Automatic milking system

MIone

International Sample unit

Instruction Manual / Installation Instructions / Parts List
(Translation of the original operating instructions)

7801-9001-005
03-2010

GEA Farm Technologies - The right choice.
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1 Preface

1.1 Information on the instructions

These instructions are supplied with the product.

- They are designed modular and are only in relation to the mentioned product.
  For details of the components which are relevant to the product, please refer to the appropriate manuals.
  This applies especially for safety information!

- They should be kept close at hand and remain with the equipment even if the equipment is sold.

- This manual is not subject to an amendment service. The most recent version at any time can be obtained through the technical dealer or directly from the manufacturer.

The manufacturer reserves the right to make changes due to technical developments in the data and images given in this manual.

Reproductions, translations and copies of any kind, even of extracts, require written authorization from the manufacturer.

Abbreviations, units, specialist terms, special names or specialist terminology are explained in more detail in the "Appendix".
Pictograms used

- This pictogram indicates information that will help towards a better understanding of the working processes.

- This pictogram indicates a special tool required for installation.

- A correction bar in the margin indicates changes to the previous edition.

- This pictogram indicates a menu point in the system program. See manual 7801-90 . .001, section: Robot Data Manager

- This pictogram refers to another document or chapter.

If a manual number is given, the middle 4 figures indicate the language, as follows:

<table>
<thead>
<tr>
<th>Language</th>
<th>Language</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>-9000- German</td>
<td>-9013- Dutch</td>
<td>-9032- Serbian</td>
</tr>
<tr>
<td>-9001- English (Great Britain)</td>
<td>-9015- English (America)</td>
<td>-9034- Slovakian</td>
</tr>
<tr>
<td>-9002- French (France)</td>
<td>-9016- Polish</td>
<td>-9036- Lithuanian</td>
</tr>
<tr>
<td>-9003- Italian</td>
<td>-9021- Danish</td>
<td>-9038- Portuguese (Brazil)</td>
</tr>
<tr>
<td>-9004- Romanian</td>
<td>-9022- Hungarian</td>
<td>-9039- French (Canada)</td>
</tr>
<tr>
<td>-9005- Spanish</td>
<td>-9023- Czech</td>
<td>-9040- Latvian</td>
</tr>
<tr>
<td>-9007- Swedish</td>
<td>-9024- Finnish</td>
<td>-9041- Estonian</td>
</tr>
<tr>
<td>-9008- Norwegian</td>
<td>-9025- Croatian</td>
<td>-9043- Spanish (North America)</td>
</tr>
<tr>
<td>-9009- Russian</td>
<td>-9027- Bulgarian</td>
<td></td>
</tr>
<tr>
<td>-9010- Greek</td>
<td>-9029- Slovene</td>
<td></td>
</tr>
</tbody>
</table>

Possibly not all above-mentioned languages are available.
1.2 Manufacturer's address

GEA Farm Technologies GmbH
Siemensstraße 25-27
D-59199 Bönen (Germany)

📞 +49 (0) 2383 / 93-70
📝 +49 (0) 2383 / 93-80
✉️ contact@gea-farmtechnologies.com
🌐 www.gea-farmtechnologies.com

1.3 Customer service

Authorised Technical Dealer

If necessary, please contact your nearest authorised technical dealer.

There is a comprehensive dealer Internet search function on our website at the following address:

- www.gea-farmtechnologies.com

European Contact Information:

GEA Farm Technologies GmbH
Siemensstraße 25-27
D-59199 Bönen (Germany)

📞 +49 (0) 2383 / 93-70
📝 +49 (0) 2383 / 93-80
✉️ contact@gea-farmtechnologies.com
🌐 www.gea-farmtechnologies.com

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Naperville, IL 60563 (USA)

📞 +1 630 369 - 8100
📞 +1 630 369 - 9875
✉️ contact_us@gea-farmtechnologies.com
🌐 www.gea-farmtechnologies.com
1.4 Declaration of conformity

Declaration of conformity in accordance with the machinery directive:
2006/42/EC - Annex II A

Manufacturer: GEA Farm Technologies GmbH
Siemensstraße 25-27
D-59199 Bönen (Germany)

Product category: Sampling device
Name / Model: Mione (Metatron)

The named product is in conformity with the requirements of the following European directives:
2006/42/EC Machinery Directive
2004/108/EC Electromagnetic compatibility directive

Conformity with the requirements of these directives is testified by complete adherence to the following standards:

- Harmonized European standards
  EN 12100-1 Machine safety, basic terms, general design guidelines.
  (2009-10) Part 1: Basic terminology, methods
  EN 12100-2 Machine safety, basic terms, general design guidelines.
  (2009-10) Part 2: Technical guidelines and specifications
  EN ISO 14121-1 Safety of machinery - Risk assessment - Part 1: Principles
  (2007-12)
  EN 61000-6-2 Electromagnetic compatibility (EMC)
  (2006-03) Basic technical standard on testing the immunity of devices in industry
  EN 61000-6-3 Electromagnetic compatibility (EMC)
  (2007-09) Basic technical standard on measuring the interference emitted by devices in the domestic, business and commercial field

Person responsible for compiling the relevant technical documents: Josef Schröer
GEA Farm Technologies GmbH
Siemensstraße 25-27
D-59199 Bönen (Germany)
☎ +49 (0) 2383 / 93-70

Bönen, 16.12.2009
Reinhard Frenser
(Head of Research and Development)

The undersigned is acting by virtue of power of attorney from the management of:
GEA Farm Technologies GmbH, Siemensstraße 25-27, D-59199 Bönen (Germany)

This declaration certifies compliance with the guidelines indicated, but does not establish any guarantee in the sense of paragraphs 443, 444 BGB.
This declaration of conformity becomes invalid if design changes are made which affect the technical data given in the instructions and the correct use of the product, thereby significantly altering the machine.
2 Safety

2.1 Owner's obligation of care

The product has been designed and constructed while taking account of a potential risk analysis and after careful selection of the harmonized standards and other technical specifications to be complied with. It therefore guarantees a maximum level of safety.

This safety can only be achieved in practice on the farm however when all of the necessary measures have been taken. It is part of the owner's obligation of care to plan these measures and check that they are carried out.

The owner must ensure the following:

- Anyone who performs work or activities relating to the machine must carefully read the manual and sign to confirm that they have understood it and will act accordingly.
- The manual must always be available, in a legible and complete condition, at the place where the product is used.
- Anyone performing work on the product must be able to consult the manual at any time.
- The instructions given in the section on "Basic Safety Instructions" must be followed.
- The legal requirements must be observed.
- The farmer must produce special operating instructions for his farm, that are appropriate to the conditions on that farm and which, once again, expressly take account of the safety aspects.
- The product may only be used for its intended purpose.
- The product may only be used if it is in perfect working condition. The safety devices especially must be checked regularly to ensure they are working.
- The work to be carried out may only be performed by a suitably qualified person.
- These personnel are regularly instructed in all relevant matters of safety at work and protection of the environment and be familiar with the manual, particularly the safety instructions it contains.
- To start with, operating personnel who require training may only operate the equipment under the supervision of an experienced person. Their successful completion of training is to be confirmed in writing.
- Safety signs, plates and stickers which are attached to the product must be replaced immediately if they become illegible or are lost!
- There must not be any unauthorized persons (e.g. children) in the danger areas and they must not have access to the cleaning and disinfecting agents.
2.2 Explanation of the safety symbols used

Safety symbols draw attention to the importance of the adjacent text.

The design of the warnings is based on ISO 3864-2 and ANSI535.6.

Safety symbols and signaling word

WARNING!
The indication "Warning" signals danger to life or health of personnel. Death or serious injury may result if the danger is not avoided.

Attention!
The indication "N.B." signals important information on risks for the product or the environment.

2.3 Basic safety instructions

Note!
There are warnings about specific residual dangers in the corresponding chapters.

- There are dangers involved in the operation and maintenance of dairy farm equipment. For your own safety, please carefully read and observe the operating instructions (especially the section on "Safety instructions")!
- The chapter on "Technical data" gives the permissible working conditions (pressure ranges, temperature ranges, airflow quantities etc.) and these must be observed!
- Do not open or dismantle devices (risk of injury)!
- Do not remove any protective devices (risk of injury)!
- When working with cleaning and disinfecting agents observe the notes on dangers and protective measures (risk of caustic burns)!
- Also observe the safety and warning instructions given in the operating manuals for the milking system.
- Always keep the control cabinet, all electricity supply units, and electrical control units closed. Access is only permitted to authorized personnel with a key or special tool.
- Protect live and high-voltage components against moisture. Under no circumstances may water jets or high-pressure cleaners be directed at these!
2.4 Personnel qualification

All personnel who perform work on or with the product must carefully read and understand the instructions and act in accordance with them!

In addition, special qualifications are required for the following activities:
- Installation
- Commissioning
- Operation
- Troubleshooting
- Repairs

Note!
If the work requires special qualifications, these are described in the corresponding chapters!

2.5 Protective devices

- Cover plate, protective hood
- Safety symbols, warnings, warning signs and labels
3 Description

3.1 Correct applications

The product described has been designed for use in agricultural (mainly milk producing) operations.

The international sampling device is intended only for automatic milk sampling in Mlone milking systems with Metatron milk meters.

Any applications that are not listed here are not part of the intended purpose and are therefore considered as improper use!

The manufacturer/supplier is not liable for any resulting damage. The user alone bears the risk.

Correct use also includes reading the instructions and observing the inspection and maintenance conditions.

- The manufacturer expressly points out that only original parts and original accessories have been adapted, tested and authorized for use with the product.
- The installation or use of products from other manufacturers may affect the specified properties of the original parts and lead to injury to people and animals.
- The manufacturer does not accept any liability for injury to people or animals, or damage to the product, caused by the use of products from other manufacturers.

3.2 Changes to the product

For safety reasons, do not carry out any unauthorized changes!

Any planned changes must be approved by the manufacturer in writing.
3.3 Design of the equipment

<table>
<thead>
<tr>
<th>Sampling device</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sampling equipment in the lid</strong></td>
</tr>
<tr>
<td>This area contains all of the sampling electronics, the motors, the electromagnetic crimp valve and hose pump, the chain, chain holder, etc. (see next page)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bottle rack positioning device</th>
</tr>
</thead>
<tbody>
<tr>
<td>This device can be used to position the bottle rack correctly.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bottle rack</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 x 15 ml to 35 ml sample bottles can be placed in different racks.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sampling case</th>
</tr>
</thead>
<tbody>
<tr>
<td>This case contains all of the accessories for the sampling device.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample tank unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>The sample tank is connected to the milk meter. Once the milk sample has been collected, air is let into the tank to mix the milk. A sample is then taken from the tank through the sampling tube.</td>
</tr>
</tbody>
</table>
Sampling equipment in the lid

Chain with nozzle
The nozzle is positioned over the sample bottle with the chain.

Chain tensioner
Used to maintain the correct chain tension.

Limit switches
The limit switch stops the chain motor when the filling nozzle reaches the start position.

Electromagnetic crimp valve
When this valve is actuated, the sample in the sample tank is mixed by atmospheric air.

Hose pump
The pump pumps a small amount of milk into the drain channel to rinse the hose before the sample is placed in the sample bottle.

Chain link nozzle
The chain link nozzle closes the chain and fills the sample bottles.

Chain motor
Brings the nozzle contained in the chain to the correct position.

Sampling device electronics
The whole sampling process is controlled by its own CPU.
The following diagrams show how the sampling device works:
3.4.1 Mix sample

- The sample tank is filled with milk during the milking process.

- After milking, atmospheric air flows through the open mixing valve and mixes the sample in the sample tank.

3.4.2 Draw sample

- The hose pump (turning 100%) draws the sample out of the sample tank.
3.4.3 Rinse lines with milk

- The hose pump (turning 60%) pumps the first part of the sample into the drain channel.

3.4.4 Position filling nozzle

- The filling nozzle is positioned over the next sample bottle.
3.4.5 Fill sample bottle

- The hose pump (turning 60%) fills the sample bottle with the sample.

3.4.6 Drain lines

- Atmospheric air flows in through the open mixing valve and drains the intake line.
- The hose pump (turning 60-100%) also drains the pressure line.
3.4.7 Return

- The filling nozzle is moved to the next drain position through one of the two drain channels.

3.4.8 Drain sample tank

- Air flows into the sample tank through the open air inlet valve releases the stop balls and drains the sample tank.
3.5 Technical Data

Geometric data

<table>
<thead>
<tr>
<th>Dimensions (width x height x depth)</th>
<th>650 x 530 x 240</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of the case (without bottle rack)</td>
<td>24.5 kg</td>
</tr>
</tbody>
</table>

Electrical data

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>24 V DC</th>
</tr>
</thead>
</table>

Rating plate

The rating plate is placed on the side of the sampling device.
4 Transport

4.1 Safety instructions for transport

Also read the chapter on "Safety".

Special transport hazards:

- Projecting sharp edges may cause cuts.
- Parts which are stacked too high can collapse.
- There is a fire hazard due to the highly flammable packing material - open flames and smoking prohibited!

4.2 Transport

The cable and hose must be stowed in the space provided in the bottle rack to ensure they are not damaged during storage or transport.

Transport requirements:

- The two drain channels must go into the positions provided.
  - The rear drain channel in the positioning device
  - The front drain channel in the wall of the box
- The sampling hose and connecting cable must be placed behind the positioning device in the box.

⚠️ Attention!
The lines must not get trapped when the sampler is closed.

- The plug on the connecting cable must be fed through the positioning device to the back.

- Alternatively, the plug may be fastened to the positioning device with a cable tie.
- A bottle rack can also be transported in the sampler.

Note!
Not recommended! The total weight will then be more than 25 kg.

Transport problems
Observe the following points to avoid damaging the sampler:

Attention!
Never lay the connecting cable or hose on top of the bottle rack. The cable or hose might get damaged when the sampling device is closed.

Attention!
Never leave the drain channels loose in the box. Never leave the connecting cable plug loose in front of the positioning device. This may cause damage to components (hose pump, hose, etc.) when the sampler is closed, or during transport.
4.3 Includes

Check the goods supplied against the packing list enclosed for completeness and damage.

Legend:

1 Sampling device
2 Sample tank unit
3 Operating manual with installation instructions
4 Bottle rack to hold up to 80 sample bottles (Optional)

4.4 Storage conditions

It is recommended that the device is stored in a dry, dust-free and frost-free environment.

Note!
The sampling device should be kept clean to extend its service life.

4.5 Information on disposing of packing material

After unpacking, the packing material is to be handled properly and disposed of carefully in accordance with the valid local regulations on waste disposal and utilisation.
5 Sampling device

5.1 Special personnel qualification required for sampling

Sampling may only be carried out by specially qualified personnel in accordance with the safety instructions.

Good knowledge of working with the automatic milking system and the system program (RDM) is needed to perform sampling.

Also see the section on "Personnel qualification".

5.2 Safety instructions for sampling

To prevent damage to property and/or life-threatening injury to personnel, the following must always be observed:

- Only fit or use the product for its intended purpose.
- Taking the wrong action when there is a fault may cause damage - so familiarize yourself with the instructions on what to do if there is a fault.

Also read the chapter on "Safety".

Special risks involved in sampling:

- Incorrect use may lead to serious damage to property and/or life-threatening injury to people.

Before taking samples, ensure you are familiar with:

- The operating and control elements
- The equipment
- The method of operation
- The immediate environment

Carry out the following checks before every start:

- Check and make sure that all operating media is suitable, present and connected.
- Check the product for any visible damage; immediately repair the fault found (noting the personnel qualification required) or contact the specialist dealer - the product may only be used if it is in perfect condition.
- Check and make sure that there are no objects or materials in the working area if they are not necessary for operation.

During sampling:

- No safety equipment may be removed or taken out of operation during sampling.
- Operating personnel should make sure that no unauthorized personnel are in the working area.
5.3 Description of the operating elements

Operation is via the controls on the sampling device and via the system computer belonging to the automatic milking system.

Sampling device

Legend:

<table>
<thead>
<tr>
<th></th>
<th>Indicator lamp</th>
<th>On indicator (green)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>RESET button</td>
<td>Move filling nozzle to the start position</td>
</tr>
<tr>
<td>T2</td>
<td>PUMP button</td>
<td>Operate the hose pump manually</td>
</tr>
<tr>
<td>S</td>
<td>Selector switch</td>
<td>Set sample quantity</td>
</tr>
</tbody>
</table>

System computer

System computer / system program operating unit. Operated by touching the screen.

For further information on the subject, see the manual 7801-90...-001
5.4 Overview of the steps involved in the sampling process

⚠️ WARNING!
There is a risk of being crushed between moving and stationary parts. It is strictly forbidden to stand in the danger area.

The following steps must be performed to ensure successful sampling. Detailed information on the individual steps is given below:

Prepare for sampling
- Stop automatic operation
- Set up and connect the sampling device
- Settings in the system program for the automatic milking system

Take samples
- Start automatic operation
- Note the box data

Interrupt sampling
- Stop automatic operation
- Stop sampling
- Change the bottle rack
- Resume sampling
- Resume automatic operation

End sampling
- Stop automatic operation
- Stop sampling
- Create the sample file
- Transfer the sample bottles
- Start the system clean
- Disconnect and remove the sampling device
- Resume automatic operation

5.5 Prepare for sampling

aturing the sampling device to the automatic milking system before the system clean so that the milk-carrying parts of the installation can be cleaned again before sampling.

5.5.1 Stop automatic operation
- Close entry gates to all milking boxes.
  - Wait until the animals have left the milking boxes.
5.5.2 Set up and connect the sampling device

Set up the sampling device

The sampling device must be set up on the floor so that the robot can move freely.

---

Note!
One sampling device is required for each milking box.

The sampling device is drained through the internal drain channels.
- Set up the sampling device horizontally or with a slight incline.

---

Attention!
The sampling hose and connecting cable must be fed beneath the robot rail so that the robot can move freely.
Set the sample quantity (depends on the capacity of the sample bottles)

The correct volumes for filling the 15 ml to 35 ml bottles must be set with the selector switch.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
</table>

Note!
The sample quantities actually filled may differ from the values given in the table. They depend upon:
- correct hose lengths
- Vacuum level
- amount of wear on the hose pump

- Set the switch as indicated in the table.

Note!
The capacity of the hose pump reduces over time. This must be compensated for by increasing the switch setting.
Mount the sampler on the milk meter

When commissioning for the first time, the sampler has to be mounted beneath the milk meter tank.

- Remove the milk meter tank.
- Fit sampler, including gasket.

⚠️ Attention!
The lip of the flange must be pointing upwards and forward.

- Fasten sampler with 2 half-clips and a clamp.
• Place milk meter tank on the sampler and fasten.
• Connect Hose.

⚠️ **Attention!**
The lip on the sampler must fit into the groove in the gasket and the milk meter tank.

⚠️ **Attention!**
Never remove the lip from the sampler! Corrupted measurement results may be produced if it is removed.

❗ **Note!**
The sampler remains on the milk meter tank even after sampling.
• Connect the two connecting pieces together with the milk tube.
• Push the hose holder into the sampler holder and tighten the knob.
• Position the hose in the holder so that the two bends in the hose run evenly and no kinks are produced.
Assemble the sample tank

The sample tank must be assembled before it is installed.

- Fit Y-hose connectors.

- Fit hose and intake tube.

- Taper the intake tube at the bottom so that it cannot attach itself to the bottom of the tank.
• Place tank on the cover and fasten.

Note!
The arrow on the plug must be pointing up for operation.
Fit the sample tank in the milking system (Metatron)

The sample tank must be connected to the milk meter, air inlet valve and sampling device.

- Remove hose from the right-hand connector on the sampler
• Fasten sample tank to the sampler with holder and knob.

Attention!
The hose and intake tube from the cover must end at the lowest point in the sample tank.

• Connect the hose from the sample tank to the right-hand connector on the sampler.
- Fit the hose from the air inlet valve on the sample tank.

- Connect the hose from the left-hand connector on the sampler to the Y-connector on the sampler.
• Remove the cap from the sampler cover.

• Connect the sampling tube on the sampling device to the sample tank.

⚠️ **Attention!**  
The sampling tube must be fed beneath the robot rail so that the robot can move freely.

⚠️ **Note!**  
The sampling device's operating times are adapted to the original length of the sampling hose.  
Do not change the length of the hose!
Insert the bottle rack

Before sampling begins, the drain channels must be fitted and a bottle rack inserted.

- Push the front drain channel onto the side of the case.

- Place the bottle rack in the positioning device.

⚠️ **Attention!**
Make sure the bottle rack is the right way round. Note numbering!

💡 **Note!**
The bottle rack can only be inserted or removed without the rear drain channel fitted.
• Push rear drain channel onto the positioning device.

<table>
<thead>
<tr>
<th>Note!</th>
</tr>
</thead>
<tbody>
<tr>
<td>The bottle rack numbers are allocated automatically by the system program:</td>
</tr>
<tr>
<td>- Box 1</td>
</tr>
<tr>
<td>- Box 2</td>
</tr>
<tr>
<td>- etc.</td>
</tr>
<tr>
<td>If other rack numbers are to be used change them before starting sampling.</td>
</tr>
</tbody>
</table>

For information on this subject see the section entitled "Stop sampling".

<table>
<thead>
<tr>
<th>Attention!</th>
</tr>
</thead>
<tbody>
<tr>
<td>The samples in the sampling device must not overheat!</td>
</tr>
<tr>
<td>Do not expose the sampling device to direct sunlight.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Note!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep the sample bottles filled with milk in a place that is cool and protected from frost.</td>
</tr>
</tbody>
</table>
Connect the cable to the automatic milking system

The sampling device receives the electricity it needs from the automatic milking system.

⚠️ **Attention!**

The connecting cable must be fed beneath the robot rail so that the robot can move freely.

- Connect the 5-pole plug on the connecting cable to the connector on the left beneath the control unit for the corresponding milking box.

- The green indicator lamp on the sampling device will light.

- Press the "RESET" button.
  - The filling nozzle will be heard moving to the start position.

5.5.3 Settings in the system program for the automatic milking system

- Entering settings
  - Call up menu point
    - [RDM] Robot Data Manager
      - Hard / Sampling / Session specification
  - Set number of milk samples per animal
  - Set number of bottles in the bottle rack

📖 For further information on the subject, see the manual 7801-90 . . -001
5.6 Take samples

Note!
Carry out a system clean before starting sampling so that the milk-carrying parts of the installation can be cleaned once again.

For information on this subject see the section entitled "Cleaning"

5.6.1 Start automatic operation

- Start sampling
  - Call up menu point
  
  ![Robot Data Manager: Herd / Sampling / Operations]

  - Click on the button. (klick)

  ![Operations panel]

  - Switch entry gates to all milking boxes to automatic mode.

Note!
- If a cow produces less than 2 kg of milk (for example if the cluster has been inadvertently removed, the data are not recorded and no sample is taken.
- If the teat cups are being attached manually during sampling, wait for at least one minute after the cow has left the box before attaching the cluster to the next cow.
  The sampling cycle does not start until the cluster has been removed and takes about one minute.
- A message is generated when all of the sample bottles in the sampling device have been filled.

5.6.2 Note the box data

Note the following data so that the data export can be checked:

- Sampling start time
- ID of the first cow in each box
5.7 Interrupt sampling

To change a bottle rack, sampling must be interrupted for the corresponding milking box.

5.7.1 Stop automatic operation

- Close entry gate to the milking boxes.
  - Wait until the animal has left the milking box.

5.7.2 Stop sampling

- Interrupt milking at one milking box
  - Call up menu point

![Robot Data Manager](image)

- Interrupt sampling
  Press the button shown (1. klick)
  - Milking box ready for change.
    (Tick appears, colour of the fields changes)

5.7.3 Change the bottle rack

- Change bottle rack
  - Open the sampler cover.
  - Remove the rear drain channel from the positioning device.
  - Replace bottle rack.
  - Push rear drain channel onto the positioning device.
  - Press the "RESET" button.
    (the filling nozzle will be heard moving to the start position)
  - Close the sampler cover.
• Enter the number of the new bottle rack.
  - Press button (1. klick)
  - Enter number of accept suggestion

**Note!**
Make sure that numbers are not duplicated.
- Save setting (2. klick)

### 5.7.4 Resume sampling

• Continue sampling
  - Press button (klick)

### 5.7.5 Resume automatic operation

• Switch entry gate into the milking box to automatic mode.
5.8.1 Stop automatic operation

- Close entry gates to all milking boxes.
  - Wait until the animals have left the milking boxes.

5.8.2 Stop sampling

- Stop sampling
  - Call up menu point

  ![Robot Data Manager]

  Operations
  - Click on the button. (klick)

5.8.3 Create the sample file

- Export sampling data.
  - Call up menu point

  ![Robot Data Manager]

  Operations
  - Click on the button. (klick)

  - Program window appears.
    - Select sampling (1)
    - Select file format (2)
      Country-specific file formats are possible with a DairyPlan connection.
    - Specify target directory (3)
    - Start data export. (klick)
      File is saved.

For further information on the subject, see the manual
7160-90...-536
5.8.4 Transfer the sample bottles

The sample bottles in the bottle rack are filled in this order at each individual milking box.

The sample bottles are assigned to the individual cows in the same order when the data is exported.

⚠️ **Attention!**
When transferring the sample bottles to the laboratory unit, make sure that the same order also corresponds to the order of examination in the laboratory!

- Open the sampler cover.
- Transfer the sample bottles to the laboratory unit.
  - 1 → 1
  - 2 → 2
  - 3 → 3
  - ...

- Close the sampler cover.
5.8.5 Start the system clean

The sampling device is cleaned with the short clean and the system clean.
This means that scheduled system cleans are performed even when a sampling session is running.

---

**WARNING!**

Risk of scalding by hot cleaning solution!
Do not open the cover during the main system clean.

---

**Note!**

It is not necessary to remove the bottle rack before the system clean begins.

Once sampling has been completed, start a system clean to clean the sampling device.

- Start system clean

---

**Note!**

If a system clean is not performed the sampling device must be cleaned manually.

5.8.6 Disconnect and remove the sampling device

Once the system clean has ended, the sampling devices must be removed from all of the boxes.

- Carry out the steps described for setting up and connecting the device, but in reverse order.

---

**Note!**

The sample tank unit remains with the sampling device.
It is used to carry out measurements on that sampling device.

To extend its service life, the sampling device should be kept clean and it should be stored in a dry place at room temperature.

5.8.7 Resume automatic operation

- Switch entry gates to all milking boxes to automatic mode.
5.9 Cleaning

The milk-carrying parts of the installation are cleaned fully automatically by the automatic milking system.

Note!
Carry out cleaning directly before and after sampling.

Cleaning is performed with the individual phases of the system clean (pre-rinse, main clean and final rinse) and also with the short clean.

WARNING!
Risk of scalding by hot cleaning solution!
Do not open the cover during the main system clean.

- The hose pump runs several times for approximately 1 minute and remains stationary briefly.
- The mixing valve opens and the hoses are drained by the incoming air.

Note!
Fluid can also be drawn in and pumped through the system by the hose pump when the "PUMP" button is pressed.

Also clean the sampling device manually, inside and out, after each session.
- Never clean electrical equipment with water or similar fluids.

Attention!
Damage can be caused if fluid gets in!
Protect any electrically conductive components from the effects of moisture.
Do not clean the sampling device with a high pressure cleaner or jet of water!

- Clean the sampling equipment in the case lid with a damp cloth and then wipe dry.
- Clean the plastic case and the stainless steel components in the bottom of the case with a brush or sponge and warm cleaning solution. Next wipe with a clean, damp cloth and then wipe dry.

Note!
Empty bottle racks and the drain channels can be cleaned in a dish washer.
6 Operating faults

If necessary, please contact your nearest authorised technical dealer.

6.1 Special personnel qualification required for troubleshooting

Troubleshooting may only be performed by specially qualified personnel in accordance with the safety instructions.

They must be trained in operating and setting up the sampler, have experience of working with it and must have read and understood this manual.

Also see the section on "Personnel qualification".

6.2 Safety instructions for troubleshooting

To prevent damage to property and/or life-threatening injury to personnel, the following must always be observed:

- First of all, prevent the product from being restarted accidentally.
- Ensure that safe disconnection can be carried out by a second person at any time.

Also read the chapter on "Safety".

Special dangers involved in troubleshooting:

- If energy sources are switched on unintentionally this may lead to serious damage to property and/or life-threatening injuries to people and animals.
- Electrostatic processes may damage electronic components.

Attention!

Only touch the edge of the printed circuit board and avoid static caused for example by clothing.
## 6.3 Troubleshooting possible faults

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Possible cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green indicator lamp does not come on</td>
<td>Cable not connected</td>
<td>Check and connect correctly if necessary</td>
</tr>
<tr>
<td>No sample in the sample bottle</td>
<td>Sampling hose is not connected correctly, or is blocked, kinked or torn</td>
<td>Check and replace if damaged</td>
</tr>
<tr>
<td></td>
<td>Hose pump defective</td>
<td>Replace defective parts</td>
</tr>
<tr>
<td></td>
<td>Crimp valve and/or air inlet hose for mixing open</td>
<td>Check and replace any defective parts</td>
</tr>
<tr>
<td>Too much or too little sample in the sample bottle</td>
<td>Sampling hose is the wrong length</td>
<td>Use the original length</td>
</tr>
<tr>
<td></td>
<td>Wrong switch position</td>
<td>Reset the quantity</td>
</tr>
<tr>
<td>To little sample in the sample bottle</td>
<td>Reducing hose pump capacity</td>
<td>Readjust the quantity with the switch</td>
</tr>
<tr>
<td></td>
<td>Air inlet hose for mixing is leaking</td>
<td>Replace hose or the hose pump</td>
</tr>
<tr>
<td>Sample is missing the sample bottle</td>
<td>Chain and/or chain sprockets are worn out</td>
<td>Replace defective parts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check and adjust the limit switch trigger point</td>
</tr>
</tbody>
</table>
7 Maintenance

If necessary, please contact your nearest authorised technical dealer.

7.1 Special personnel qualification required for maintenance work

Maintenance work may only be performed by specially qualified personnel in accordance with the safety instructions.

They must be trained in operating and setting up the sampler, have experience of working with it and must have read and understood this manual.

Also see the section on "Personnel qualification".

7.2 Safety instructions for maintenance

To prevent damage to property and/or life-threatening injury to personnel, the following must always be observed:

- Only use original spare parts / original wearing parts / original accessories. In the case of products by other manufacturers it cannot be ensured that they have been designed and produced from the point of view of loads and safety.
- All of the steps involved in the maintenance work must be worked through in the order specified.
- The maintenance work specified in the instructions (adjustment, cleaning, lubrication, inspection, etc.) must be performed at the times specified.
- Maintenance work should only be performed with the tools envisaged for this purpose.
- Also note the special information in this manual for the individual components.
- Only use the media specified.
- Immediately replace any components that are not in perfect condition.

Also read the chapter on "Safety".

Before carrying out any maintenance work, make sure of the following:

- Before performing any work on electrical installations or equipment (components, housing, etc.) switch off all sources of voltage and make sure they cannot be switched back on again. Put up a sign warning against switching them back on again.
- All components have cooled to room temperature
Special risks involved in maintenance work:

- Serious damage to property may occur if incorrect replacement or wearing parts are installed.
- If energy sources are switched on unintentionally, this may lead to serious bodily injury or damage to property.
- Electrostatic processes can cause damage to electronic components.

Note!
Only touch the edge of the printed circuit board and avoid static caused for example by clothing.

After completing the maintenance work, check the following:

- The installation values set before the work are not altered by the work (report).
- Any screwed connections that were loosened earlier have been tightened.
- All safety devices, guards, tank covers, etc. that were removed previously have been put back correctly.
- All safety equipment is working perfectly again.
- Have all of the tools, materials and other equipment that were used been removed from the working area again?
- Operation has been checked after maintenance work has been completed or parts replaced. Produce a full test report if necessary.
### 7.3 Scheduled maintenance responsibilities

<table>
<thead>
<tr>
<th>Interval* (samples filled)</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>After every session</td>
<td>Sampling device</td>
<td>Clean thoroughly inside and out</td>
</tr>
<tr>
<td>Once a year (15000-18000)</td>
<td>All hoses, wearing parts</td>
<td>replace</td>
</tr>
<tr>
<td></td>
<td>Hose pump hose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Filling position</td>
<td>Check and adjust limit switch if necessary</td>
</tr>
<tr>
<td>every 3 years (45000-60000)</td>
<td>Chain, driving pinion, chain</td>
<td>Check, replace if necessary</td>
</tr>
<tr>
<td></td>
<td>sprockets</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hose pump</td>
<td>replace</td>
</tr>
</tbody>
</table>

* Period of constant use (several times a week)

Carry out regular checks on electrical equipment:
- Retighten any loose connections
- Replace damaged lines or cables immediately
- Close off any cable openings that are not being used

### 7.3.1 Replacing wearing parts on the sample tank

Wearing parts come together in a set of replacement parts.
- Replace wearing parts

### 7.3.2 Replacing the hose pump hose

Replace the hose every year to ensure reliable operation.

⚠️ **Attention!**
Only replace the hose when the hose pump is off.
- Pull the hose out from the hose pump.
• Undo the three screws in the housing cover.

• Remove the housing cover from the hose pump.

• Take the hose out of the housing cover.

• Insert a new hose in the housing cover.
• Screw the housing cover onto the hose pump.

⚠️ **Attention!**

Note the correct position of the housing cover!

• Connect the houses onto the outside of the hose pump again.

The pump can now be used again.

.inverse

**(Note!**

After replacing the hose, reset the sample quantities required on the unit and carry out a trial run.

---
7.3.3 Replacing the chain and sprockets

The chain comes correctly pre-tensioned from the factory. It is not necessary to re-tension the chain because of the very slight wear. As a rule the chain will not have to be changed for several years.

WARNING!
Disconnect the cable from the power supply before starting the work.

- Undo the four screws holding the sampling equipment in the lid.

- Turn the sampling equipment out of the lid so that the chain is on top.

- Loosen the threaded pin on the sprocket (drive) with a spanner.

- Place a spanner on the square of the chain tensioner and loosen the chain.
- Remove the sprocket from the drive shaft.

- Replace any defective parts (e.g. chain or sprockets).

- Place sprocket with chain on the drive shaft, loosening the chain with the spanner.

- Turn the sprocket until the threaded pin is pointing towards the flat surface of the drive shaft.

- Position the sprocket at the required height on the drive shaft.

- Tighten the threaded pin on the sprocket (drive) with a spanner.

- Re-assemble the sampling device.
7.3.4 Checking and adjusting the limit switch trigger point

The trigger point may change over time and therefore has to be checked regularly.

- Connect the cable to the automatic milking system.
- Press the "RESET" button.
  - The filling nozzle will be heard moving to the start position.
- Open the catch on the top of the cover.

- Briefly press the button on the right of the electronic card.
  - The filling nozzle moves one position further.

- Check the nozzle's first filling position.
  - The filling positions are marked by notches.

- Press the "RESET" button.
  - The filling nozzle moves back to the start position.
• Press and hold down the button on the right of the electronic card.
  - The filling nozzle travels to position 41.

• Check the nozzle’s filling position.
  - The deviation may not be more than +/- 1.5 mm.

If the first filling position is not correct:

⚠️ WARNING!
Disconnect the cable from the power supply before starting the work.

• Take the sampling device out of the lid as described in "Replacing the chain and sprocket" and turn over.
  - The limit switch is accessible.

• Change the position of the limit switch so that the filling nozzle is exactly on the marking for the first filling position.

• Re-assemble the sampling device.
• Check the nozzle’s first filling position again as described above.
8 Decommissioning

Decommissioning may only be performed by specially qualified personnel in accordance with the safety instructions.

Also see the section on "Personnel qualification".

8.1 Safety instructions for decommissioning

To prevent damage to property and/or life-threatening injury to personnel, the following must always be observed:

- All of the steps involved in the decommissioning work must be worked through in the order specified.
- First of all, make the operating area for decommissioning completely safe.
- Make sure that operating media are disposed of without harming the environment.

Also read the chapter on "Safety".

Special dangers involved in decommissioning:

- Leaking lubricants, solvents, preservatives, .... can cause injury if they come into direct contact with the skin.
- Components that are not removed correctly may fall down or tip over.
- Exposed sharp-edged components/tools/.... may cause injury.

8.2 Temporary decommissioning

- Stop sampling.

To extend its service life, the sampling device should be kept clean and it should be stored in a dry place at room temperature.

8.3 Final decommissioning/disposal

You are strongly advised to contact the supplier if the system is to be decommissioned.

- Stop sampling.
- Take components out of the automatic milking system.
  (in the reverse order as described in the section entitled "Prepare for sampling")

After final decommissioning, handle all components properly and dispose of them in accordance with valid local regulations on waste disposal and utilization.

Note!
The system contains components (metals, electrical components, plastics, etc.) which are not biodegradable.
### 9.1 Sampling device

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Part No.</th>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0020</td>
<td>7801-2187-070</td>
<td>Support complete</td>
<td>Mione Metatron</td>
</tr>
<tr>
<td>0030</td>
<td>7801-2503-020</td>
<td>Sampler complete</td>
<td></td>
</tr>
<tr>
<td>0040</td>
<td>0019-5575-300</td>
<td>Truss-head screw</td>
<td>M8x25</td>
</tr>
<tr>
<td>0050</td>
<td>0026-1345-300</td>
<td>Washer</td>
<td>8.4</td>
</tr>
<tr>
<td>0060</td>
<td>0019-9101-300</td>
<td>Cheesehead screw</td>
<td>M4x20</td>
</tr>
<tr>
<td>0070</td>
<td>7800-0025-657</td>
<td>Sampling device</td>
<td>Mione Interior</td>
</tr>
<tr>
<td>0080</td>
<td>7800-0025-678</td>
<td>Lock washer</td>
<td>7</td>
</tr>
<tr>
<td>0100</td>
<td>0019-6901-300</td>
<td>Hexagon head bolt</td>
<td>M8x16</td>
</tr>
<tr>
<td>0120</td>
<td>0026-0439-300</td>
<td>Washer</td>
<td>8,4x24x2</td>
</tr>
<tr>
<td>0150</td>
<td>7801-1268-020</td>
<td>Drain channel, welded</td>
<td>front</td>
</tr>
<tr>
<td>0160</td>
<td>7801-1268-000</td>
<td>Drain channel, welded</td>
<td>rear</td>
</tr>
<tr>
<td>0170</td>
<td>0019-9100-300</td>
<td>Cheesehead screw</td>
<td>M4x16</td>
</tr>
<tr>
<td>0180</td>
<td>0026-0429-300</td>
<td>Washer</td>
<td>5.3x15x1.2</td>
</tr>
<tr>
<td>0190</td>
<td>0026-1362-300</td>
<td>Washer</td>
<td>4.3</td>
</tr>
<tr>
<td>0200</td>
<td>0013-0310-300</td>
<td>Hexagon head nut</td>
<td>M4</td>
</tr>
<tr>
<td>0210</td>
<td>0019-6845-300</td>
<td>Hexagon head bolt</td>
<td>M6x25</td>
</tr>
<tr>
<td>0220</td>
<td>0026-0922-300</td>
<td>Washer</td>
<td>6.4x18x1.6</td>
</tr>
<tr>
<td>0230</td>
<td>0013-0294-300</td>
<td>Hexagon head nut</td>
<td>M6</td>
</tr>
</tbody>
</table>

- See corresponding parts list/drawing for further breakdown of components.
### 9.1.1 Sampler complete

![Diagram of Sampler complete](image)

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7801-2503-020</td>
<td><strong>Sampler complete</strong></td>
</tr>
<tr>
<td>0010</td>
<td>7161-2513-010</td>
<td><strong>Sampler</strong></td>
</tr>
<tr>
<td>0020</td>
<td>7161-5588-030</td>
<td><strong>Vessel</strong></td>
</tr>
<tr>
<td>0030</td>
<td></td>
<td><strong>Cover for sampler complete</strong></td>
</tr>
<tr>
<td>0040</td>
<td>0018-0380-848</td>
<td><strong>Pipe</strong></td>
</tr>
<tr>
<td>0050</td>
<td>0018-4376-898</td>
<td><strong>Hose</strong></td>
</tr>
<tr>
<td>0060</td>
<td>7021-7102-018</td>
<td><strong>Milk tube</strong></td>
</tr>
<tr>
<td>0070</td>
<td></td>
<td><strong>(available by the metre)</strong></td>
</tr>
<tr>
<td>0080</td>
<td>7036-7101-010</td>
<td><strong>Milk tube</strong></td>
</tr>
<tr>
<td>0090</td>
<td>0021-3134-700</td>
<td><strong>Star knob</strong></td>
</tr>
<tr>
<td>0100</td>
<td>7161-2084-130</td>
<td><strong>Tube holder</strong></td>
</tr>
<tr>
<td>0110</td>
<td>7161-3270-000</td>
<td><strong>Clip complete</strong></td>
</tr>
<tr>
<td>0130</td>
<td>7161-5014-000</td>
<td><strong>Handle</strong></td>
</tr>
<tr>
<td>0160</td>
<td>0018-5324-820</td>
<td><strong>Y-connection piece</strong></td>
</tr>
<tr>
<td>0170</td>
<td>7021-7102-018</td>
<td><strong>Milk tube</strong></td>
</tr>
<tr>
<td>0180</td>
<td></td>
<td><strong>(available by the metre)</strong></td>
</tr>
<tr>
<td>0190</td>
<td>0026-2249-690</td>
<td><strong>Cap</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Set of spare parts</strong></td>
</tr>
</tbody>
</table>

- **Wear parts, interval of maintenance in chapter Maintenance**.
  Included in set of spare parts (7161-9904-070).

- **See corresponding parts list/drawing for further breakdown of components.**
## Cover for sampler complete

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0020</td>
<td>7161-2298-010</td>
<td>Guide piece</td>
</tr>
<tr>
<td>0030</td>
<td>7161-5566-000</td>
<td>Lever</td>
</tr>
<tr>
<td>0040</td>
<td>7161-1467-000</td>
<td>Sealing panel</td>
</tr>
<tr>
<td></td>
<td>x 36x20xø4</td>
<td></td>
</tr>
<tr>
<td>0050</td>
<td>0007-2060-700</td>
<td>Gasket</td>
</tr>
<tr>
<td>0060</td>
<td>0007-1818-700</td>
<td>Gasket</td>
</tr>
<tr>
<td>0070</td>
<td>0013-0311-300</td>
<td>Hexagon head nut</td>
</tr>
<tr>
<td>0090</td>
<td>7161-2084-140</td>
<td>Bracket</td>
</tr>
<tr>
<td>0100</td>
<td>7161-6708-000</td>
<td>Plug complete</td>
</tr>
<tr>
<td></td>
<td>ø12 Metatron</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(with 110, 130)</td>
<td></td>
</tr>
<tr>
<td>0110</td>
<td>0007-2509-700</td>
<td>Gasket</td>
</tr>
<tr>
<td>0120</td>
<td>0026-1508-890</td>
<td>Ball</td>
</tr>
<tr>
<td>0130</td>
<td>0007-1974-700</td>
<td>Gasket</td>
</tr>
<tr>
<td>0150</td>
<td>0013-0276-300</td>
<td>Hexagon head nut</td>
</tr>
<tr>
<td>0160</td>
<td>7801-4807-000</td>
<td>Connector</td>
</tr>
<tr>
<td>0170</td>
<td>7051-2045-000</td>
<td>Hose connector</td>
</tr>
<tr>
<td>-</td>
<td>7161-9904-070</td>
<td>Set of spare parts</td>
</tr>
</tbody>
</table>

- Wear parts, interval of maintenance in chapter Maintenance.
- Included in set of spare parts (7161-9904-070).

See corresponding parts list/drawing for further breakdown of components.
### Clip complete

<table>
<thead>
<tr>
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<td>7161-2097-140</td>
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<tr>
<td>0020</td>
<td>7161-2653-000</td>
<td>Clamp 55x4</td>
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<tr>
<td>0040</td>
<td>0007-3239-890</td>
<td>Gasket 25 Tri-Clamp 60x5,6/25,5</td>
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* x - Wear parts, interval of maintenance in chapter Maintenance. Included in set of spare parts (7161-9904-070).*
## Set of spare parts

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<td>0020</td>
<td>7036-7101-010</td>
<td>Milk tube 8.5x3,75x320</td>
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<tr>
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<td>0007-2509-700</td>
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<td>0050</td>
<td>0007-1974-700</td>
<td>Gasket 10x2</td>
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<td>7161-1467-000</td>
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<tr>
<td>0080</td>
<td>0007-1818-700</td>
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### Sampling device (Mlone Interior)

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<td>0020</td>
<td>7801-5306-000</td>
<td>x Sprocket</td>
<td>Guide</td>
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<td>0030</td>
<td>7800-0025-633</td>
<td>Shaft</td>
<td>12x19,5</td>
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<tr>
<td>0040</td>
<td>7801-2160-000</td>
<td>Cover complete</td>
<td></td>
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<tr>
<td>0050</td>
<td>7801-5556-000</td>
<td>Lever</td>
<td></td>
</tr>
<tr>
<td>0060</td>
<td>7801-6915-000</td>
<td>Spanner</td>
<td></td>
</tr>
<tr>
<td>0070</td>
<td>7801-5300-000</td>
<td>Drive</td>
<td></td>
</tr>
<tr>
<td>0080</td>
<td>0005-3301-000</td>
<td>Sub-unit terminal block</td>
<td>MSTB2,5-2-ST-5,08</td>
</tr>
<tr>
<td>0090</td>
<td>0005-3302-000</td>
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<tr>
<td>0100</td>
<td>7800-0025-646</td>
<td>V-Ring</td>
<td>ø22</td>
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<td>7801-5847-010</td>
<td>Limit switch, complete</td>
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<td>0120</td>
<td>7800-0025-647</td>
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<td>ø5</td>
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<tr>
<td>0130</td>
<td>0013-0310-300</td>
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<td>Description</td>
<td>Quantity/Size</td>
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<td>------------------------------------------</td>
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<td>0200</td>
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<td>Push-button</td>
<td>0.7A / 250V / 1S</td>
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<td>ø 3x8 (available by the metre)</td>
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<td>T-piece for hose connection</td>
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<td>Sub-unit terminal block</td>
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<td>MC 1,5 / 3-ST-3.81</td>
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<td>Tie Wire Nylon</td>
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<td>0750</td>
<td>LED</td>
<td>28 V AC/DC, BA9s</td>
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<tr>
<td>0760</td>
<td>Gasket</td>
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</table>
Spare parts
Sampling device

- Wear parts, interval of maintenance in chapter Maintenance.

See corresponding parts list/drawing for further breakdown of components.

### Hose pump

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Part No.</th>
<th>Description</th>
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<td>7801-2981-000</td>
<td>Hose pump</td>
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</tr>
<tr>
<td>0010</td>
<td>7801-2635-000</td>
<td>x Hose</td>
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<td>0020</td>
<td>7801-4900-000</td>
<td>x Spare parts</td>
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<td>0030</td>
<td>7015-9902-200</td>
<td>x Set of spare parts</td>
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<td>x - Wear parts, interval of maintenance in chapter Maintenance.</td>
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### Illuminated pushbutton complete

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<tr>
<td>0010</td>
<td>0005-1312-900</td>
<td>Indicator lamp</td>
</tr>
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<td>0020</td>
<td>0005-1343-910</td>
<td>Diaphragm</td>
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green
### Cable complete

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<th>Description</th>
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<td>0040</td>
<td>0005-1773-040</td>
<td>Connector housing</td>
<td>HAN 3A-M20</td>
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<td>0060</td>
<td>0005-4486-900</td>
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<td>0005-4465-900</td>
<td>Reduction</td>
<td>M20x1,5 - M16x1,5</td>
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<td>0070</td>
<td>0005-1773-030</td>
<td>Connector insert</td>
<td>HAN 4A-M</td>
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### 9.2 Bottle racks

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<td>7801-6451-030</td>
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<td></td>
<td>7801-6451-040</td>
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<tr>
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<td>7801-6451-050</td>
<td>Bottle rack</td>
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<td>7801-6451-060</td>
<td>Bottle rack</td>
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10 Appendix

10.1 Order of the sample bottles in the rack

Legend:

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<tr>
<th>45</th>
<th>Sample bottle number</th>
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<tbody>
<tr>
<td>➔ ➔</td>
<td>Order in which the sample bottles are filled</td>
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</table>

Milking box numbering

<table>
<thead>
<tr>
<th>Left version</th>
<th>Right version</th>
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<tbody>
<tr>
<td>2 1</td>
<td>1 2</td>
</tr>
<tr>
<td>3 2 1</td>
<td>1 2 3</td>
</tr>
<tr>
<td>4 3 2 1</td>
<td>1 2 3 4</td>
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<tr>
<td>5 4 3 2 1</td>
<td>1 2 3 4 5</td>
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</table>

7801-9001-005
03-2010
10.2 Terminal diagram for the CUP electronic card

Legend:
1 Valve
2 Pump
3 Motor
4 Limit switches

10.3 Pin assignment

Legend:
UB  24V voltage monitoring (OUT)
SC  Sample/Clean Signal (IN)
PE  Earth, green/yellow (Protection Earth)
(1) Power supply
(2) Mass
## 10.4 Abbreviations

<table>
<thead>
<tr>
<th>Term</th>
<th>Explanation</th>
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<td>Ø</td>
<td>Phase</td>
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<tr>
<td>øi</td>
<td>Inside Diameter</td>
</tr>
<tr>
<td>øo</td>
<td>Outside Diameter</td>
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<tr>
<td>%</td>
<td>Percent</td>
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### Units

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<td>Degrees (angles)</td>
</tr>
<tr>
<td>°C</td>
<td>Degrees Celsius/ Centigrade</td>
</tr>
<tr>
<td>s</td>
<td>Second</td>
</tr>
<tr>
<td>&quot; (in)</td>
<td>Inch (= 25.4 mm)</td>
</tr>
<tr>
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<td>Millimeters</td>
</tr>
<tr>
<td>m</td>
<td>Meter</td>
</tr>
<tr>
<td>kg</td>
<td>Kilograms</td>
</tr>
<tr>
<td>kPa</td>
<td>Kilopascal</td>
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10.5 Quick-reference guide

10.5.1 Start sampling

Stop automatic operation

- Close entry gates to all milking boxes.
  - Wait until the animals have left the milking boxes.

Set up and connect the sampling device

Set up the sampling device

The sampling device must be set up on the floor so that the robot can move freely.

⚠️ Attention!

The sampling hose and connecting cable must be fed beneath the robot rail so that the robot can move freely.

- Place the bottle rack in the positioning device.
Fit the sample tank in the milking system (Metatron)

- Connect the sample tank to the sampler and connect to the sampling device.

Connect the cable to the automatic milking system

⚠️ **Attention!**
The connecting cable must be fed beneath the robot rail so that the robot can move freely.

- Connect the 5-pole plug on the connecting cable to the connector on the left beneath the control unit for the corresponding milking box.

  - The green indicator lamp on the sampling device will light.

- Press the "RESET" button.
  - The filling nozzle will be heard moving to the start position.
Settings in the system program for the automatic milking system

- Entering settings
  - Call up menu point
    - Robot Data Manager
      - Herd / Sampling / Session specification
  - Set number of milk samples per animal
  - Set number of bottles in the bottle rack

Start automatic operation

- Start sampling
  - Call up menu point
    - Robot Data Manager
      - Herd / Sampling / Operations
  - Click on the button. (klick)

- Switch entry gates to all milking boxes to automatic mode.

Note the box data

Note the following data so that the data export can be checked:
- Sampling start time
- ID of the first cow in each box

10.5.2 End of sampling

Stop automatic operation

- Close entry gates to all milking boxes.
  - Wait until the animals have left the milking boxes.
Stop sampling

- Stop sampling

  ![Robot Data Manager
  Herd / Sampling / Operations]

  - Click on the button. (klick)

Create the sample file

- Export sampling data.

  ![Robot Data Manager
  Herd / Sampling / Operations]

  - Click on the button. (klick)

  - Program window appears.
  - Select sampling. (1)
  - Select file format. (2)
  - Country-specific file formats are possible with a DairyPlan connection.
  - Specify target directory. (3)
  - Start data export. (klick)
  - File is saved.

For further information on the subject, see the manual 7160-90...-536

Start the system clean

- Start system clean

  ![Robot Data Manager
  System / Cleaning / Operations]

Disconnect and remove the sampling device

- Carry out the steps described for setting up and connecting the device, but in reverse order.

Resume automatic operation

- Switch entry gates to all milking boxes to automatic mode.
GEA Farm Technologies
The right choice.