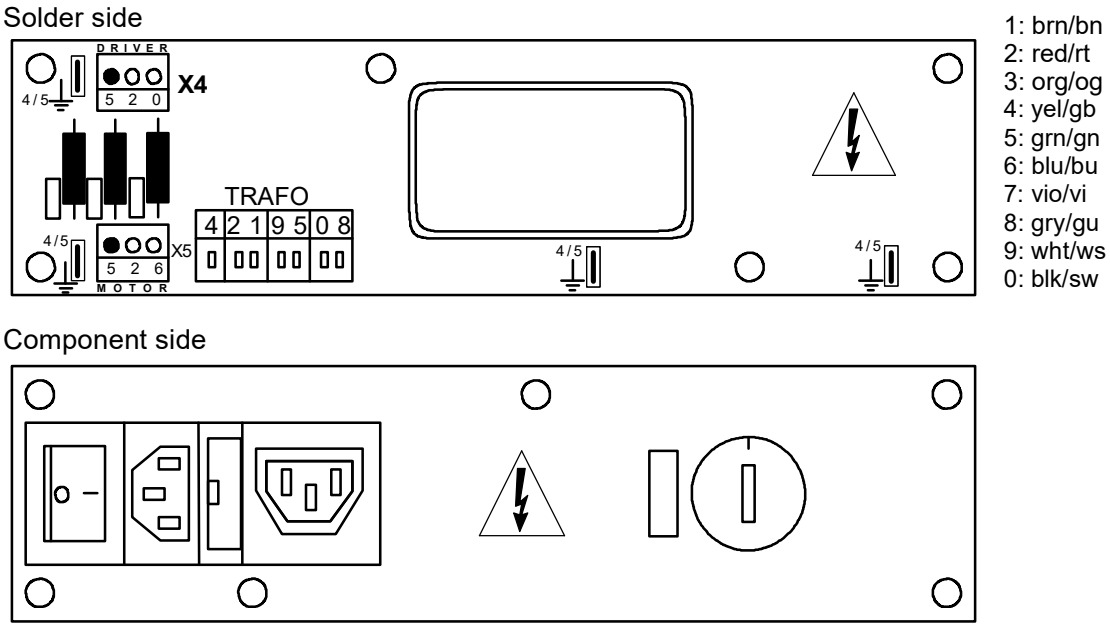


Figure 14: Mains filter board

6.6.1 Exchange of the mains filter board

To exchange the mains filter board all the cables leading to the board must be disconnected. Then the board may be removed after unscrewing all six screws. The new board is now first fixed with the six screws and then reconnected with the cables. Figure 15 shows the wiring of the mains filter board.

Attention:
After exchanging the mains filter board all the four grounding cables must be reconnected. If this is not carried out, shock hazard or malfunction of the monitor may happen.

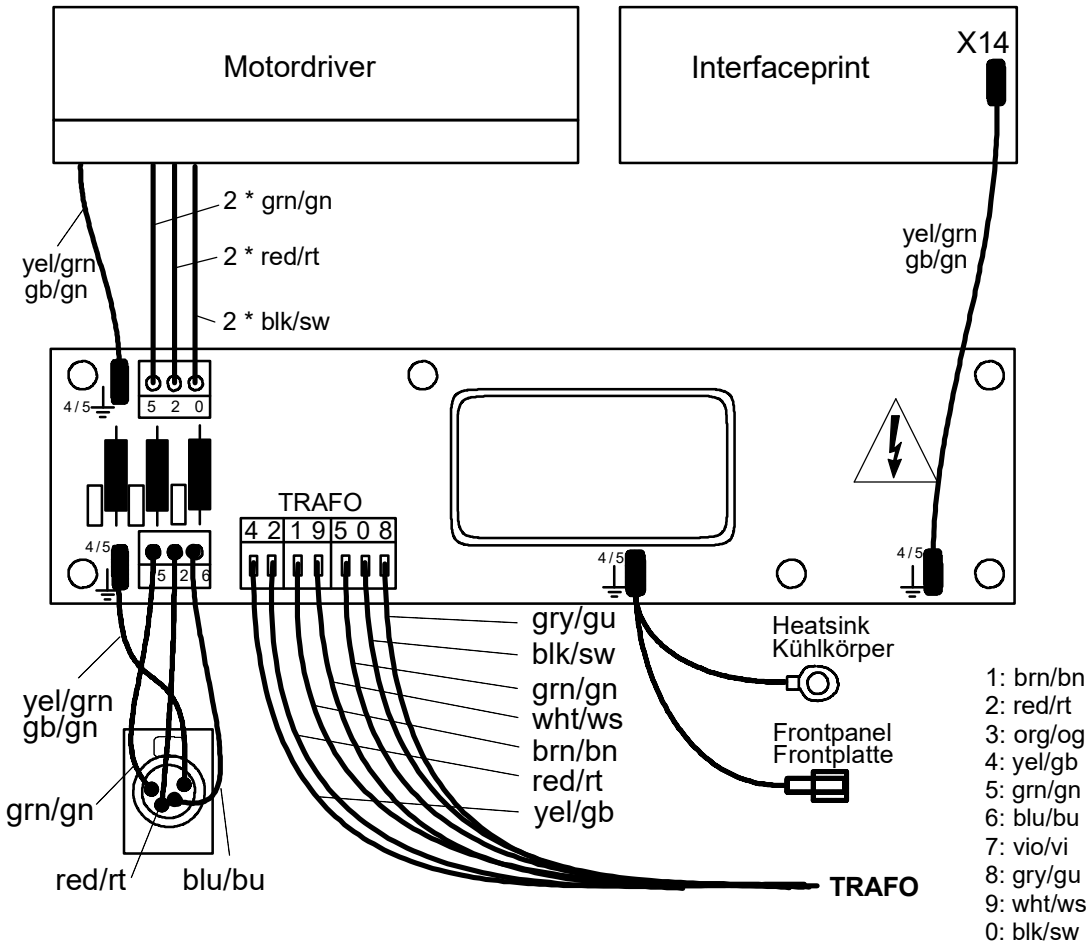


Figure 16: Wiring of the mains filter board

Attention:
After exchanging the mains filter board, the voltage selector must be set to the correct mains voltage to which the Collamat will be connected.

6.7 The Interfaceboard

The interfaceboard is used to connect the labeler and its peripheral units to the monitor. It filters and shapes all the signals of the labeler or of the installation to the logic level of the micro controller. The interfaceboard also contains the electronic parts of the power supply an feeds the motor-control signals to the motordriver. Figure 17 shows the position of the connectors of the interfaceboard.

6.7.1 The power supply

The transformer is connected to the terminals **X11** and **X12** of the interfaceboard. The voltage for the motordriver is connected to the terminal **X11**. Fuse **F1** protects this voltage against overload. LED **LD1** indicates the **120V** for the motordriver.

The supply voltage for the logic and the sensors is connected to terminal X12. Fuse F2 protects this voltage against overload. LED **LD2** indicates **24V**. The voltage 12V and 5V are generated by the 24V using switching regulators. LED **LD3** indicates **12V**, LED **LD4** indicates **5V**.

The 5V and 12V supply's are protected against short connection and overload.

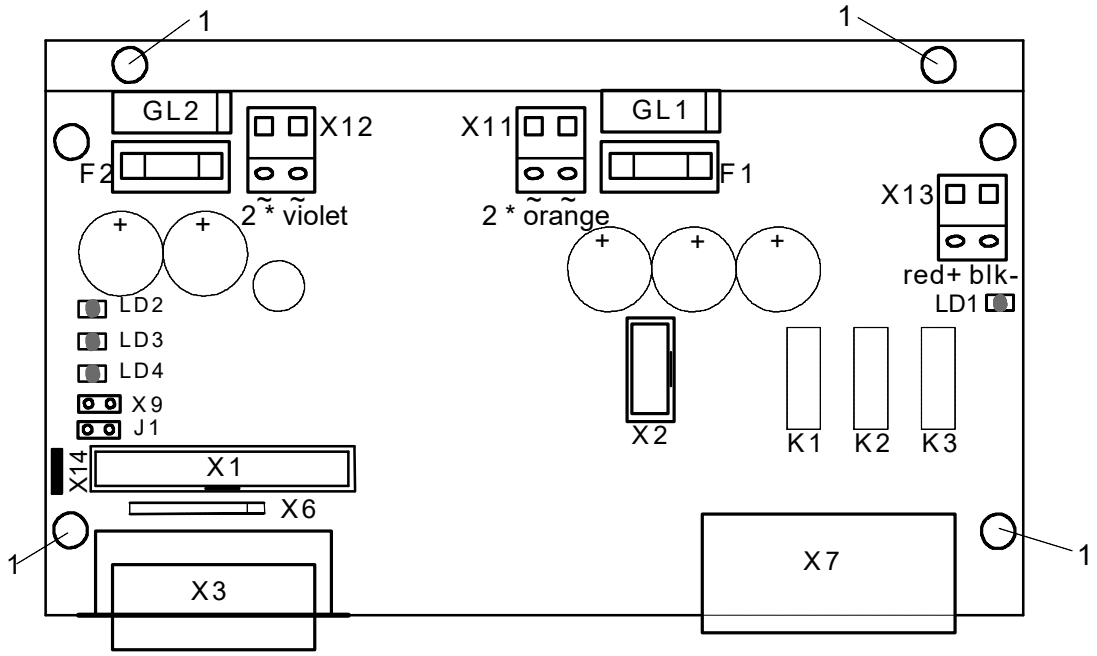


Figure 17: Interfaceboard

The following table shows the voltage and fuse values of the interfaceboard:

Voltage	Current	Fuse	Terminal ~	Terminal =	LED
120 V DC	2,2 A	F1 : 3.15A	X11	X13	LD1
24 V DC	1,5 A	F2 : 2,5 A	X12	-	LD2
12 V DC	500 mA	-	-	-	LD3
5 V DC	1 A	-	-	-	LD4

6.7.2 Fuses

If the voltage 120V or 24V is missing the corresponding LED is not lit. If the 24V lacks then the 12V and 5V also lack. Each voltage has its own LED. (See also above table). If a voltage is missing, the corresponding fuse must be checked. The fuses are located beneath the heatsink on the interfaceboard. If the fuse is blown first check what it caused. The fault must be rectified before the fuse is replaced.

6.7.3 Exchange of the interfaceboard

To exchange the interfaceboard, first all cables must be disconnected. After detaching the four fixing screws **1**, the board can be removed. Then the new board is inserted carefully and fixed with the four fixing screws **1**. When this is done the cables must be reconnected.

6.7.4 Terminals and connectors

The following table describes the terminals and connectors of the interfaceboard:

Terminal Connector	Description
X1	Flatcable connector to the frontpanel
X2	Motorclock and supervision signals of the motordriver
X3	DISPENSER-connector for the labeler
X6	Serial port for factory testing
X7	Signalrelais contacts
X9	Key switch
X11	Voltage supply from transformer, 85 VAC
X12	Voltage supply from transformer, 19 VAC
X13	Voltage supply to motordriver, 120 VDC
X14	Ground connector to the power filter board

6.7.5 Particulars

Attention:
While unplugging the flatcable from X1, keep care that the cable is pulled out carefully. It is easily damaged. Inserting the cable, watch for a correct position of the plug.

Connector X6 is used for testing the monitor at the manufacturer. For future time it will be possible to connect a PC or a modem to this connector.
Connector X7 gives isolated relais contacts. With these contacts external units like signal lamps or PLCs can be controlled. Also an isolated input allows to Start or Stop the Collamat by an external signal.
Connector **X9** is used to indicate the firmware there is a keyswitch attached. The keyswitch is then connected to **J1**. If the Key makes contact to J1 the user level is set to **Programmer**, otherwise it is Operator.
This connector X9 together with Jumper J1 also is useful when the password is lost. The password can then be cleared by entering **'0000'** in the password setting menue. See also chapter Password.
The ground connection X14 is used to connect the grounding wire to the mains p.c. board. If this grounding is not plugged in, malfunctions of the labeller may occur.

6.8 The motor driver

The motordriver board is an assembly which is developed and produced by a well-known manufacturer of steppermotors and steppermotordrivers.

The motordriver board is adjusted, tested and built into the monitor by HM Collamat AG. The settings must not be changed. The motor current must not be changed !
ATTENTION: No switch or jumper must be touched while power on !

DANGER
Disconnect all voltage supplies before working on the motordriver !

6.8.1 Settings

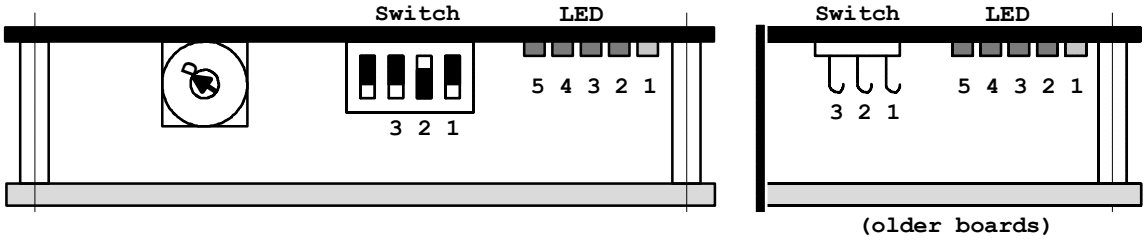


Figure 18: Motordriver settings

Set the hook switches S1, S2, S3 and the selector switch to the following positions:

S1 : open	**S2 : closed**	**S3 : open**	**Selectorswitch : D**

6.8.2 Status indicators

The five LED's on the motordriver indicate operating states and any malfunction:

LED 1	lights up when the motordriver is operating properly. The supply voltage exceeds 80 VDC.
LED 2	lights up in case of a short-circuit between two motor phase leads.
LED 3	lights up in case of overtemperature (> 75°) at the heatsink.
LED 4	lights up in case of overvoltage (>140 V) during operation with brake.
LED 5	lights up in case of undervoltage (< 80 V).

NOTE:
If a fault occurs (LED2 to LED5), the motor is deenergized and LED1 goes out. The fault condition is displayed on the monitor and can only be cleared by switching the monitor off and on.

6.8.3 Exchange of the motordriver

First the two plug clamps must be removed. Then the connector is unplugged and the motordriver can be detached from the heatsink by loosen the four screws placed on the heatsink. The new motordriver is now fixed with the four screws, connected to its cables and then secured by the plug clamps.
While assembling watch carefully that no dirt or dust is between the two heatsinks.

6.9 Traction unit C8600

The signals of the monitor C8600 are fed with one cable to the traction unit. All units are connected to the traction unit. Modules on the modular rail are connected with the buscable (14 pole flatcable). The following figure 19 shows the position of the connectors inside the traction unit. The colors of the wires are writen on the board. This colors are only valid for peripheral units from HM Collamat AG. The connection cables of the sensors are fed to the inside of the traction unit with special clamps.

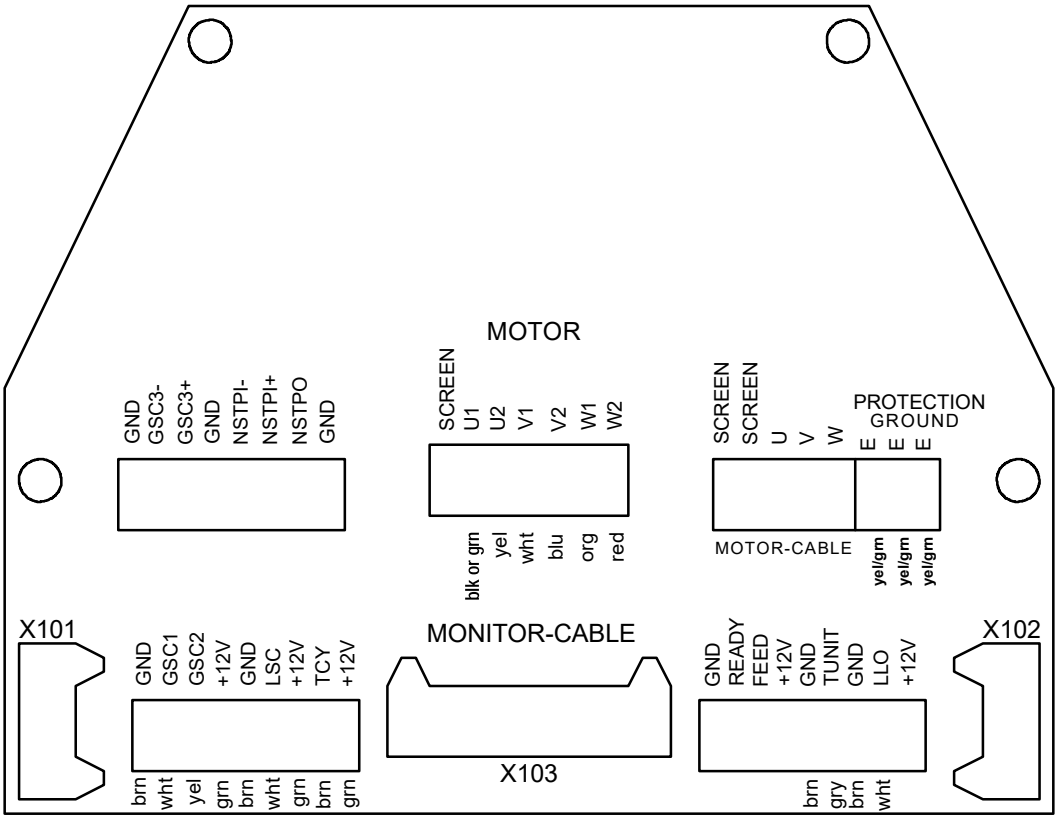


Figure 19: Connector print

6.10 Control signals for external units

The signals FEED and READY are used to control external units.

6.10.1 FEED

The FEED signal indicates that the labeler is dispensing. This means that the steppermotor is turning. With this signal an external flat printing unit can be controlled. See therefore figure 20.

6.10.2 READY

The signal READY is used to signal the Collamat that a connected peripheral device like hot-stamp or flatprinter is ready. If the signal is active, this means the NPN-output of the device is pulled to GND, labelling is not possible. An error message is then displayed.

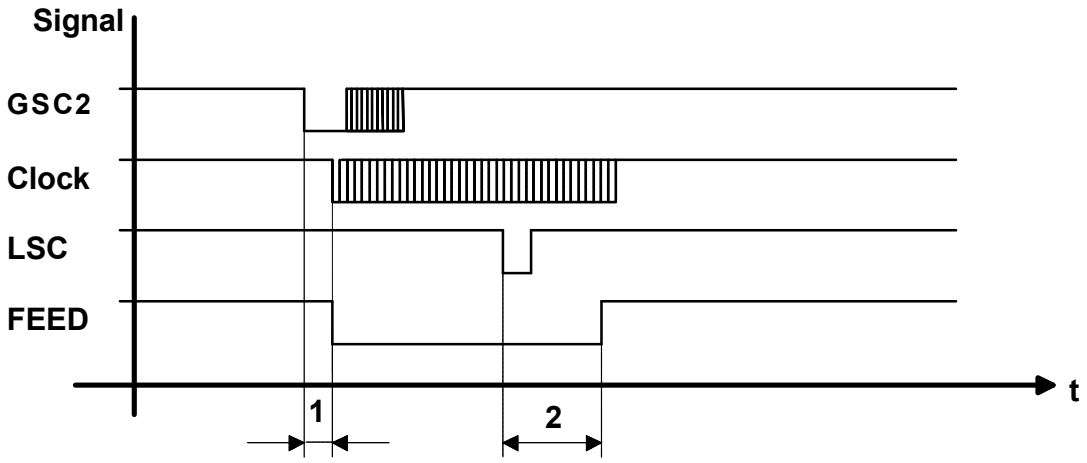


Figure 20: Timediagram of the GSC, LSC and FEED signal

1. Speed dependent position delay
2. Length of the predispensing

All signals are Open-Collector to ground and capable to drive a maximum load of 100 mA. See figure 25.

7 Signals and connector pin assignments

This chapter describes the signals of the Collamat 8600. All in- and outputs are described functionally and electrically. Also the pin assignments are described.
All in- and outputs are equipped with filterelements to prevent electromagnetic interference. These components also prevent interference caused by electrostatic discharge. The interference can lead to malfunction of the Collamat 8600. Anyway, installing the Collamat 8600 you have to consider the rules concerning RMI and ESD to prevent these interferences.

7.1 Inputs

There are two different kind of inputs:
- **Photocoupler inputs** : isolated by photocouplers
- **Comparator inputs** : with ground referenced comparator

7.1.1 Photocoupler inputs

The photocoupler inputs are used to connect different equipment which may have a different grounding or another ground reference. So circulating ground current through the inputs is not possible and interference due to this can not take place. All photocoupler inputs are protected against wrong polarity and overvoltage. Figure 21 shows the schematics of the photocoupler inputs:

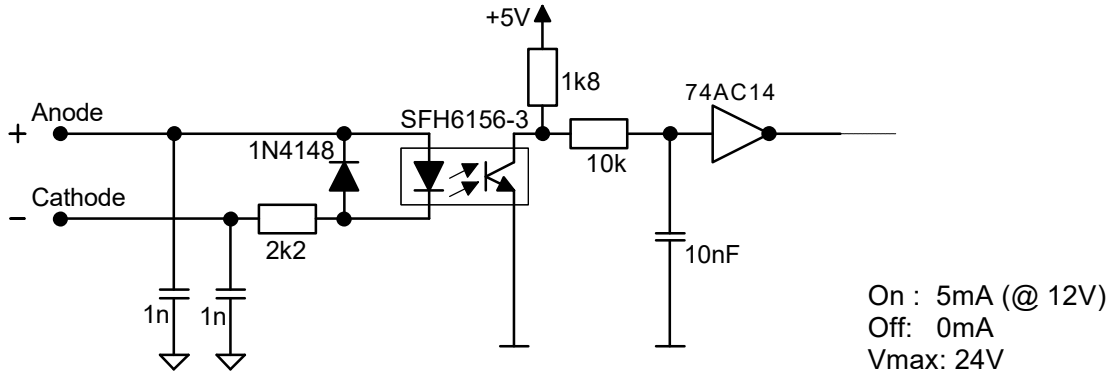


Figure 21: Photocoupler input diagram

The input is active when a current higher than 5mA (at 12V) runs through the photocoupler LED. The maximum input voltage is 24V.

The following input signals are equipped with photocouplers:
- **GSC3** Goods scanner for nonstop labelling or external counter
- **NSTPI** Control signal for the nonstop labelling
- **STOP** Control input for an external controller

7.1.2 Comparator inputs

The comparator inputs are used to connect the peripheral unit signals generated by the dispenser. These are connected with the **DISPENSER**-plug through a cable to the monitor. The signals are connected inside of the traction unit.
The inputs are protected against wrong polarity and they are active while being pulled to GND (0V, ground). (The peripheral units of HM Collamat AG have NPN-outputs to 0V). Figure 22 shows the input diagram of the comparator inputs:

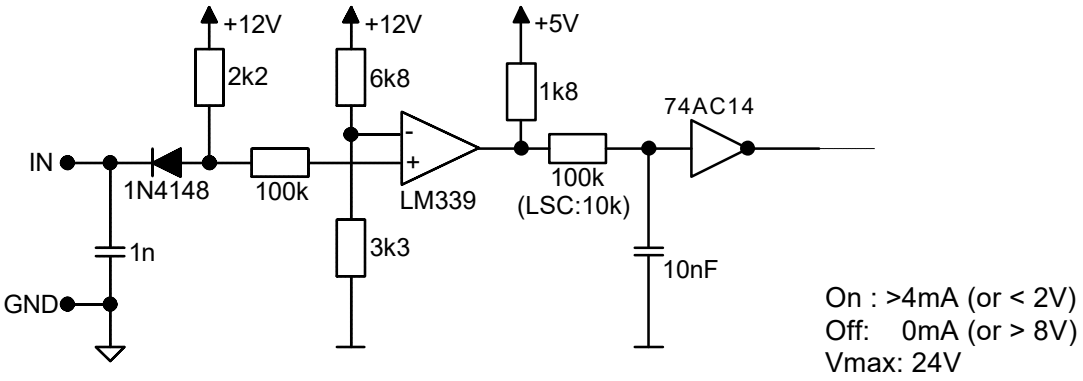


Figure 22: Comparator input diagram

The inputs are active while a current of minimum 4mA is pulled to GND.

The following input signals are equipped with comparators:
- **GSC1** Incremental encoder or speedmeasuring scanner
- **GSC2** Goods scanner
- **LSC** Label scanner
- **TUNIT** Traction unit, paperend sensor
- **READY** READY-signal from the flatprinter
- **LLO** Paperstock control, unwinder empty

7.2 Functional description of the inputs

7.2.1 Goods scanner GSC1 and GSC2 (Good SCanner)

The inputs GSC1 and GSC2 are used to scan the goods. For all three speedmeasuring modes (fixed speed, measuring and incremental) GSC2 is used for scanning the goods. GSC1 is used for the speedmeasuring.
- For the fixed speed GSC1 is not used.
- For the scanning with the measuring scanner, GSC1 is the first activated scanner, seen in transportation direction. (GSC1 must first be interrupted). The mechanical distance to the second scanner can be programmed on the control panel. (The distance must be in the range between 10 mm and 100 mm).
- For the speed measuring with an incremental encoder GSC1 is connected to the NPN output of the encoder.

7.2.2 Goods scanner GSC3

The input **GSC3** is used to count the goods in the nonstop labelling mode. The input also can be used to count goods or events. Therefore the counter must be programmed to EXTERNAL. The input GSC3 will be connected in the traction unit. Figure 23 shows how to connect the GSC3 input.

7.2.3 Control input NSTPI (NonSToP In)

The **NSTPI** input is used for the connection of two Collamat in the nonstop labelling mode. The wiring of the nonstop mode is described in the chapter nonstop labelling. This input is connected inside of the traction unit. Figure 23 shows how to connect the NSTPI-input.

7.2.4 Control input STOP

The **STOP** input is used to stop or start the Collamat. It has the same function like the RUN/STOP key on the control panel. If the signal is activated while the Collamat is stopped, the Collamat will be started (RUN) and vice versa.
The relais contacts are activated according to the momentary mode. The counting of the goods will be continued anyway. Error messages will not be cleared. The signal must be connected to the **CONTROL SIGNALS** connector.
Figure 23 shows how to connect the STOP input.

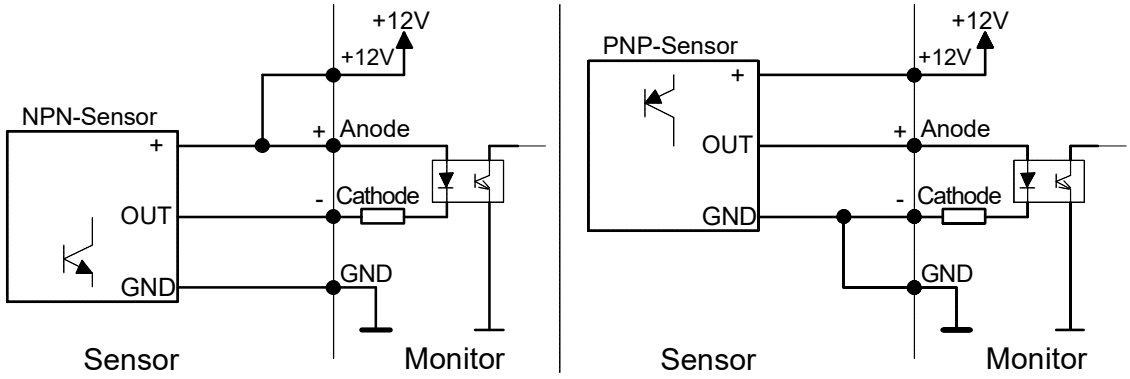


Figure 23: Connection of photocoupler inputs

All comparator inputs are taken to the **DISPENSER** connector. From there the signals go to the traction unit. The peripheral units are all connected to the traction unit.

7.2.5 LSC (Label SCanner)

The **LSC** input is connected to the label scanner. This input has a fast response time for accurate scanning of the label position while transportation. As label scanners all NPN- sensors can be connected to the connector box.

7.2.6 TUNIT (Traction UNIT)

The signal **TUNIT** is used for the supervision of the traction unit. In the traction unit two signals are observed. The first sensor observes the locking sensor of the tractionroller. The second sensor observes the paperend. For the paperend sensor an alternative sensor may be used.

7.2.7 READY

The signal **READY** is used to signal the Collamat that a connected peripheral device like hotstamp or flatprinter is ready. If the signal is active, this means the NPN-output of the device is pulled to GND, labelling is not possible. A warning or error message is then displayed.

7.2.8 LLO (Label LOw)

The signal **LLO** is used to observe the diameter of the winder. The standard sensors of HM Collamat AG are equipped with NPN-outputs and are connected to the traction unit.

7.3 Outputs

We also have two different kinds of outputs:
- Isolated outputs
- Open-Collector outputs

7.3.1 Isolated outputs

These outputs are completely isolated to the monitor. There are three relais outputs and one photocoupler output. The relais outputs are capable to drive signaling lamps or an external PLC. Figure 24 shows the electrical diagram of the isolated outputs.

ATTENTION:
The relais outputs must not be used to switch risky or selfdriven units.

If the relais outputs are active the contacts A and C are connected together. If not active R and C are connected together. See also figure 24.

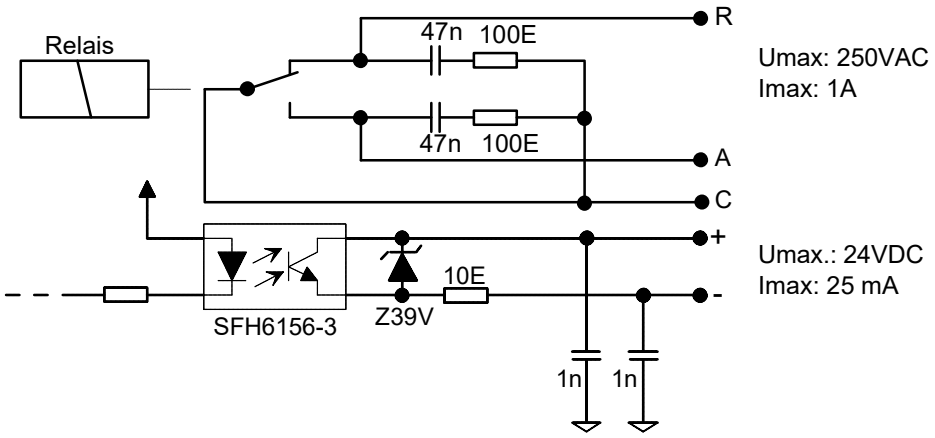


Figure 24: Floating outputs

The following outputs are floating:

- **RUN** Relais output indicates RUN mode
- **NOK** Relais output indicates a WARNING message
- **ERROR** Relais output indicates an ERROR message
- **IFEED** Photocoupler, isolated FEED-signal

7.3.2 Open-Collector outputs

The Open-Collector signals are used to switch and control external units. Figure 25 shows the electrical diagram of these outputs. The outputs are equipped with an internal free wheeling diode. If an inductive load is switched an additional external diode is necessary.

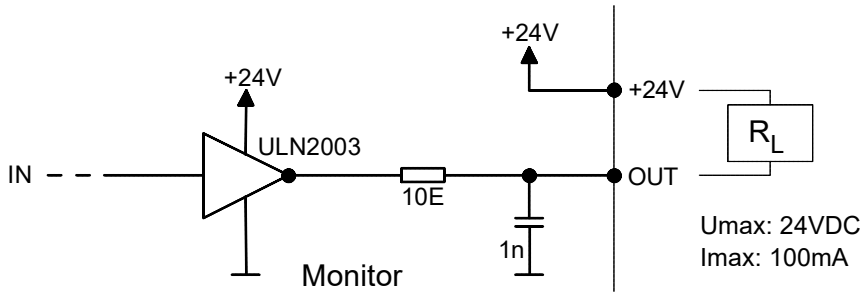


Figure 25: Open-Collector output

The following Open-Collector outputs are available:

- **FEED** Indicates that the traction motor is turning
- **CLOCK** Steppermotor clock for synchronizing external units
- **NSTPO** Nonstop control signal

7.4 Functional description of the outputs

7.4.1 Mode indicator RUN

The **RUN** relais output indicates the RUN or Stop mode of the labeler. The output is activated while the Collamat is in the labelling mode. If the Collamat is stopped the relais output is not activated.
Example: The output RUN can be used to activate a green lamp.

7.4.2 Warning signal NOK (Not OK)

The **NOK** relais output indicates a warning condition. The cause is displayed on the control panel. To confirm and clear the NOK signal, first the cause of the warning must be eliminated. Then the ENTER key must be pressed on the control panel.
Example: The output NOK can be used to activate a yellow lamp.

7.4.3 Error signal ERROR

The **ERROR** relais output indicates an error condition. The cause is displayed on the control panel. To confirm and clear the ERROR signal first the cause of the error must be eliminated. Then the **ENTER** key must be pressed on the control panel.
Example: The output ERROR can be used to activate a red lamp.

7.4.4 Connection of a signalisation to the monitor

To connect the signal lamps like described above, it can be wired like shown in figure 26. The connection is made to the CONTROL SIGNALS connector.

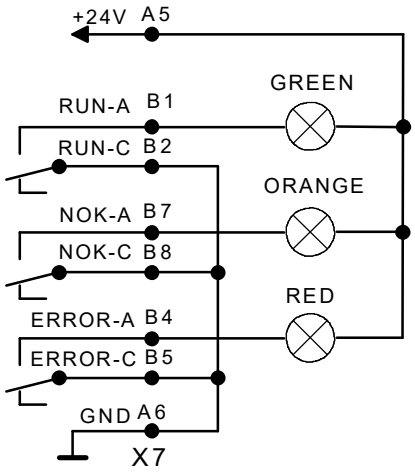


Figure 26: Connection of a signalisation lamp

7.4.5 Signal FEED, IFEED

The signal **FEED** is always active when the steppermotor is turning. This signal indicates an external printing unit that the paper is moving or stopped. The flatprinter analyses the rising edge of this signal for the printing action. The time diagram of the FEED-signal is shown in figure 47.
The signal **IFEED** is a copy of the FEED signal. It is completely isolated by a photocoupler from the electronic parts. This signal can control a strange printing unit completely floating. Thanks to the photocoupler the signal can be used for NPN or PNP inputs. The polarity of the IFEED signal can be adjusted on the control panel. NORMAL means that the signal is with the same polarity of the FEED signal. INVERSE means that it is inverted to the FEED signal.

7.4.6 Steppermotor clock CLOCK

The signal **CLOCK** can be used to synchronize an external device (e.g.. Ink-Jet or Thermal Transfer printer) with the steppermotor.

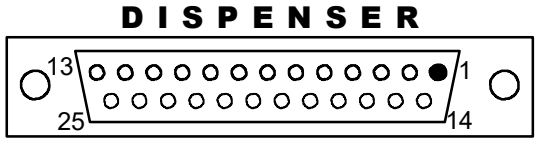
7.4.7 Control output NSTPO (NonSToP Out)

The signal **NSTPO** is used to link two Collamat 8600 for the nonstop mode. The wiring diagram is shown in the chapter nonstop.

7.5 Connector layouts of the monitor C8600

7.5.1 Connector X3, DISPENSER

To this connector the controlcable to the traction unit is attached. The signals of this connector are used especially to control the dispenser and its units.



Pin	Name	In/Out
1	GND	
2	GND	
3	GSC2	I
4	LSC	I
5	TUNIT	I
6	READY	I
7	GND	
8	GND	
9	LLO	I
10	GSC1	I
11	GND	
12	GND	
13	GND	

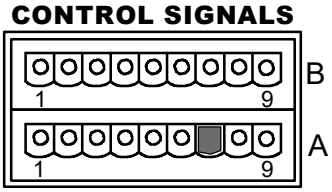
Pin	Name	In/Out
14	+12V	
15	+12V	
16	CLOCK	O
17	FEED	O
18	TCY	O
19	GND	
20	NSTPO	O
21	GSC3-	I
22	GSC3+	I
23	+12V	
24	NSTPI+	I
25	NSTPI-	I

Pin assignment of the connector DISPENSER

ATTENTION:
For the connection of the dispenser signals a shielded cable must be used. The cable must not be placed near power electronic devices. See also chapter Cabling.

7.5.2 Connector X7, CONTROL SIGNALS

On the CONTROL SIGNALS connector the upper row is used to access three relais contacts for signalisation purpose. The lower row supplies a 24V voltage for external signal lamps. The maximum current for the 24V is 200 mA.



PHOENIX CONTACT MDSTB 2,5/9-G1-5,08

Pin	Name	In/Out
1	RUN A	O
2	RUN C	O
3	RUN R	O

Pin	Name	In/Out
4	ERROR A	O
5	ERROR C	O
6	ERROR R	O

Pin	Name	In/Out
7	NOK A	O
8	NOK C	O
9	NOK R	O

Pin assignment of the upper connector row CONTROL SIGNAL

Pin	Name	In/Out
1	STOP+	I
2	STOP-	I

Pin	Name	In/Out
3	IFEED+	O
4	IFEED-	O

Pin	Name	In/Out
5	+24V/200mA	
6	GND	

Pin assignment of the lower connector row CONTROL SIGNAL

7.6 Connector layouts traction unit C8600

7.6.1 Connector X101, X102 BUS

The connectors X101 and X102 are used for the connection of the buscable to the peripheral units on the modular rail. The buscable must be located inside the rail to prevent RMI.

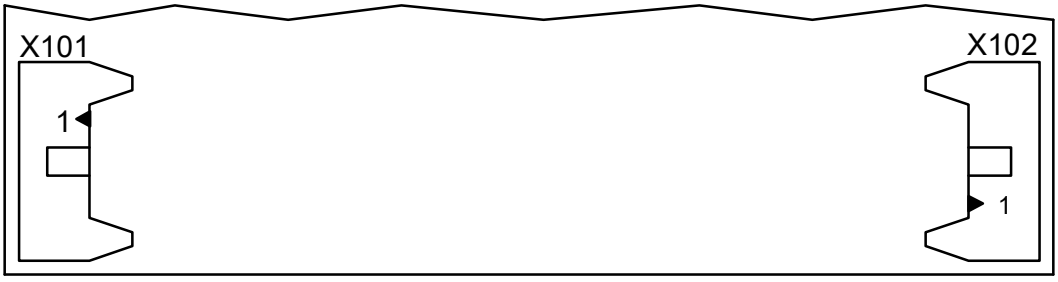
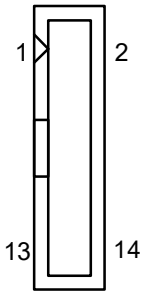
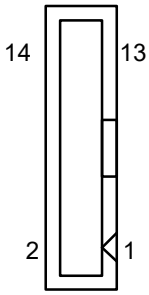


Figure 27

Connector X101			
Pin	**Signal**	**Pin**	**Signal**
1	+12V	2	+12V
3	READY	4	FEED
5	LSC	6	GSC1
7	TCY	8	GSC2
9	nc.	10	CLOCK
11	nc.	12	nc.
13	GND	14	GND





Connector X102			
Pin	**Signal**	**Pin**	**Signal**
1	GND	2	GND
3	nc.	4	nc.
5	CLOCK	6	nc.
7	GSC2	8	TCY
9	GSC1	10	LSC
11	FEED	12	READY
13	+12V	14	+12V

7.7 Connection diagram

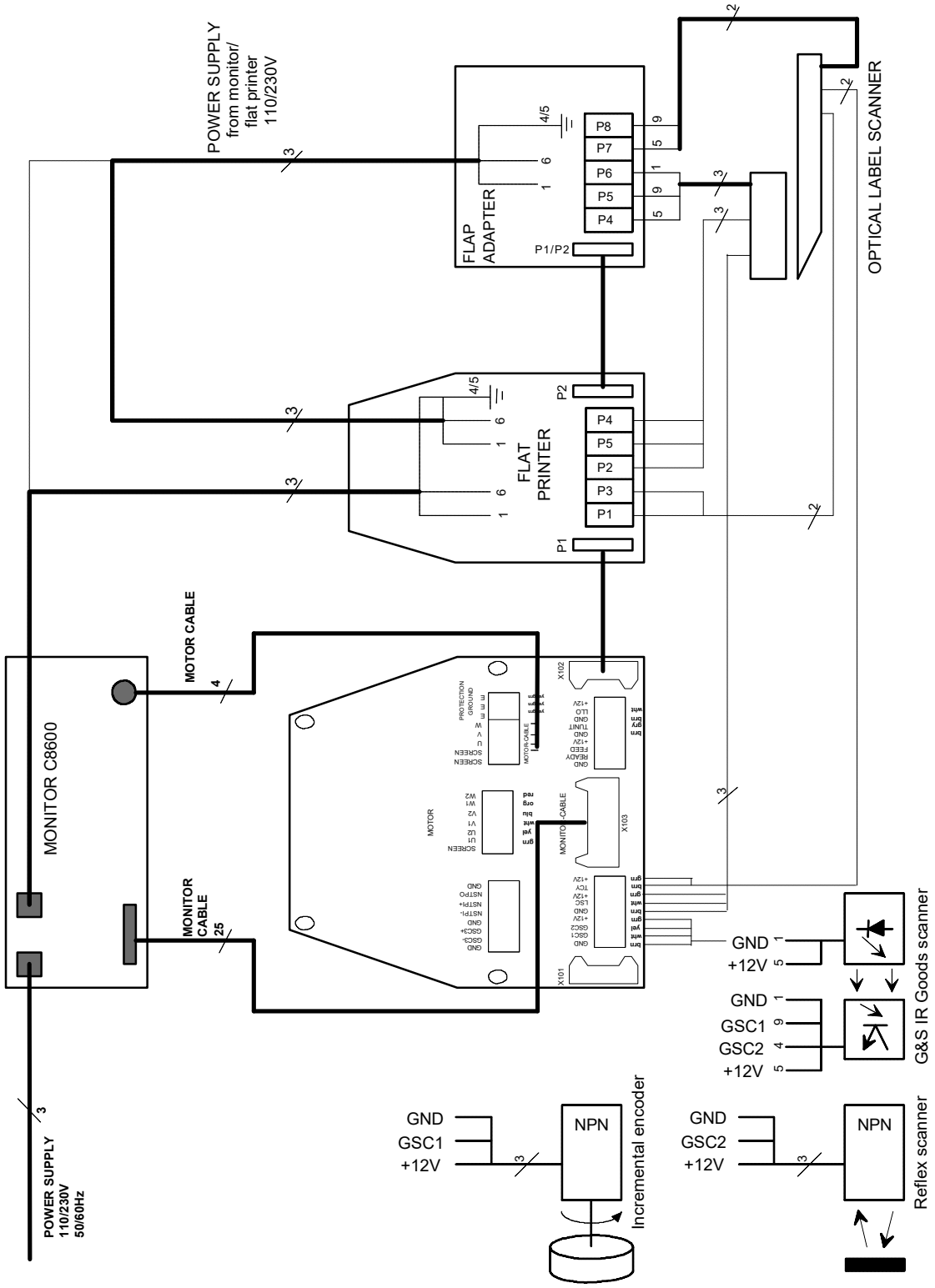


Figure 28

7.8 How to connect a goods scanner

The goods scanners and incremental encoders are connected to the GSC1 and GSC2 connectors. Figure 29 shows the connection of the standard HM Collamat AG IR goods scanner:

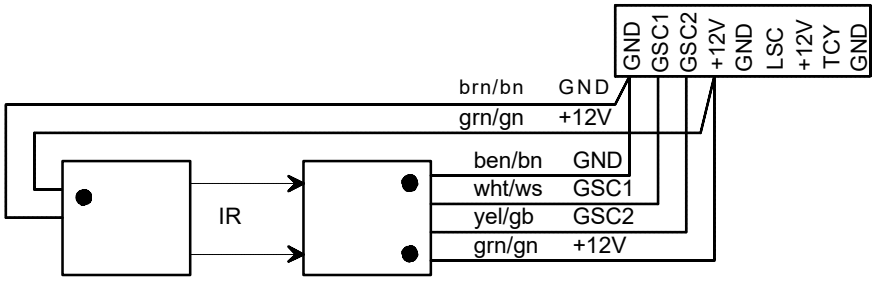


Figure 29: Connection of the G & S IR goods scanner

Figure 30 shows the connection of a NPN-scanner:

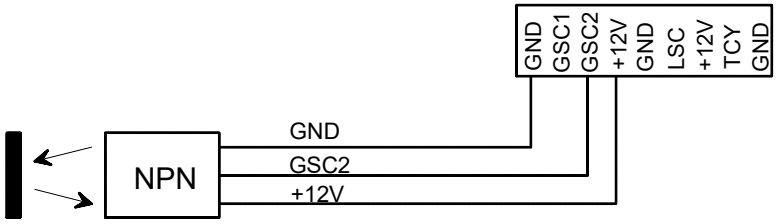


Figure 30: Connection of a NPN-scanner

Figure 31 shows the connection of a NPN-incremental encoder:

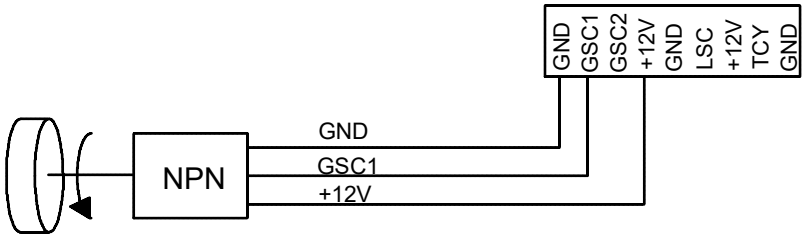


Figure 31: Connection of a NPN-incremental encoder

7.9 Goods scanners

7.9.1 Speed measuring CS IR goods scanner

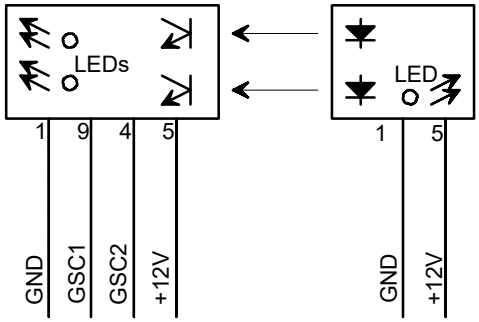


Figure 32

7.9.2 NPN Reflexscanner, Lightbeam scanner

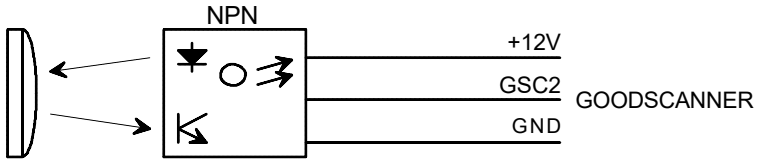


Figure 33

7.10 Optical label scanner

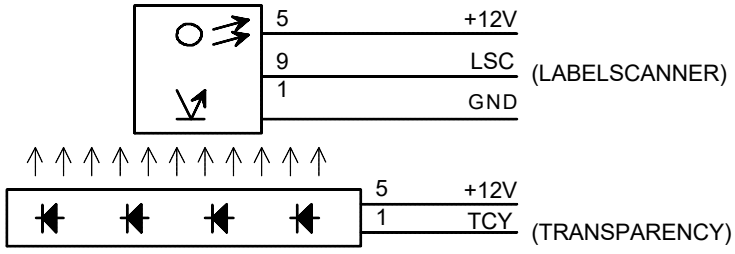


Figure 34

7.11 Signalcable connection

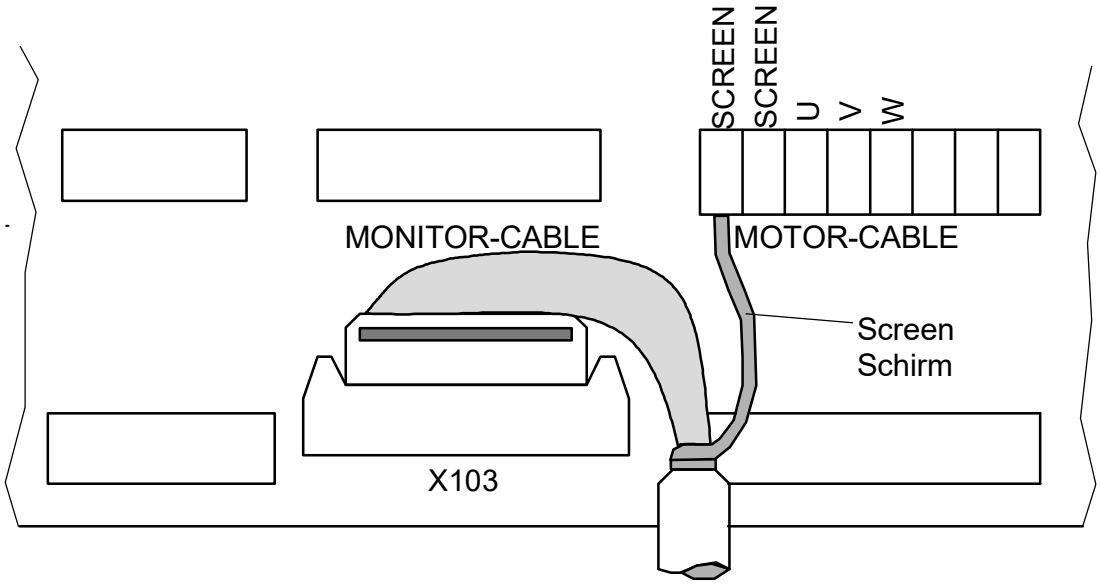


Figure 37: Connection of the signalcable

7.12 Adapter with magnet

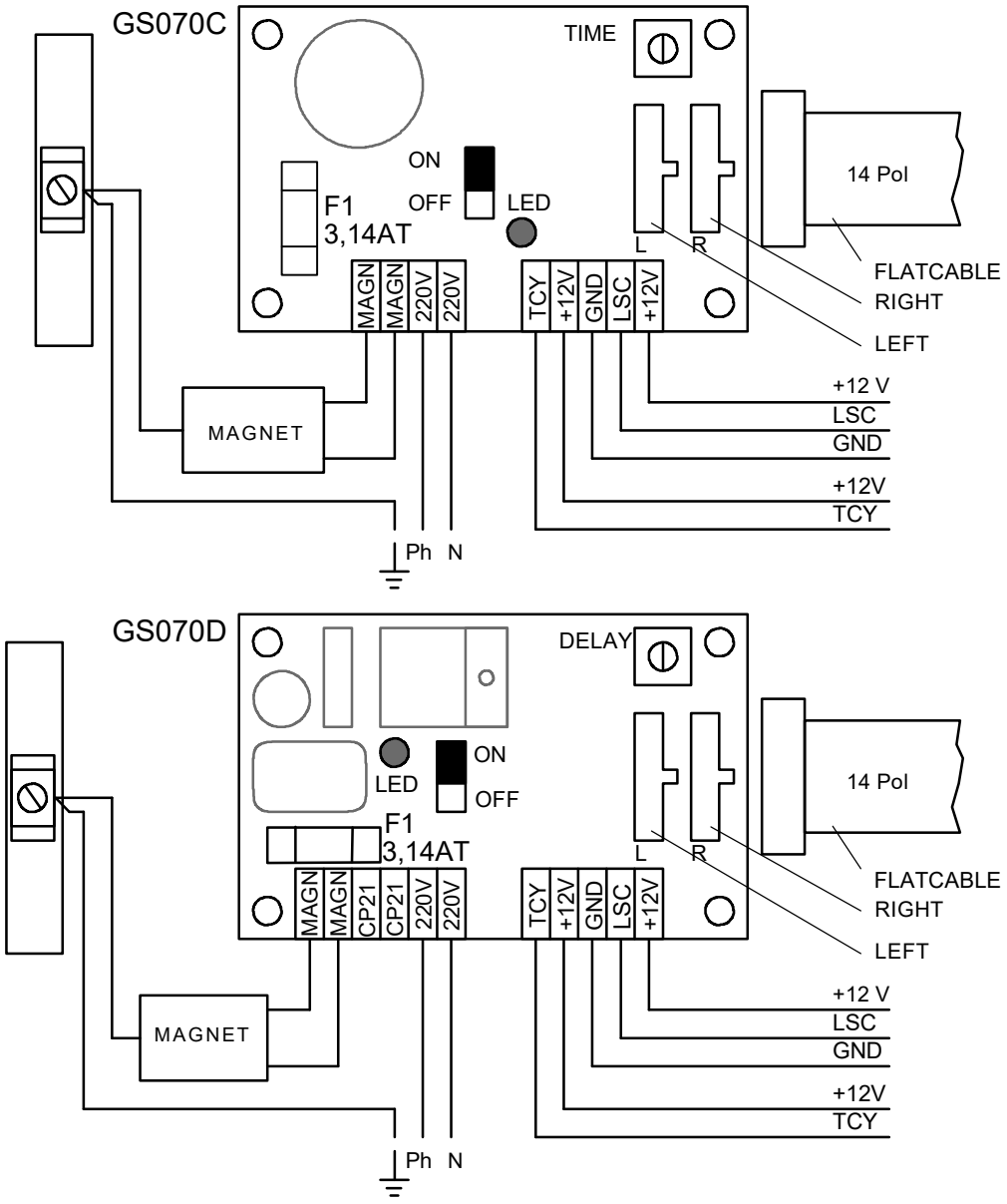


Figure 39

The mains voltage must be connected inside of the flap printer or inside of the dispenser. See also connection diagram figure 28.

The factory setting of the trimmer TIME is on MINIMUM. The trimmer is used to set a delaytime for the releasing of the magnet.
The terminals CP21 are used to connect the synchronous motor of the wrap around adapter

ATTENTION:
Plugging in of the LEFT or RIGHT connector of the flat-cable to the wrong plug can damage the magnet adapter board.

7.13 Flatprinter board

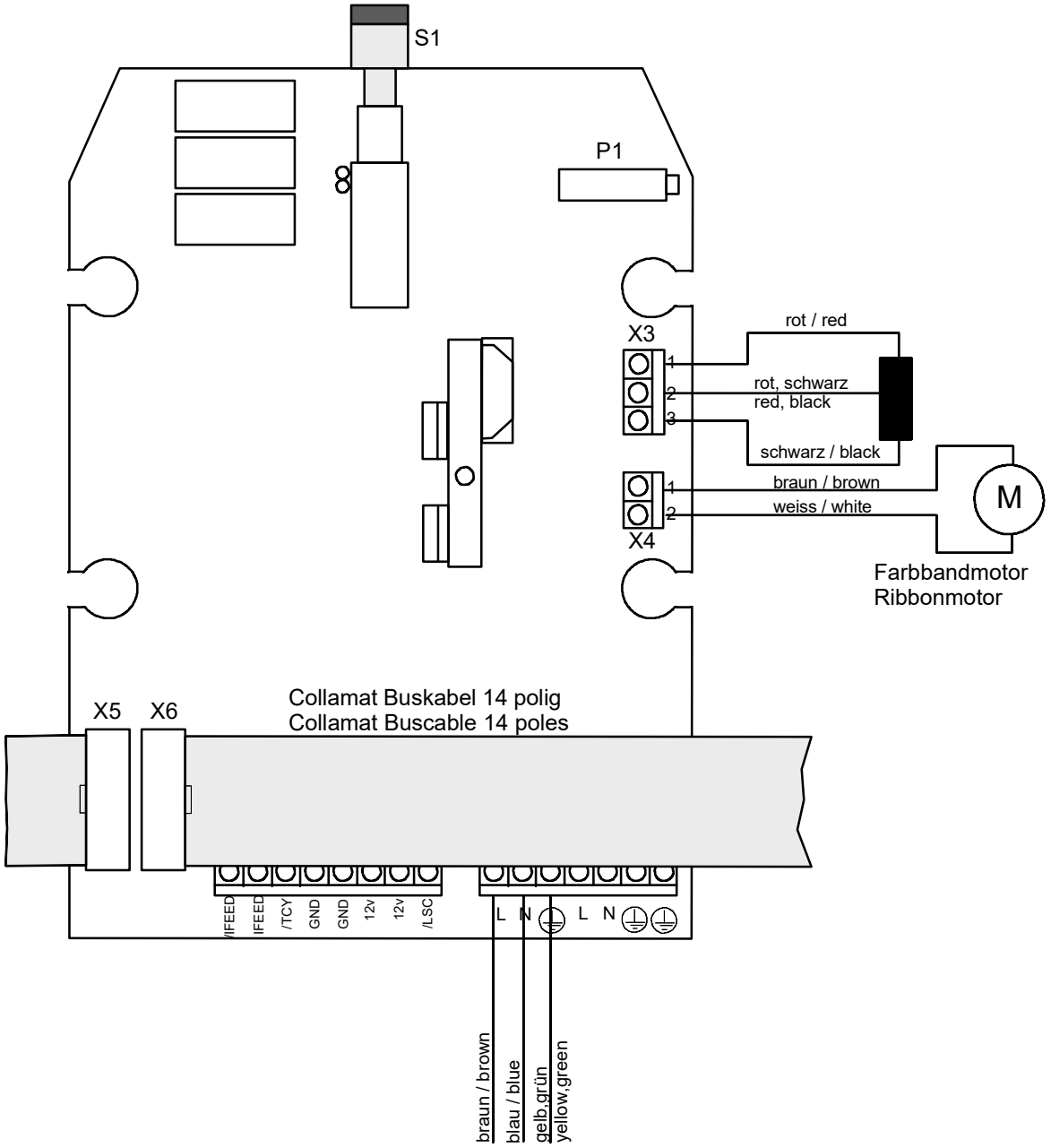


Figure 39

8 Nonstop labelling

When using two Collamat 8600 it is possible to label goods with no down time. For this purpose the two monitors must be connected together by an electrical link. The necessary links are shown in figure 40. The placement of the two Collamat to each other is shown in figure 41.

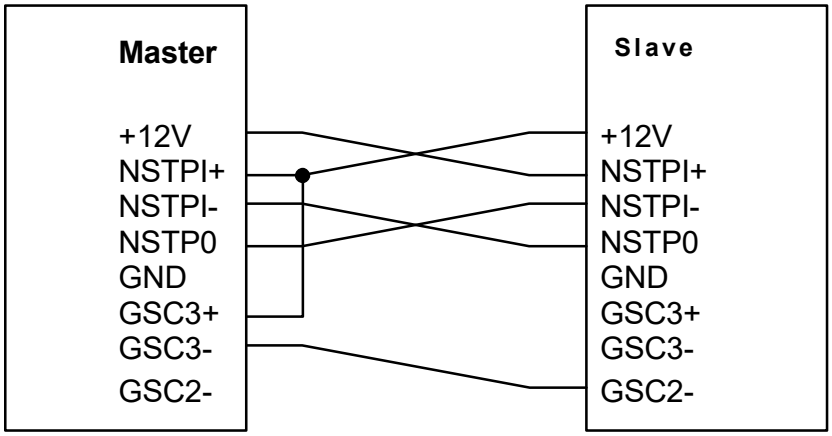


Figure 40: Connections for nonstop labelling

Not shown is the connection of a possible connected speedmeasuring equipment using an incremental encoder, and the goods scanner of both Collamat. For the speed measuring one incremental encoder could be used for both Collamat together. Notice also that the goods scanner GSC2 of the slave is connected in parallel to the GSC3 input of the master.

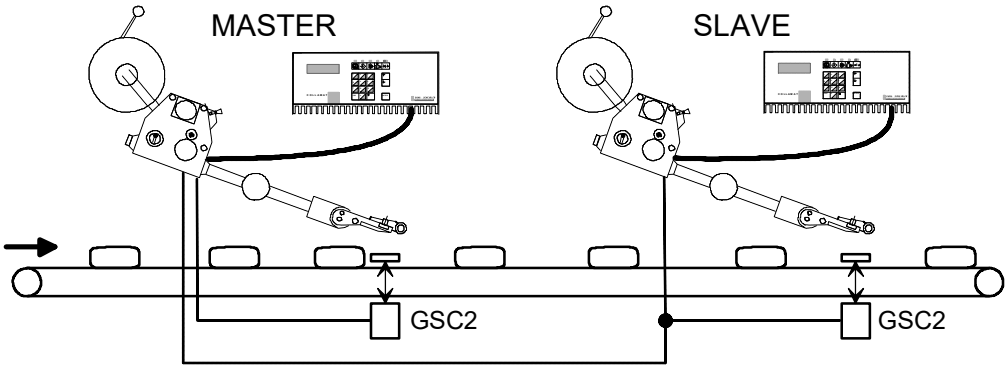


Figure 41: Placement of the two Collamat

8.1 Proceeding

The nonstop labelling is supervised and controlled by the master. Goods passing GSC2 of the master are counted up. Passing GSC2 of the slave the goods are counted down. If the master is unable to label the goods, it gives the grant to the slave at the moment when the first unlabelled good reaches the GSC2 scanner of the slave.

At this moment the slave starts the labelling. Now the cause of the stop of the master can be serviced. The slave labels the goods until it is unable to label because of any reason. Now the slave signals the master to start labelling. The master starts immediately to label the goods. At this moment both Collamat are labelling for a while. When the first labeled good arrives at the GSC2 of the slave, the slave stops labelling. Now the cause of the stop of the slave can be serviced.
The master always has the control over the goods which are labeled on which Collamat. In the display of the control panel it is possible to display the goods count of the goods between the two GSC2 scanners of the two Collamat. If an error occurs which causes a stop of both Collamat, all goods in between of both GSC2 scanners must be removed. Then the NONSTOP COUNTER must be cleared on the control panel of the master.

8.2 Setting up of the Nonstop mode

When the wiring of the Nonstop mode is made, the installation must be set up as follows:

- Stop the conveyor or the goods transportation
- Remove all the goods in between of the two GSC2
- Set both monitors to STOP
- Set up the two labelers
- Choose Nonstop mode MASTER on the master
- Choose Nonstop mode SLAVE on the slave
- Set monitor master to RUN
- Set monitor slave to RUN
- Start the conveyor or the goods transportation

The goods are now labeled in the Nonstop mode. If an error occurs which causes a stop of a Collamat the following proceeding is necessary:

- Service the erroneous condition on the stopped Collamat
- Confirm the errormessage on the monitor with the ENTER key

If an error occurs which stops both Collamat, first the error condition must be serviced. Then all the goods in between the two GSC2 sensors must be removed. The nonstop counter must be cleared on the master.
For the supervision and setting up the Nonstop mode, in the free selectable display, the counter of the goods in between the two GSC2 scanners, can be displayed.

If a position value or a goods suppression is set, it will be considered by the monitor while labelling. The distance of the GSC2 to the peeling edge must be in this case the same on both labelers.

9 Speed measuring

9.1 Incremental encoder

The electrical connection of an incremental encoder is described in the chapter 'Connection of the goods scanners'. Now the mechanical attachment of the conveyor to the encoder will be described. If the speedmeasuring is done by an incremental encoder, on the control panel the step width must be programmed so that the speed measuring is made correctly. The step width is the traveling way of a good in between two encoder steps. Figure 42 shows an example how to calculate the step width:

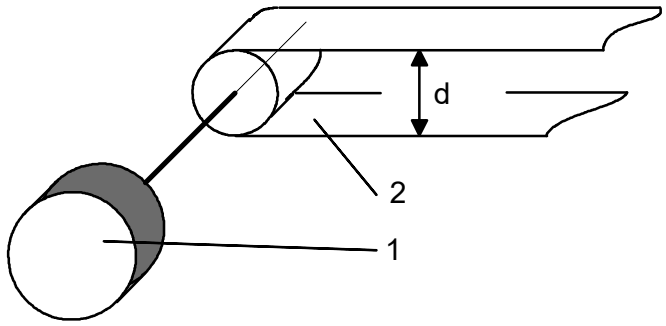


Figure 42: Incremental encoder

Example:

The incremental encoder 1 gives 200 pulses per revolution. It is attached directly to the shaft of the conveyor 2. The diameter d is 100 mm. Calculation:

$$\textbf{Step} = \frac{d * Pi}{Pulse} = \frac{314\ mm}{200} = \textbf{1.57 mm}$$

9.2 Measuring goods scanner

The electrical connection of the measuring goods scanner is described in the chapter 'Connection of the goods scanners'. If the speedmeasuring is done by a measuring goods scanner, on the control panel the distance L must be programmed so that the speedmeasuring is made correctly. Figure 43 shows the placement of the scanners:

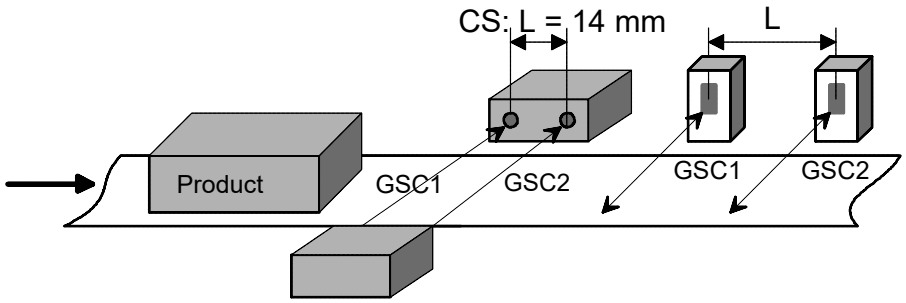


Figure 43: Measuring goods scanner

10 Motor and motorcable

Attention:

- **The motor never must be dismantled !**
- **For safety reasons and in order to guarantee interference suppression, the motor has to be connected to a ground conductor !**
- **Steppermotors heat up during operation !**
- **When connecting or disconnecting the motor, the monitor must be switched off !**
- **When working on the motor, the monitor must be disconnected from mains !**

10.1 Motorcable

The motorcable is connected to the connector MOTOR of the monitor.

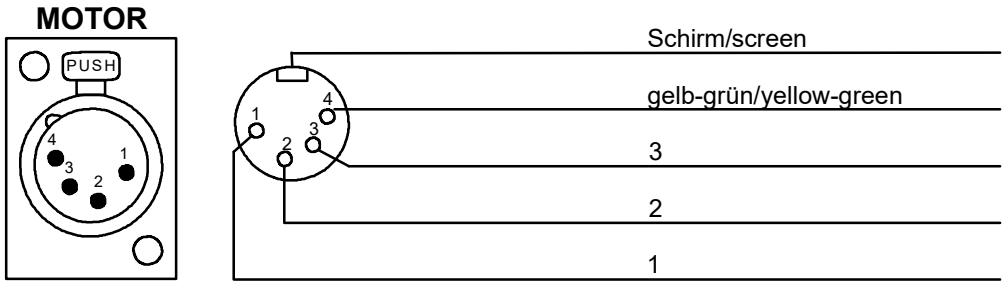


Figure 44: Motorcable

10.2 Connection of the motorcable

The motorcable is connected inside of the traction unit. The numbered wires must be connected to the terminals W, V and U. The screen must be connected to the SCREEN terminal. See also figure 45:

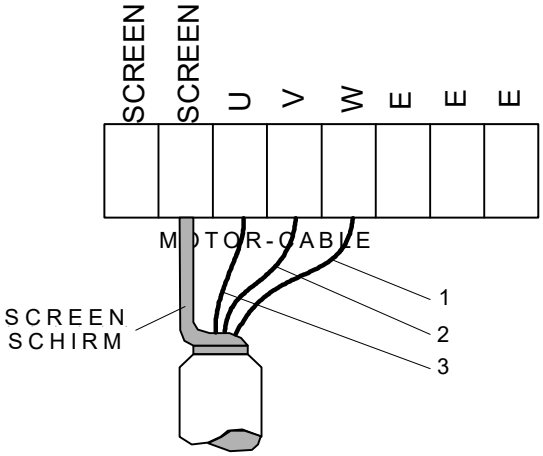


Figure 45

11 Control of external devices

11.1 Control of a Hotstamp with the IFEED signal

The connection of a hotstamp printer to the IFEED signal is described below. On the CONTROL SIGNALS connector the IFEED signal can be used. It can be connected for two different types (NPN or PNP) of hotstamp inputs. Figure 46 shows the connection of different hotstamps. Figure 47 shows the timing diagram.

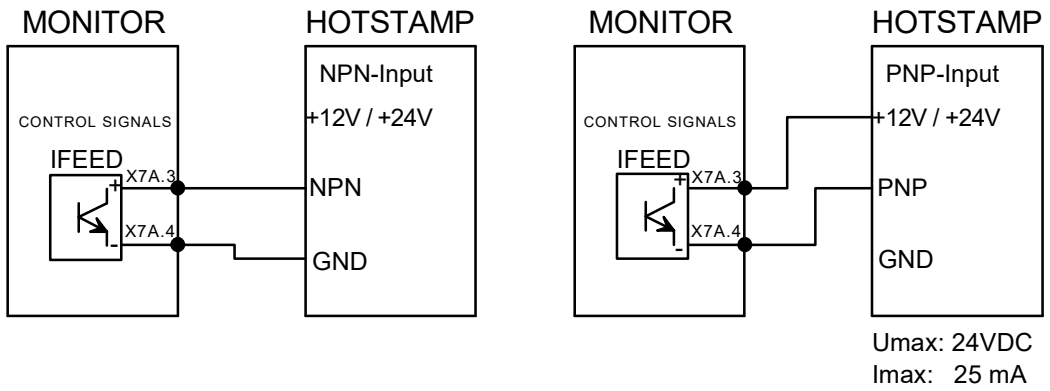


Figure 46: Connection of IFEED

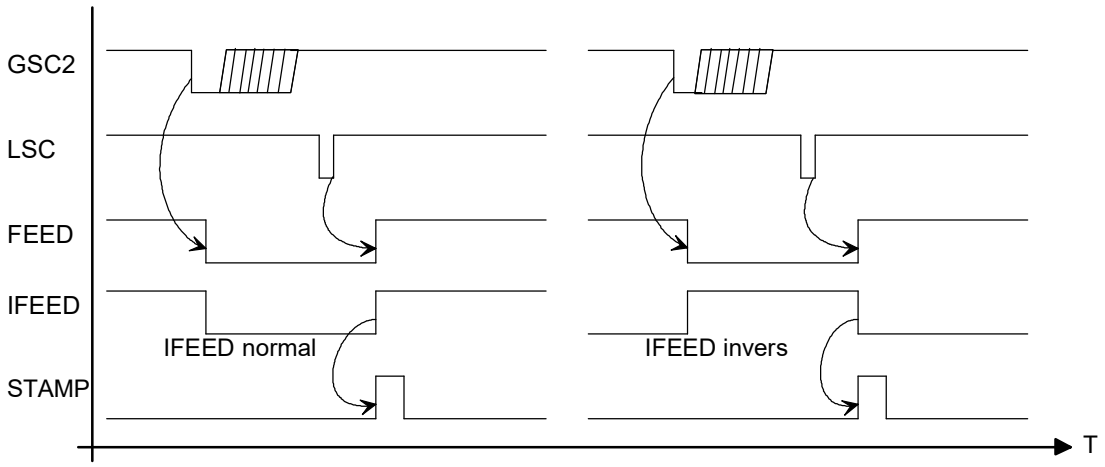


Figure 47: Timing diagram

Dependent on the manufacturer, the polarity of the triggering signal of the hotstamp must be changed. This adjustment is to be set in the configuration menu **IFEED POLARITY** to normal or **inverse**. See also figure 47.

12 Monitortest with a diagnostic connector

In the firmware of the Collamat 8600 there is a selftest function for the monitor electronics. This test only may be successful with a diagnostic connector attached to the three connectors on the back plane of the monitor.
Figure 48 shows the diagram of the wiring of this connectors:

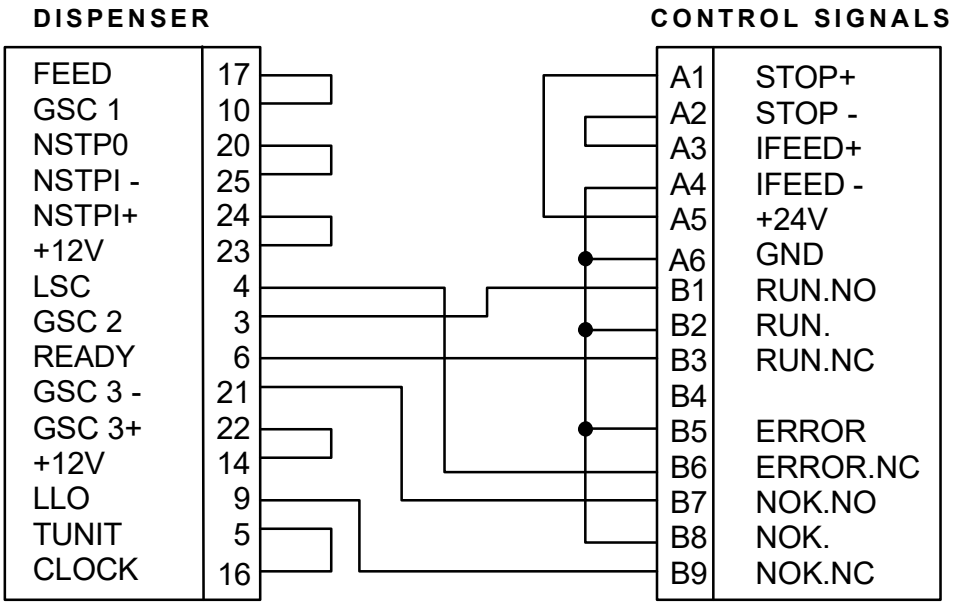


Figure 48: Diagnostic connector

13 Cabling and setting up

For a troublefree operation of the Collamat 8600 following items must be observed:

- Trained personnel
- Ambient temperature
- Protection against dirt and dust
- Protection against splashing water
- Installation and setting up of the installation
- Installation and setting up of the Collamat 8600
- Electromagnetic interferences
- Safety regulations and safety requirements

13.1 Cabling

Electromagnetic interferences can lead to non repeatable and not obvious errors while labelling. Often misplaced layout of the cabling, RMI and ESD interferences disturb the labelling. Because of this, the following rules must be observed for the cabling:

- Separated mains and signal cables
- Use shielded cables
- All units must be grounded
- Connect only devices which meet the RMI standards
- Use power filtering units in interfered environments and interfered mains supplies

13.2 Setting up

The setting up must be done carefully by trained personnel. The following items must be observed:

- Visual control of the control unit
  Are all electrical and mechanical units correctly attached ?
  Are all connectors accessible ?
- Connect the monitor to mains and switch it on
  Is the display illuminated ?
  Does the startup message appear ?
- Turn off the monitor and unplug it from mains
- Set up the winder and unwinder and connect them to the connector box
  Are the jumpers inside of the winders set correctly ?
- Attach the goods scanner signals to the DISPENSER connector
- Connect the monitor to the mains voltage and turn it on
  Do the winder turn the right way ?
- Turn off the monitor and unplug it from mains
- Connect the remaining units to the connector box of the Collamat
- Connect the monitor to the mains voltage and turn it on
  Do the peripheral units work OK ?
- Turn off the monitor and unplug it from mains
- Attach the motorcable
- Connect the monitor to the mains voltage and turn it on
  Does the motor work in the MOTORTEST-menu ?
  Is the turning direction OK ?
- Thread the paperweb and adjust the label scanner
- Dispense a label by the control panel
  Is it dispensed correctly ?
- Connect the goods scanners (and possible incremental encoder)
- Dispense a label by the goods scanner
  Watch to the error messages on the display

14 Password

In case of a lost password the firmware gives two procedures for recovery. One procedure uses the keyboard on the front panel. This procedure causes data loss. The other procedure uses a keyswitch but the monitor must be opened.

14.1 By keyboard

First switch power off. Then hold the ENTER-key while turning power on. The following message is displayed:

```
Clear memory !

Password        ####
Discontinue: [ESC]
```

Now type in **4148**. The Collamat will clear now the password to **0000**. The data of program number **32** will be set to default values and it will start up with program **32**.

Note:
This function is available since firmware 1.20.
Version 1.10....1.13 clears program 1.

If you type **4147** instead **ALL** programs are set to default values the password is also cleared and program **1** is selected.
This procedure is also helpfull to restart a complettely misprogrammed Monitor which hangs after power on.

14.2 By keyswitch

DANGER:
Before opening the monitor unplug the mains plug. Charged capacitors inside the monitor may lead to shock hazard. After unplugging wait at least 10 seconds before opening the monitor.

For this procedure the monitor must be opened. On the interfaceprint (see figure 17) two jumpers **J1** and **X9** must be set. Now after power on in the Configuration menu User level the password can be changed.

15 Fuses

Fuse	Rating	Part Number
Monitor	110/120V: 10 AT 220/230/240V: 5 AT	7403.0833 7403.0822
Interface F1	3.15 AT	7403.1216
Interface F2	2.5 AT	7403.0277

16 Glossary

16.1 Short cuts

ESD **E**lectro**S**tatic **D**ischarge
RMI **R**adio **M**agnetic **I**nterference
GND **G**rou**ND**
IR **I**nfra **R**ed
LCD **L**iquid **C**rystal **D**isplay
LED **L**ight **E**mitting **D**iode
nc **n**ot **c**onnected
RS232 Standard serial data exchange protocol

16.2 Signals

ERROR Errorsignal caused by any error of the Collamat
FEED Signal indicating the labelling process
GND **G**rou**ND**
GSC **G**oods **SC**anner
IFEED **I**solated **FEED** signal
LLO **L**abel **LO**w signal indicating the end of the label stock
LSC **L**abel **SC**anner
nc **n**ot **c**onnected
NOK **N**ot **OK**, something not OK
NSTPI **N**on**ST**o**P** **I**N-put
NSTPO **N**on**ST**op **O**UT-put
READY **READY** signal from peripheral units
RWF **R**e**W**inder **F**ull
TCY **T**ranspare**nCY**, Control current for the label scanner IR-diodes
TUNIT **T**raction **UNIT**, signal that supervises the traction unit

16.3 Terms

Stopping accuracy: Accuracy of the paper transportation
Unwinder: Device that carries the full paperweb rolls and unwinds it
Adapter: Part of the labeler. Here the label is peeled of the paperweb by pulling it over a sharp edge
Rewinder: Device that takes the empty paperweb from the traction unit and rewinds it
CE-Mark: Certification for the European market, means: Conformité Européenne
Collamat: Brand name for a labeler built by HM Collamat AG
C8600: Labeler type C8600
GSC: Goods SCanner
Flap adapter: Adapter which moves to the product during the labelling
LSC: Label SCanner
LC-Display, LCD: Liquid crystal display
Machine status: Working mode of the Collamat. E.g..: Stop, OK, ERROR
Monitor: Controlbox containing all electronic boards of the Collamat
Position: Sticking position of a label on the good
Predispensing: Predispensing of a label on the peeling plate
Motorstep: Traveling way of the label for one motorstep
Dispensing speed: The speed of the goods to which the labels are sticked
Speed: See also dispensing speed
Startfrequency: Highest possible frequency for a steppermotor to start moving without loss of steps
Traction Unit: Part of the dispenser in which the paperweb is pulled

17 Technical data

Dispenser general data (standard values)

System		Units	C8610	C8620
Version			right/left	
Dispensing speed	Incremental Encoder Measuring Scanner Fixed Speed	m/min	0-50 0.5-50 3.0-50	0-50 0.5-50 3.0-50
Min. label width		mm	10	
Max. width of the paperweb		mm	95	160
Min. label length		mm	10	10
Min. label length @ max. dispensing speed		mm	20	
Stop accuracy		mm	@ 40 m/min ± 0.5	
Minimal gap for optical scanner		mm	2	
Minimal gap for mechanical scanner		mm	2	
Max. diameter of paperroll		mm	250/350	
Max. weight of paperroll		kg	10	
Noise figure max.		dB(A)	< 70	

Traction unit

System	C8600
Driver	3-Phase steppermotor 500 steps
Motor voltage	120V
Max. phase current	5.0 A
Type of protection	IP40
Ambient temperature	+5-40 °C
Ambient humidity	15-90%, non condensing
Noise figure max.	< 70 dB(A) @ 1 m distance

System	C8610	C8620
Weight	12 kg	14 kg

Midi-unwinder

Diameter of the roll core	42 mm
Max. outside diameter of roll	350 mm
Max. weight of roll	10 kg
Spring dancer with automatic brake	

Flap adapter

System	**C8610**	**C8620**
Max. width of paperweb	95 mm	160 mm
Weight	1.9 kg	2.2 kg

Version	right/left
Adapter angle	±90°, with adjustable snap-in locking
Recuperating spring force	adjustable
Additional press time of adapter	adjustable
Max. cadence on max. turning angle	20'000 cycles/h
Max. turning angle	15°
Ambient temperature	+5-40°C
Ambient humidity	15-90% non condensing

Label scanner

Optical label scanner
Mechanical label scanner

Monitor

System	C8600
Mains voltage	110/120V AC, 220/230/240V AC, ±10%
Power consumption	310 VA
Main fuse	120V : 8AT, 230V : 4AT
Display	LCD, 4 lines, 20 characters each
Dimensions (LWH in mm)	375 * 305 * 155 mm
Ambient temperature	+5-40°C
Max. ambient humidity	15-90% non condensing
Type of protection	IP40
Weight	approx. 15.5 kg

The information in this handbook reflects the state of the publication date.
We reserve the right to make design modifications.