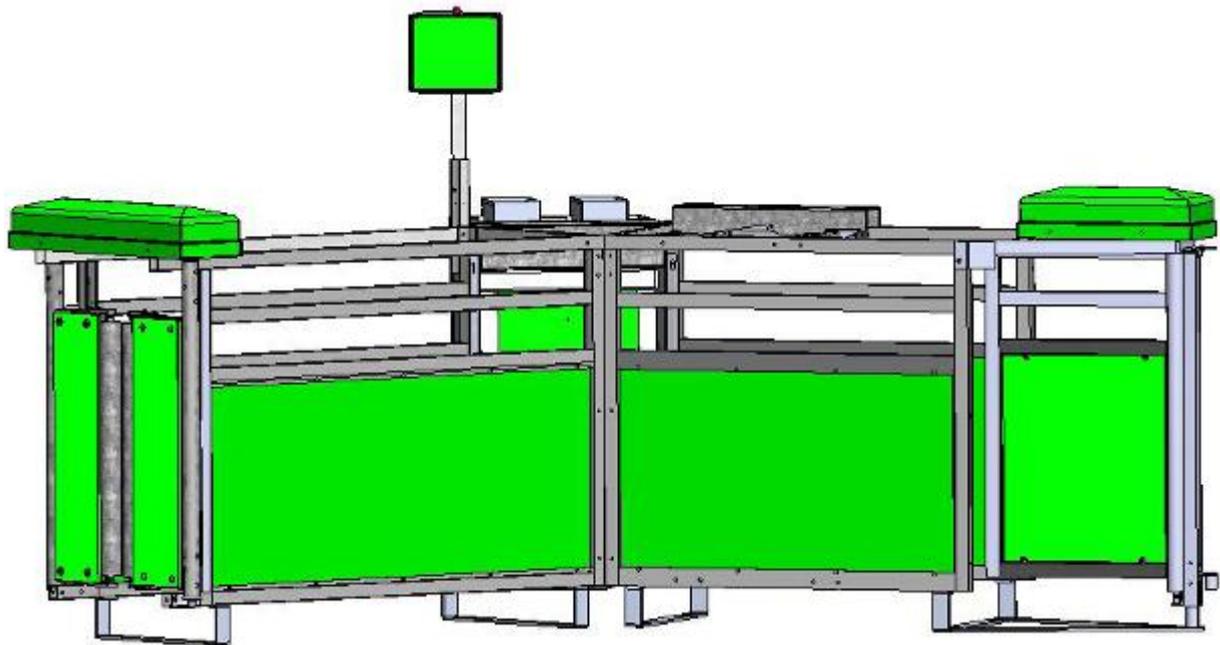


# Operating Instructions

## Feeding station

### Intec MAC



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## Importance of the Operating and Assembly Instructions

The Operating Instructions form is an integral part of the Intec MAC and:

- they must be kept within immediate reach at all times, i.e. until the Intec MAC is disposed of.
- they must be passed on when selling, transferring or lending the Intec MAC.

We welcome all suggestions and feedback from you communicated orally or in writing. This helps us make these Operating Instructions more user friendly, in line with your wishes and requirements.

Since the Intec MAC may imply residual risks for people and property that cannot be avoided, every person involved in transporting, installing, operating, maintaining and repairing the Intec MAC must be properly instructed and must familiarize themselves with the possible risks by carefully reading, understanding and observing the Operating Instructions and specifically the safety instructions.

Insufficient knowledge of the Operating Instructions invalidates any and all rights to hold the manufacturer liable. We recommend having personnel confirm in writing that they have been thoroughly instructed.

Version 1.00 en

The manufacturer reserves the right to make changes to your product in keeping with the latest technical developments. These individual changes are not necessarily always documented.

These Operating Instructions and the information contained in them have been compiled with all due care. However, the manufacturer does not assume any liability for printing errors or other errors and any damage or loss resulting from such errors.

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## General safety instructions

### Duty of care of operating company

The machine was constructed and built duly considering a risk analysis and following a careful selection of the standards to be complied with and the further technical specifications. As a result, it complies with the latest state of technology and guarantees optimum safety.

However, this safety can only be achieved in daily operating practice if all measures required to such effect have been taken. It is the operating company's duty of care to plan these measures and check their implementation.

The operating company must make sure in particular that

- the machine is only used according to its intended use (see chapter 5, Product description)
- the machine is only operated if it is in a technically perfect state and is functioning properly; the safety features must specifically be checked for their proper functioning on a regular basis
- the required personal safety equipment for the operating, maintenance and repair staff is available and is used
- the Operating Instructions are always available in a legible state and in their entirety at the machine's location of use
- the machine is only operated, maintained and repaired by sufficiently qualified and authorized staff
- such staff are regularly instructed on all relevant working safety and environmental issues and in particular know the Operating Instructions and the safety instructions contained therein
- all safety and warning instruction notices on the machine are always in place and legible.

### Explanation of safety symbols

The following Operating Instructions contain specific safety instructions pointing out any unavoidable residual risks that are present while the machine is being operated. These residual risks concern dangers for

- People
- Animals
- The machine
- The environment

The symbols used in the Operating Instructions are mainly intended to alert you to the safety instructions!



**Danger!**

**This symbol indicates that there is mainly a risk of danger to people. (danger of fatal accidents, danger of injuries)**

**Any failure to observe these instructions may result in serious injury or death.**



**Caution!**

**This symbol indicates that there is mainly a risk of danger to the machine, equipment and the environment.**

**Any failure to observe these instructions may result in faults and damage to the machine, as well as damage to property and the environment.**

The main objective of the safety instructions is to prevent personal injury.

- If a safety instruction is preceded by a warning triangle with the word "Danger" under it, dangers to the machine, materials and the environment are not excluded.
- However, if a safety instruction is preceded by a warning triangle with the word "Caution" under it, dangers to people are not immediately expected.

Also remember that a safety symbol can never replace the text of a safety instruction: you must always read the complete text of a safety instruction!



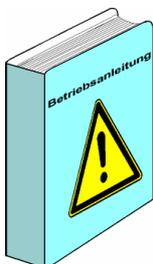
*This symbol does not mark any safety instructions, but installation or other useful information.*

## Basic safety measures

These Operating Instructions contain all the essential instructions to be able to use the machines safely.

These Operating Instructions must be stored near the machine. It must be guaranteed that all personnel who carry out activities on the machine can refer to the Operating Instructions at all times. In addition to these Operating Instructions, the company must also make operating instructions available pursuant to the [German] Act on safety at work and the Decree on using tools and equipment.

All signs bearing safety and operating instructions on the machine must always be kept in a properly legible condition. Immediately replace any damaged or illegible signs.



The machine must only be operated by properly trained and authorized personnel who are familiar with these Operating Instructions and can work in keeping with them!

Make sure that you are sufficiently familiar with

- the operating and control elements of the machine
- the configuration of the machine
- the operation of the machine
- the direct vicinity of the machine
- the safety features on the machine
- the emergency measures

**Before switching on the machine, check and make sure that**



**Danger!**

- **only authorized personnel are in the working range of the machine!**
- **nobody can be injured by the machine while it is starting up!**
- **the machine has been checked for visual damage and is only operated in a technically perfect condition! Immediately report any defects found to your superior!**
- **any material not required for feeding has been removed from the working range of the machine!**
- **all safety features work perfectly!**
- **the machine is only started from the designated workstation.**
- **no safety features are removed or deactivated while the machine is running.**
- **no unauthorized personnel are in the working range of the machine!**



**Danger!**

After switching off the machine, the operating staff must wait for all moving parts to have stopped moving and for the operating indicators to have extinguished before leaving the machine unsupervised.

Perform the following checks at least once a day:

- check the exterior of the machine for visible damage
- check the functioning of all safety features

## Maintenance and service

Observe the inspection and maintenance intervals laid down in the Operating Instructions!

Observe the Maintenance and Repair Instructions for the individual components in these Operating Instructions!

Immediately replace any machine parts that are not in perfect condition!

Only use original spare parts!



**Danger!**

Before carrying out maintenance or repair work:

- secure the working range of the machine so that unauthorized personnel cannot enter it!
- Apply or put up a warning sign to alert people to the maintenance or repair activities!
- switch off the main switch to interrupt the power supply and padlock it! The key to this lock must be held by the person who is carrying out the maintenance or repair work!
- Make sure that any parts of the system which have been depressurized cannot be unexpectedly switched on again!
- Use suitable and technically perfect lifting or hoisting devices and sling gear to replace heavy machine parts!
- Before carrying out any maintenance or repair work, make sure that any parts of the machine you might touch have cooled down to room temperature!
- Dispose of any environmentally harmful lubricants, refrigerants or detergents in keeping with applicable regulations!



**Danger!**

**Pay attention to the following after completing the maintenance activities and before starting the machine:**

- **Double-check that all screwed connections that were loosened are tight!**
- **Check that all safety features and covers that were removed have been properly installed again!**
- **Make sure that all tools, materials and other equipment used have been removed from the work area!**
- **Clean the work area and remove any liquids or other substances that have leaked out or escaped!**
- **Make sure that all safety features on the machine work properly again!**

### **Carrying out work on electrical systems**



**Danger!**

- **Repairs to electrical systems on the machine must only be carried out by professional electricians!**
- **Regularly check all electrical systems!**
- **Repair loose connections!**
- **Immediately replace any damaged leads/cables!**
- **Keep the control cabinet closed at all times! Only authorized personnel who have the right key/tool are allowed to access the control cabinet!**
- **Never spray clean switch cabinets and other electrical equipment housings using water hoses!**
- **Whenever work is carried out on live machine parts or circuits a second person must be present to switch off the main switch in case of an emergency!**

## Carrying out work on the pneumatic system



**Danger!**

- Maintenance and repair work on the pneumatic system must only be carried out by specifically trained staff!
- Depressurise the pneumatic system of the machine before carrying out any maintenance or repair activities!
- Regularly replace hoses as part of your preventative maintenance routine, even if they do not appear to be damaged! (Observe the manufacturer's instructions!)

### Before re-commissioning after maintenance or repair work

- check that all screwed connections which were undone are tight again
- make sure that reservoir covers, screens or filters which were removed have been installed again

### After completing maintenance or repair activities and before restarting the feeding operation make sure that

- all materials, tools and other gear needed for the maintenance or repair activities have been removed from the working range of the system
- any liquids that have leaked out have been removed
- all safety features on the system work perfectly!

## Observe the environmental instructions



**Caution!**

Observe the statutory requirements on preventing waste and on proper recycling/disposal whenever work is carried out on or with the machine

Especially when installation, repair and/or maintenance activities are carried out, make sure that substances that might pollute the water such as

- greases and lubrication oils
- solvent-containing cleaning fluids

do not contaminate the soil or end up in the sewage system! These substances must be stored, transported, collected and disposed of in suitable containers!

## Modifications to the machine

For reasons of safety, unauthorized modifications to the machine are strictly prohibited! This also applies to welding work on load-bearing parts.

All changes and modifications planned must be approved in writing by PigTek Europe GmbH.

Immediately replace any machine parts that are not in a defect-free condition.

Only use original spare parts / original wearing parts / original accessories - these parts were designed and constructed specifically for the machine in question. If parts are purchased from third parties there is no guarantee that they have been constructed and produced to meet the relevant stress/load and safety requirements.

The use of parts and special equipment not planned by PigTek Europe GmbH on the machine is explicitly not allowed.

## Requirements placed on the operating staff

The machine must only be operated by properly trained, instructed and authorized staff. Such personnel must be familiar with and observe the Operating Instructions.

Operating staff still in training may initially only work on the machine if supervised by an experienced person. When training has been completed successfully this must be confirmed in writing.

In principle, all control and safety features must only be operated by properly instructed staff. All personnel carrying out activities on the machine must read the Operating Instructions and must sign to confirm that they have understood them.

## Special dangers

### Dangers due to noise

The continuous sound pressure level for the operating staff is < 85 dB(A).

Depending on the local conditions, higher sound pressure levels may occur which may lead to deafness, loss of equilibrium or reduced alertness. In such cases, suitable personal safety equipment must be made available to the operating staff.

Observe the noise instructions in the operating instructions for your place of work and use the prescribed personal safety equipment.

### Risks due to consumables and other substances

The substances used to operate and clean the machine such as oils, solvents and detergents must be handled and disposed of properly. Observe the instructions on the relevant reservoirs and, if relevant, the producer's material safety data sheets.

## Product description

### Intended use

The Intec MAC has been built in accordance with the latest technological developments and recognized technical safety rules. Its use may cause risks of physical or lethal injury to the user or third parties and/or damage to the machine and other property.

The Intec MAC must only be used if it is in a technically perfect condition and in line with its intended use, duly observing all safety risks and in accordance with the Operating Instructions! Immediately remedy any malfunctions which may affect safety!

The Intec MAC

- has been developed specifically for the feeding of pigs.
- must be installed and connected in keeping with the Assembly Instructions. Only then is safe operation possible and only then will the system work without any problems.
- must be operated in keeping with the ambient conditions laid down, i.e. in a temperature range of 10 – 40°C.

Any use deviating from or exceeding this is considered to be improper. The manufacturer is not liable for any damage resulting from such non-intended use;

Observing the Operating Instructions, specifically the safety instructions, and the inspection and maintenance specifications is also an integral part of the intended use.

### Use other than that intended

Any use other than that specified above is forbidden. Use other than that intended may pose risks. Such use other than that intended includes:

- the feeding of living beings other than pigs.
- operation under ambient conditions other than those agreed.



**Danger!**

- **The safe operation of the machine is not guaranteed if the Intec MAC is not used in accordance with this intended use.**
- **PigTek Europe GmbH is not responsible for any personal injuries or material damage or loss resulting from other than intended use.**



*Please consult PigTek Europe GmbH if you have any questions or doubts as to the use of the Intec MAC.*

## Construction and operation

### General description

The specific characteristics of the Intec MAC which have resulted from many years of development and construction experience are:

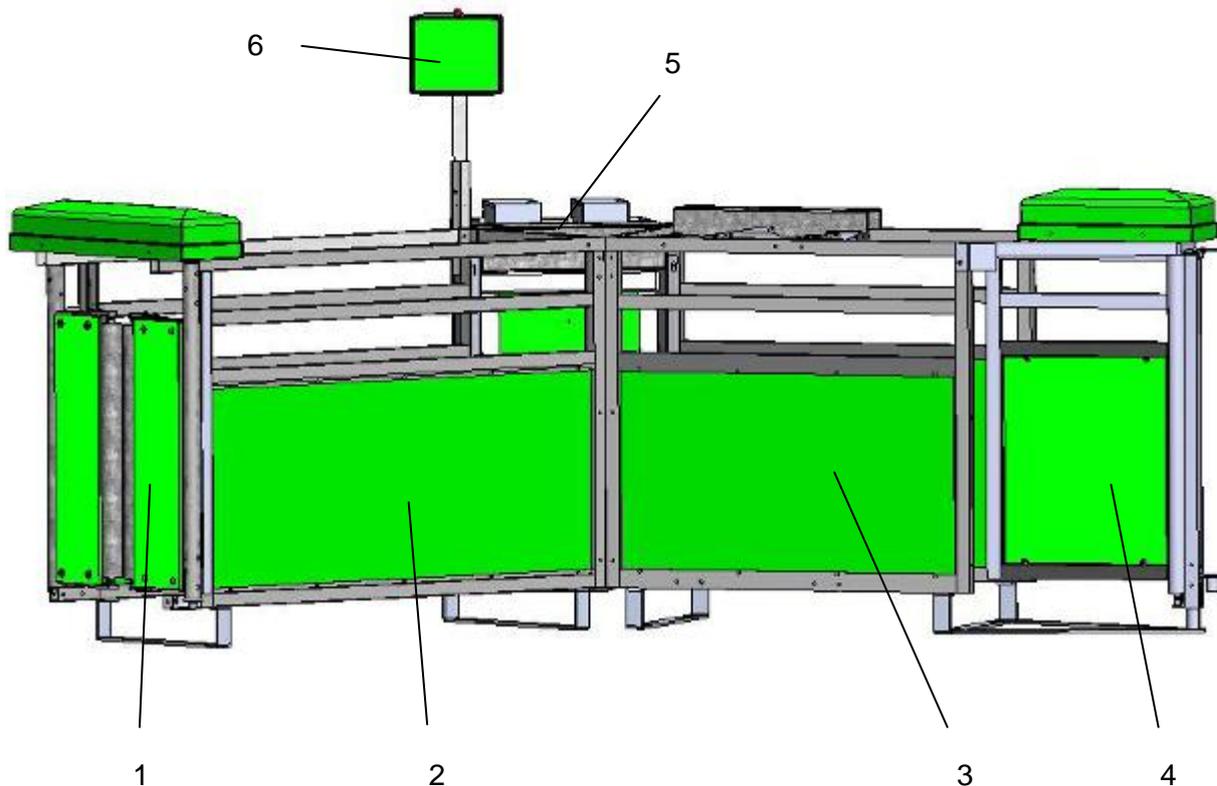
- Optimum reliability and optimum possibilities for monitoring and maintenance by the personnel.
- Rapid and easy replacement of wearing parts.
- Amply spaced access openings enable easy, thorough and rapid cleaning.
- Minimum space requirement due to compact design.
- Long service life thanks to amply dimensioned construction elements and [bearings].
- Optimum protection against corrosion.

## Functional description

The Intec MAC has been designed for automatic sow feeding. The integrated feed management system enables individual feed amounts to be dispensed to every single animal. The individual animals are identified by means of passive ear tag transponders.

Every feeding station can be operated locally from a permanently installed control panel. The network connection enables several feeding stations to be connected to and programmed/operated from one central PC.

Optional accessories are available to expand the machine's functionality (e.g. selection gate at the exit, color marking, claw care, automated addition of feed additives)



**Figure 1: Intec MAC**

- 1 Entrance door
- 2 Entrance
- 3 Exit
- 4 Selection gate
- 5 Feed box
- 6 Intec MAC box

## Construction

### Entrance door

(Figure 2 - 5)

The entrance door is secured to the frame (1) of the station. It has two door leaves (2) that swing out and that have freely rotating rollers (3) on the inside.

The pneumatic drive (4) with the turning bar (5), the locking mechanism (6) and the locking sensor (7) have been installed at the top and are protected against direct access on all sides. The green safety cover (8) has been screwed onto the frame for safety reasons. All leads and circuits (9) have been laid in the upper frame and are protected.

In normal operating mode the door is opened whenever the transponder of a sow entitled to feed is recognized by the antenna. The door can also be operated manually from the Intec MAC Box (see the chapter on Operation)



**Figure 2: Entrance door**



**Figure 3:** Entrance door, closed



**Figure 4:** Entrance door, open



**Figure 5:** Entrance door, lock

## Energy supply and feeder

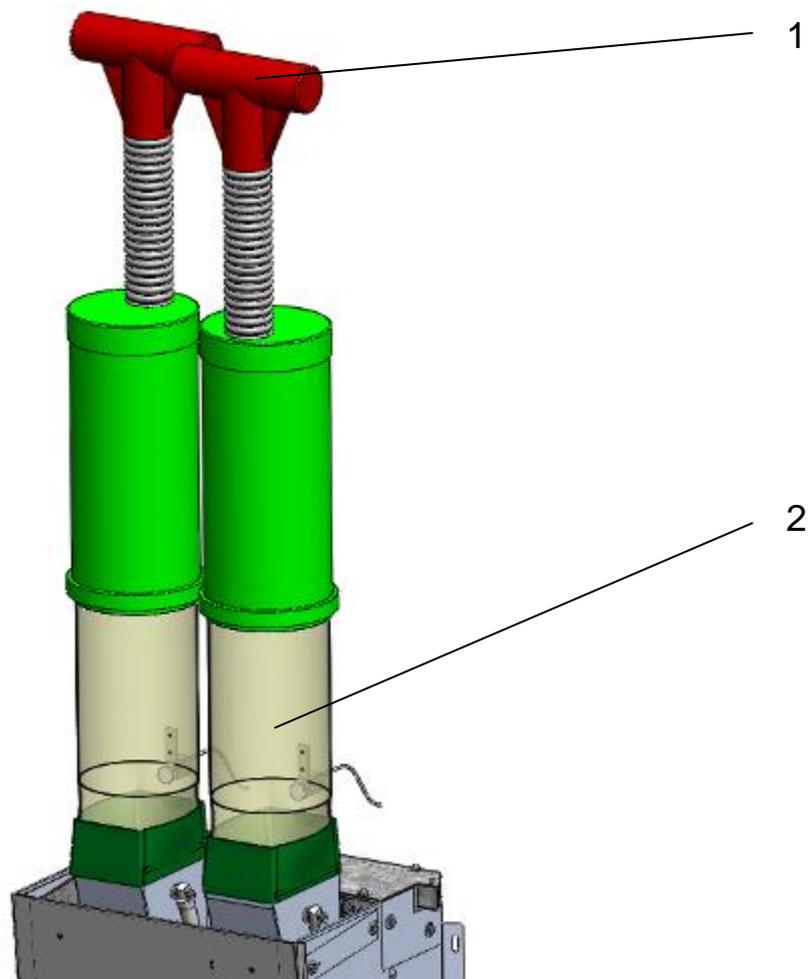
(Figure 6)

The feeding station is powered by low voltage (24V DC) from a decentralized power supply unit at the station.

A central compressed air connection supplies compressed air to the pneumatic system of the station.

A network cable connects the station to the MAC Server and to other stations.

The Intec MAC feeding station can be configured with any kind of feeder. The example in the figure shows a system in which a tube system (1) transports the feed into the feed reservoir(s) (2) of the station.



**Figure 6: Feeder**

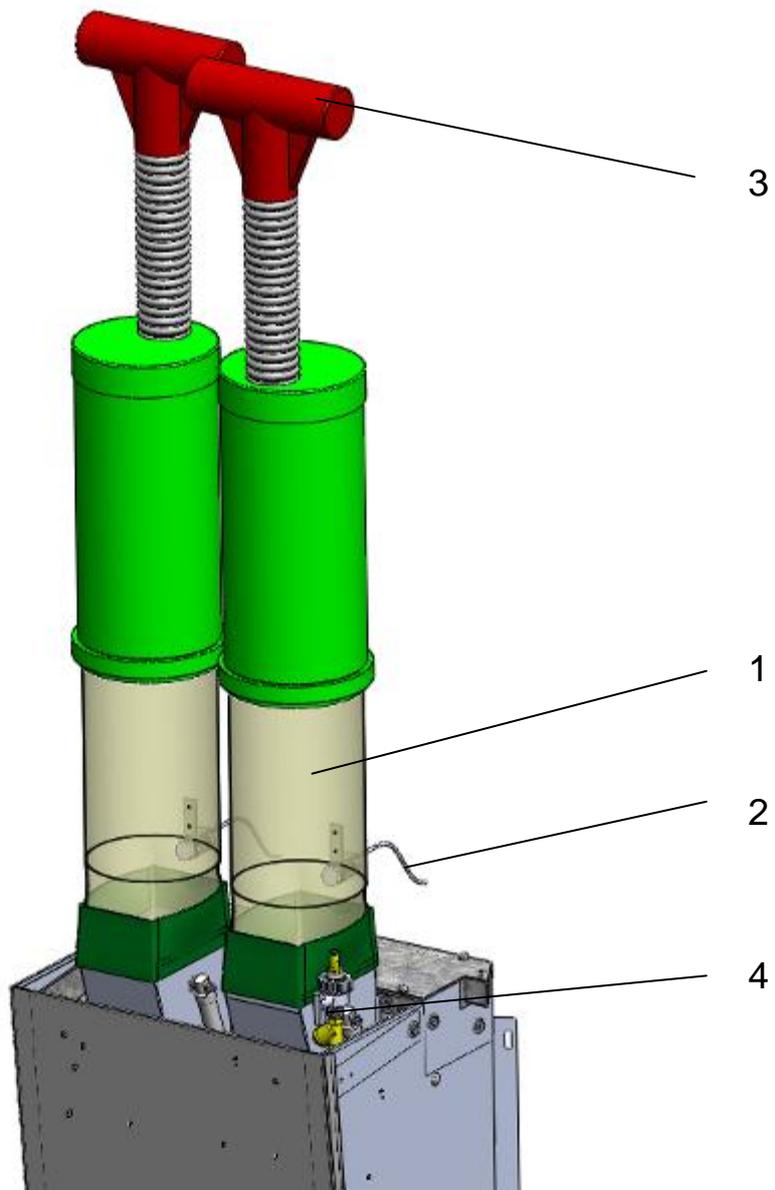
## Feed reservoir and water connection

(Figure 7)

A request to top up the reservoir (1) is generated by a feed sensor (2) which can be installed at any random location in the reservoir wall. If the level falls to below the sensor position it will report "no feed" to the control system and the station will switch the output for the relevant feeder (3) accordingly.

Any random reserve amount of feed can be programmed to ensure that there is sufficient time to top up the feed reservoir without feeding being interrupted.

The water supply connection (4) with the stop valve and the water valve is located at the top of the feed box where it is easily accessible.



**Figure 7: Feed reservoir**

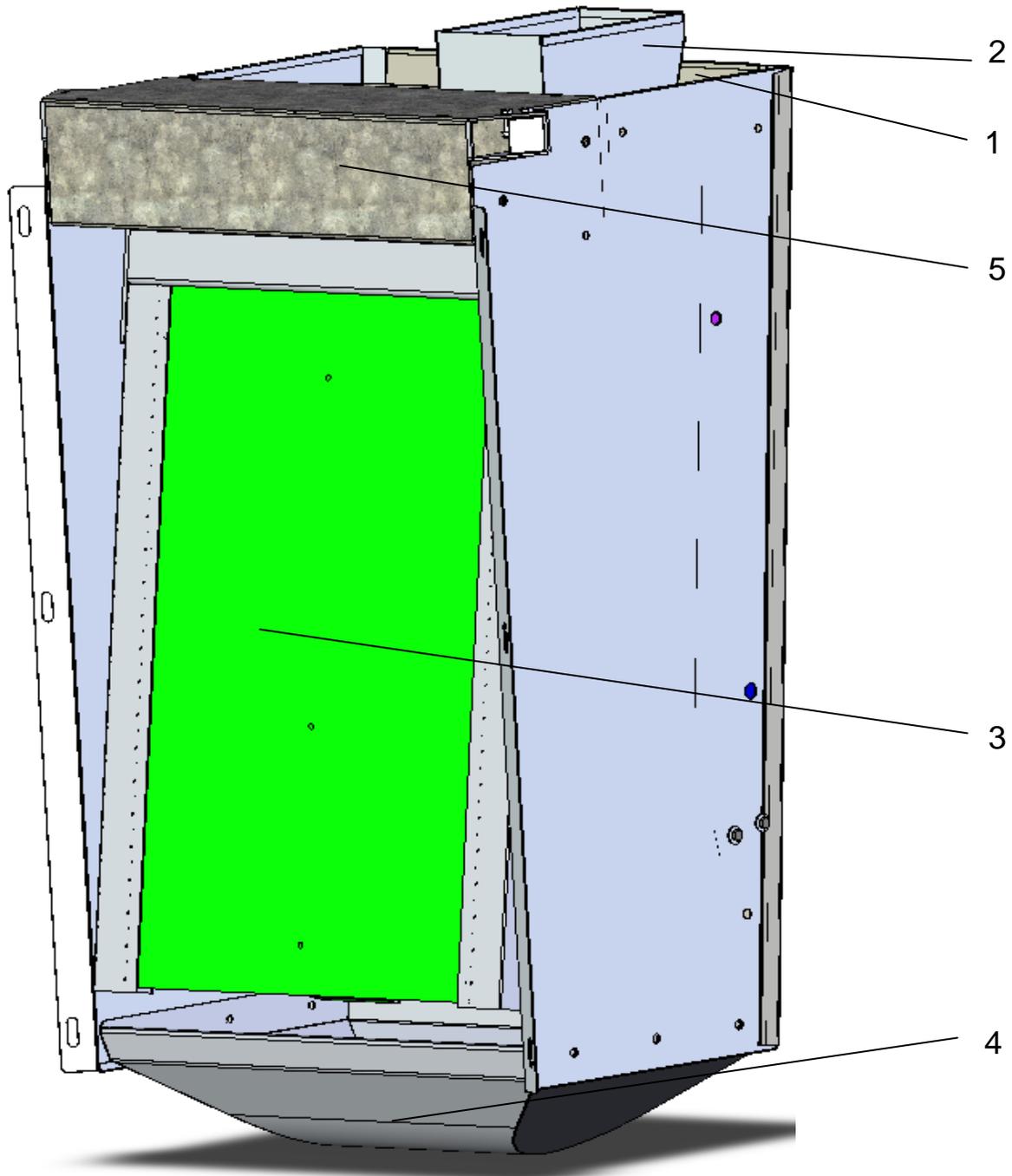
## Feed box

(Figure 8)

The feed box is located in the centre of the station.

The rear wall (1) can easily be removed for maintenance and cleaning.

The feed box contains one or two dispenser(s) (2), the swivelling trough flap with the integrated antenna for transponder identification (3), the trough (4), the water valve, and the junction box (5) with the compressed air control valve block.



**Figure 8:** CAD view of feed box

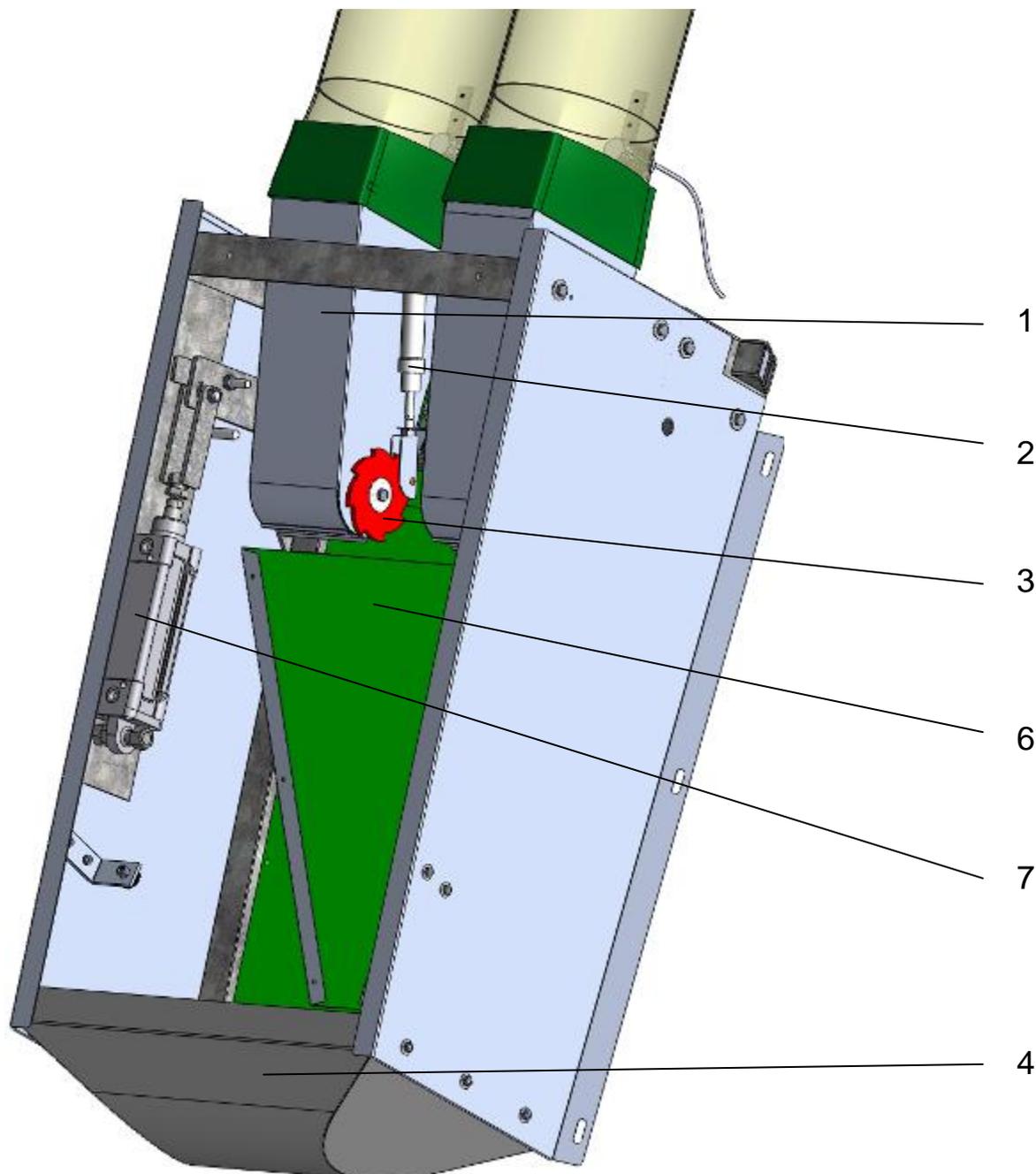
## Dispenser and trough flap

(Figure 9)

The dispenser (1) is accessible when the rear wall has been removed. It consists of a sheet-metal funnel with a rotating dispensing roller at its lower end. Its drive consists of a pneumatic cylinder (2), every stroke of which turns a star-shaped wheel (3) one position further. The required amount of feed to be dispensed is controlled by the number of strokes and falls into the trough (4).

One or two dispensers can be installed in the feed box.

The trough flap (6) is swivelled open and closed by means of another pneumatic cylinder (7). It is installed on a side bracket in the feed box and connected to the rotary shaft of the flap by means of a swiveling level.



**Figure 9:** Feed box inside, without safety features

## EXIT

(Figure 10)

The exit contains two doors that close automatically, one after the other. To ensure that no animals enter the station in a reverse direction to the walking direction, the doors are interlocked mechanically (1). Door 1 (2) must be opened before door 2 (3) can be pushed open.

The exit doors are monitored by sensors. They check that the exits are opened and closed again in the right order to make sure that the animals have properly left the station or have returned to the station.



**Figure 10: Exit**

## MAC Server

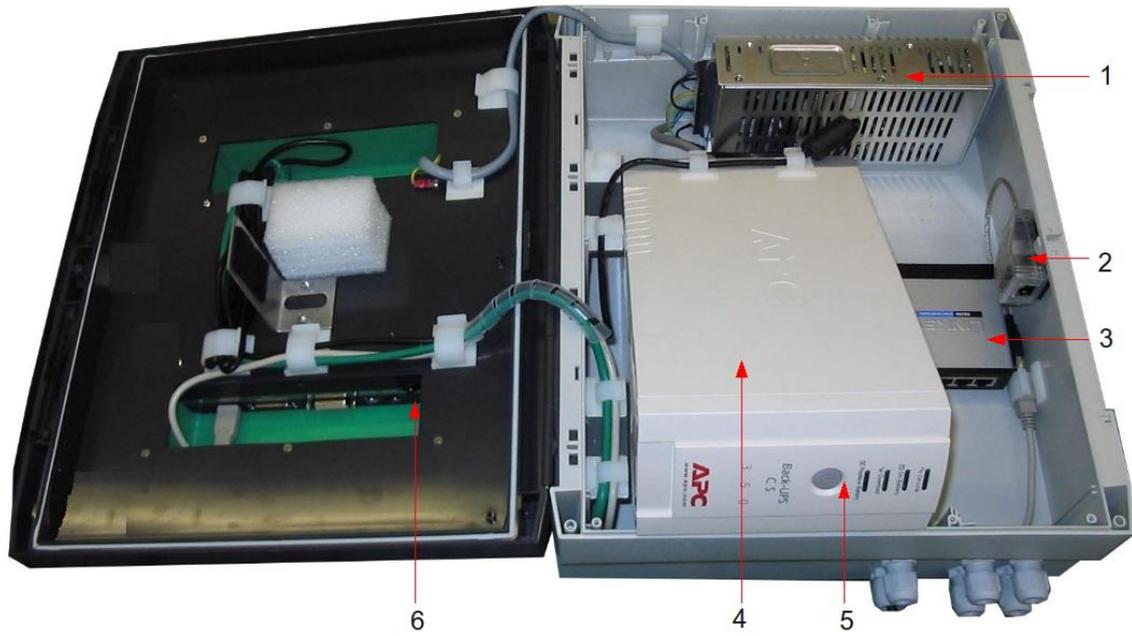
(Figures 11 - 13)

The MAC Server is necessary in order to operate the Intec MAC feeding station. The server housing contains the following components:

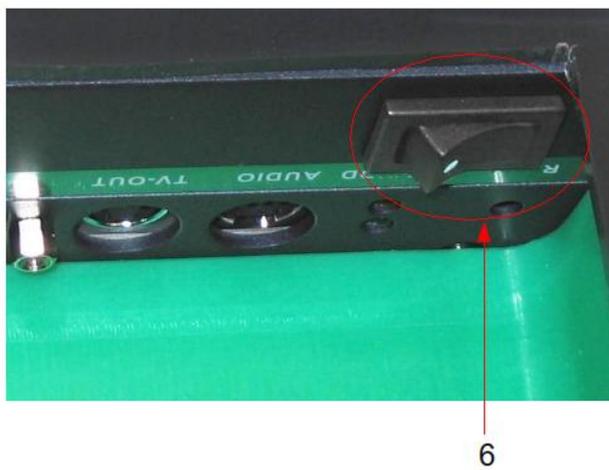
- **Power supply unit (1)**
- **USB network adapter (2)**
- **Ethernet switch (3)**
- **UPS - uninterruptible power supply (4)**
- **UPS main switch with indicator (5)**
- **Server on/off switch (6)**



**Figure 11: Server housing**



**Figure 12:** Server with integrated components



**Figure 13:** Server on/off switch

## Operation

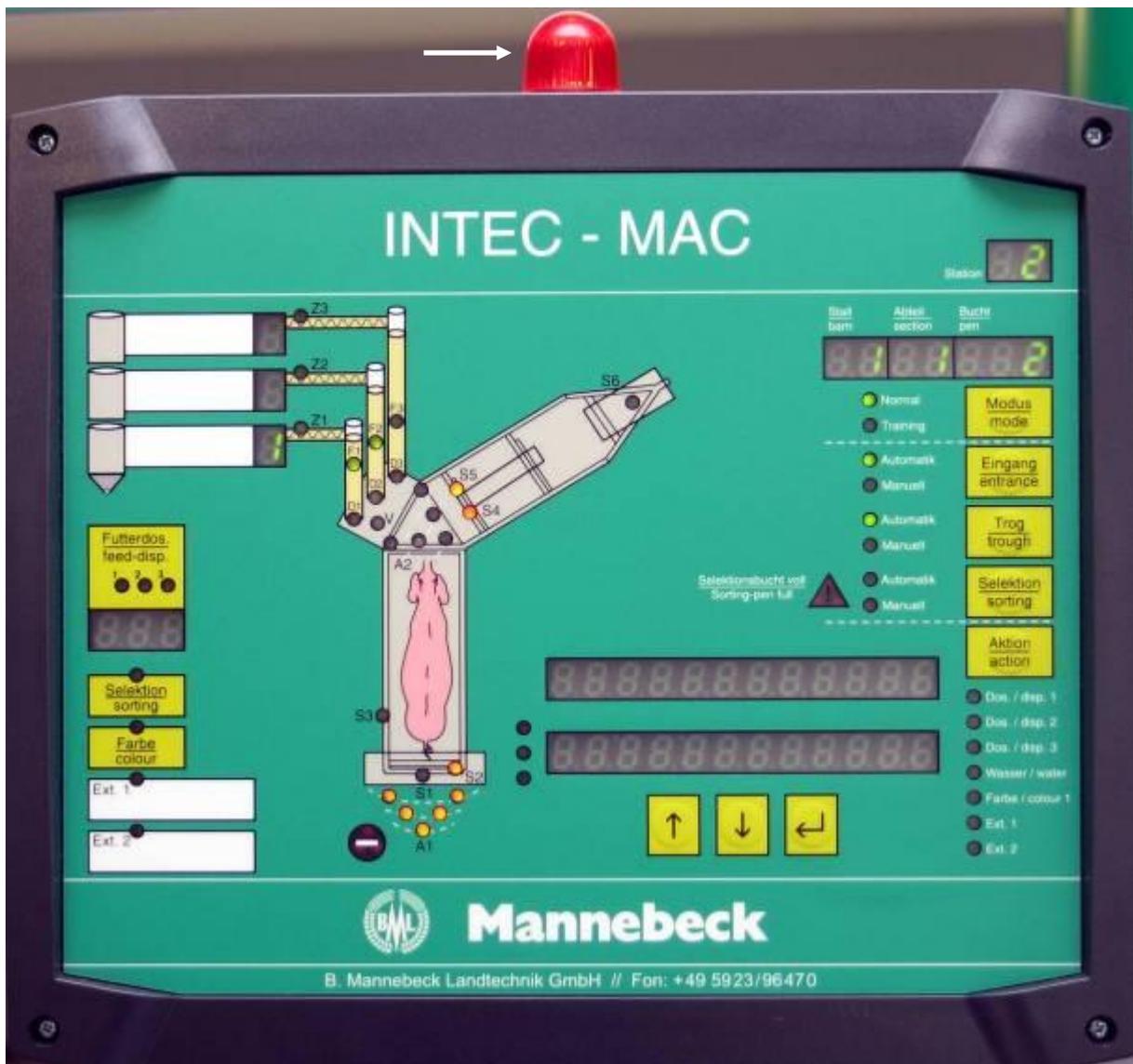
(Figure 14)

A controller, the Intec MAC Box, is installed at every feeding station. It consists of a water-resistant, impact-proof front with input buttons, indicators and text displays.

A schematic view of the feeding station with multi-colored indicators shows the status of the integrated sensors connected in the feeding station.

Feeding station failures are indicated by means of a warning lamp (see arrow) screwed onto the housing in a clearly visible position. Error codes are displayed to identify the causes of the relevant failures.

The Configbox is mounted on the rear and is connected to the control panel by means of a plug-and-socket connection. All basic data, e.g. the feeding station configuration with all accessories, is permanently factory-programmed in this box. This enables the Intec MAC Box to be replaced fast, without further programming.



**Figure 14: Intec MAC Box sensors and function statuses**

## Control panel – right-hand side

(Figure 15)

The upper right-hand side section of the control panel contains 3 displays (1) with information about the location of the feeding station, which is laid down in the configuration. These displays enable easy identification of the relevant feeding station, especially when the system comprises several feeding stations which are programmed via the PC program.

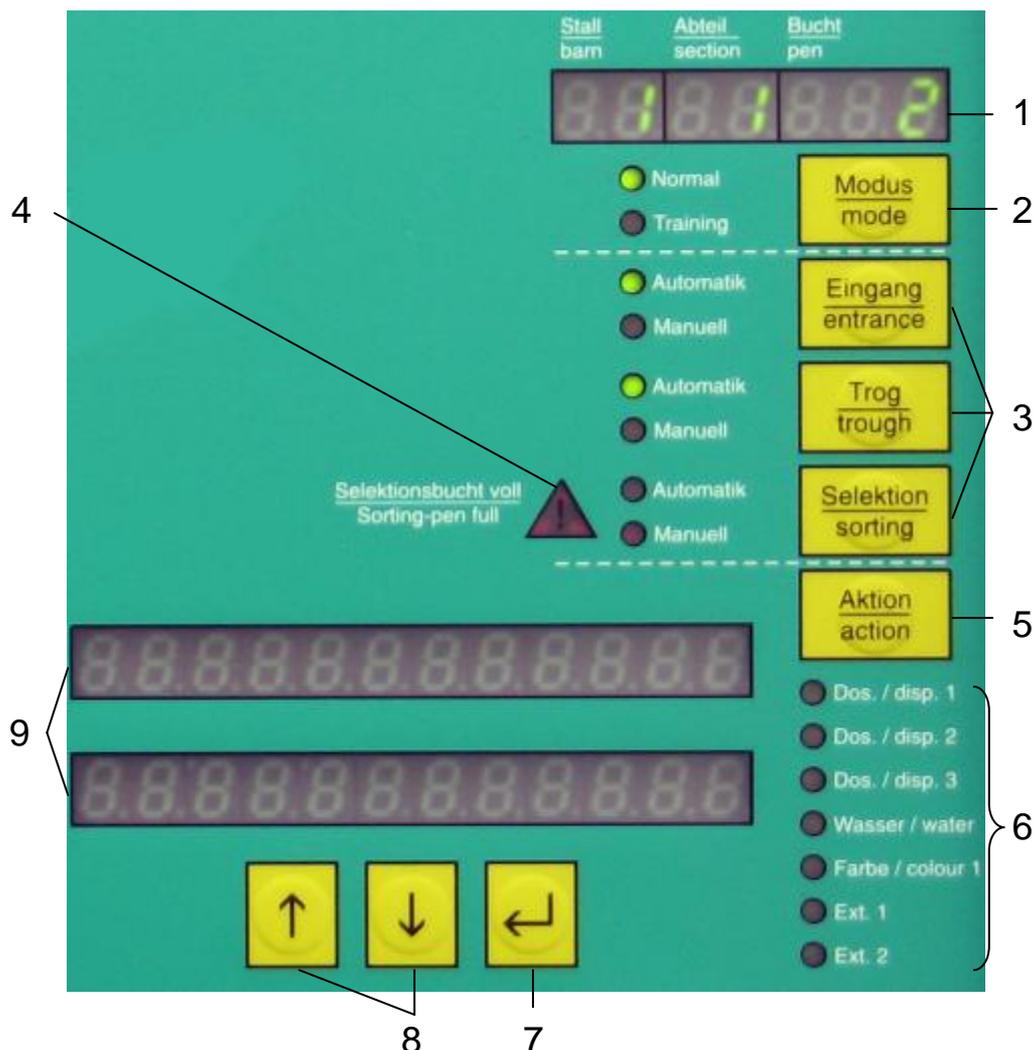
The same applies to switching over between automatic and manual mode for the entrance, trough and selection or 'sorting' functions (3). The red warning lamp on the box is lit whenever the "normal" or "automatic" modes have not been selected for these functions.

An additional warning lamp (4) is activated when the maximum number of animals for the selection pen has been reached in sorting mode.

The currently active status is indicated by the LEDs on the left of the buttons.

The "action" button enables individual functions to be activated for a single operation in a test mode. The functions are selected by briefly pressing the button (LED (6) lights up). The selected function is carried out when the "action" button is pressed and held.

Press the "Enter" button (7) to confirm an entry or a selection. The two buttons (8) next to the "Enter" button are used to make selections in the individual menus. At the same time, the setting which has just been selected is shown in the two-line text display (9).



**Figure 15: Control panel - right-hand side**

## Operating modes of the Intec MAC

The 'mode' button enables three different operating modes to be selected on the Intec MAC Box.

Press the 'mode' button briefly to toggle between training mode and open mode. Press and hold the 'mode' to switch back to normal mode.

Three different operating modes may be selected, depending on how familiar the animals are with the feeding system.

### Training mode

Training mode is intended for sows that visit the feeding station for the first time

and have no experience of the feeding system. In training mode, the entrance is opened permanently and only closes when an animal with feed demand is identified at the trough flap.

This ensures that untrained animals can access the station with no disruptive influence.

To activate training mode, press the 'mode' button briefly until the 'Training' indicator next to the 'mode' button lights up permanently.

### Open mode

Open mode is intended for animals which already know the system but have not yet established a routine with it. In open mode, the entrance is also permanently opened, but closes again as soon as the animal is identified by the "optical sensor" in the side wall. Closing the entrance door this early prevents a second sow from forcing its way in.

To activate open mode, press the 'mode' button briefly until the 'Training' indicator next to the 'mode' button flashes.

### Normal mode (closed mode)

Normal mode is intended for animals which are already familiar with the system and have some routine with it. The entrance is closed in this mode and stays closed until an animal with "access rights" is identified at the entrance.

Animals with access rights are all animals with feed demand, but also animals with no feed demand which have to be sorted or "treated" otherwise.

The entrance closes when an animal is identified by the "optical sensor" in the side wall. Closing the entrance door this early prevents a second sow from forcing its way in.

In normal mode, the station is also prevented from being blocked by higher ranking sows with no feed demand, which would cause precious feeding time to be lost to other animals. In addition, this lessens the mechanical burden on the station.

To activate normal mode, press and hold the 'mode' button until the 'Normal' indicator next to the 'mode' button lights up permanently.

## Operating modes of the entrance door

The operating mode of the entrance door can be changed by pressing the 'entrance' button.

In automatic mode, opening and closing the entrance door is controlled entirely by the Intec MAC.

**Press the button briefly** to toggle between the operating modes 'one-time, open mode' and 'closed by user'.

**Press and hold** the button to switch back to 'automatic mode'.

The entrance door is controlled manually by the user in the operating modes 'one-time, open mode' and 'closed by user'.

### One-time, open mode

After selecting 'one-time, open mode' the entrance door opens and the transponder identification automatically switches to trough antenna identification.

When an animal is identified by the 'optical sensor' in the side wall of the Intec MAC, the entrance door is closed automatically. The entrance operating mode automatically returns to automatic mode.



**Caution!**

**Do not close the entrance manually after an animal has entered the station! The Intec MAC will then switch to the operating mode 'closed by user'. The animal will not be fed then!**

Press the 'entrance' button briefly to switch over to 'one-time, open mode'. The entrance will be opened and the 'manual' [Manuell] indicator next to the 'entrance' button will blink.

### Closed by user

The entrance door closes when the 'closed by user' operating mode is selected. The red 'blocked' symbol lights up and transponder identification is off. No animals can enter the station in this operating mode! To clear the blocked state, switch over to 'automatic' or 'one-time, open mode'.

Press the 'entrance' button briefly to switch over to the 'closed by user' mode. The entrance will be closed and the 'manual' [Manuell] indicator next to the 'entrance' button will light up permanently.

### Automatic mode

When 'automatic mode' has been selected, the entrance is closed and the transponder identification switches back to the entrance antenna.

To switch to 'automatic mode', press and hold the 'entrance' button until the 'automatic' indicator next to the 'entrance' button lights up permanently.

## The trough flap operating modes

The operating mode of the trough flap can be changed by pressing the 'trough' button.

In automatic mode, opening and closing the trough flap is controlled entirely by the Intec MAC.

**Press the button briefly** to toggle between the 'open' and 'closed trough' operating modes.

**Press and hold the button** to switch back to 'automatic mode'.

The trough flap is controlled manually by the user in the operating modes 'open trough' and 'closed trough'.

### Open trough

Switching over to the 'open trough' operating mode opens the trough flap permanently.

Press the 'trough' button briefly to switch over to 'open trough' mode. The trough flap will be opened and the 'manual' [Manuell] indicator next to the 'trough' button will blink.

### Closed trough

Switching over to the 'closed trough' operating mode closes the trough flap permanently.



**It is not possible to feed the animals when the trough flap is closed!**

**Caution!**

Press the 'trough' button briefly to switch over to 'closed trough' mode. The trough flap will be closed and the 'manual' [Manuell] indicator next to the 'trough' button will light up permanently.

### Automatic mode

The trough flap control is taken over by the Intec MAC again after switching over to 'automatic mode'.

To switch to 'automatic mode', press and hold the 'trough' button until the 'automatic' indicator next to the 'trough' button lights up permanently.

## The selection gate operating modes

In automatic mode, opening and closing the selection gate is controlled entirely by the Intec MAC.

The operating mode of the selection gate can be changed by pressing the 'sorting' button.

**Press the button briefly** to toggle between the 'open selection pen' and 'closed selection pen' operating modes.

**Press and hold** the button to switch back to 'automatic mode'.

The selection gate is controlled manually by the user in the operating modes 'open selection pen' and 'closed selection pen'.

### Open selection pen

Selecting the operating mode 'open selection pen' swivels the selection gate and permanently opens the selection pen.

All animals automatically recognized by the trough antenna during this time will be registered. The station is blocked once the maximum number of animals for this selection pen has been reached!

Press the 'sorting' button briefly to switch over to 'open selection pen' mode. The selection pen opens and the 'manual' [Manuell] indicator next to the 'sorting' button will blink.

### Closed selection pen

Selecting the operating mode 'closed selection pen' swivels the selection gate and permanently closes the selection pen.



**Caution!**

**Pending selections cannot be carried out if the selection pen is closed!**

Press the 'sorting' button **briefly** to switch over to 'closed selection pen' mode. The selection pen closes and the 'manual' [Manuell] indicator next to the 'sorting' button lights up permanently.

### Automatic mode

The selection gate control is taken over by the Intec MAC again after switching over to 'automatic mode'.

To switch to 'automatic mode', press and hold the 'sorting' button until the 'automatic' indicator next to the 'sorting' button lights permanently.

## Manual actions

### The 'action' button

Several actions of the Intec MAC can be carried out manually in order to check their functioning by pressing the 'action' button.

**Pressing this button briefly** selects the different actions in turn.

**Pressing and holding this button** carries out the currently selected action.

The currently selected action can be recognized from the lamp which lights up next to the action designation.

### Action Dos. / disp. 1

If this action has been selected, feed dispenser 1 will dispense one portion of feed.

### Action Dos. / disp. 2

If this action has been selected, feed dispenser 2 will dispense one portion of feed.

### Action Dos. / disp. 3

If this action has been selected, feed dispenser 3 will dispense one portion of feed.

### Action Wasser / water

If this action has been selected, the water valve will dispense water for as long as the button is pressed.

### Action Farbe / color 1

If this action has been selected, the color marking unit will spray for as long as the button is pressed.

### Action Ext. 1

When this option is activated, the output for extension 1 is switched on for as long as the button is pressed and held.

### Action Ext. 2

When this option is activated, the output for extension 2 is switched on for as long as the button is pressed and held.

### Action Ext. 3

When this option is activated, the output for extension 3 is switched on for as long as the button is pressed and held.

This action is not visualized by a LED! However, it is active after Ext.2 has been selected.

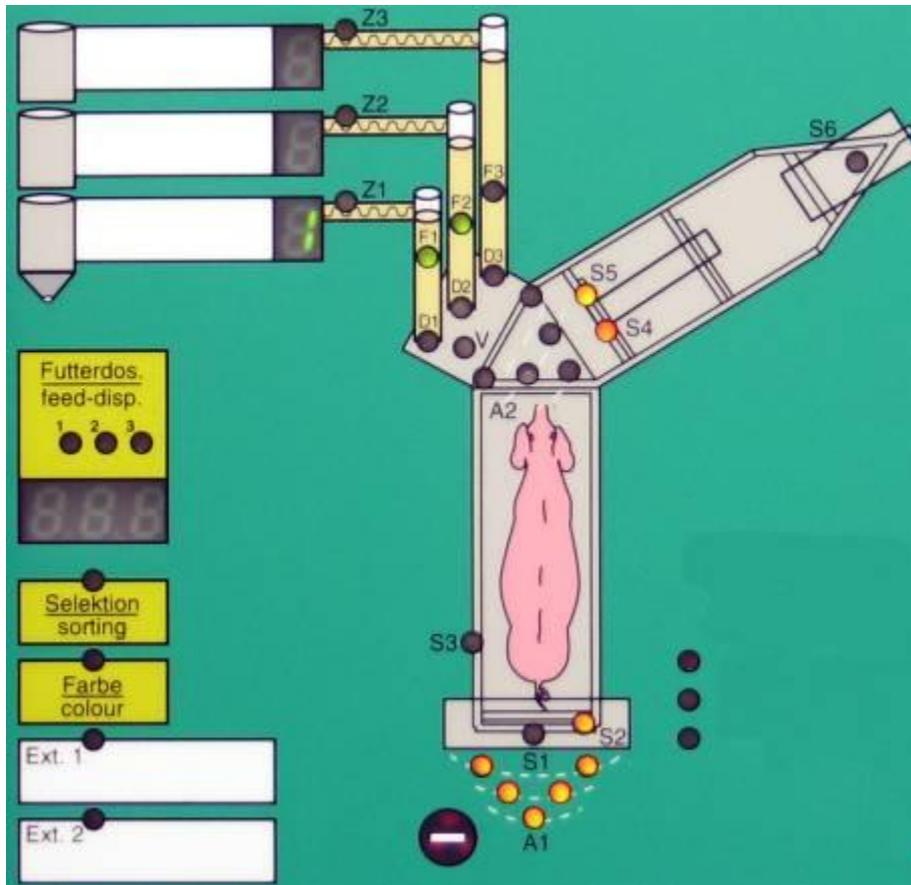
### Action Ext. 4

When this option is activated, the output for extension 4 is switched on for as long as the button is pressed and held. This action is not visualized by a LED! However, it is active after Ext.3 has been selected.

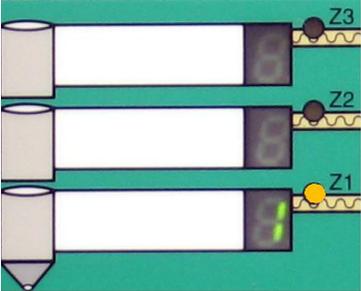
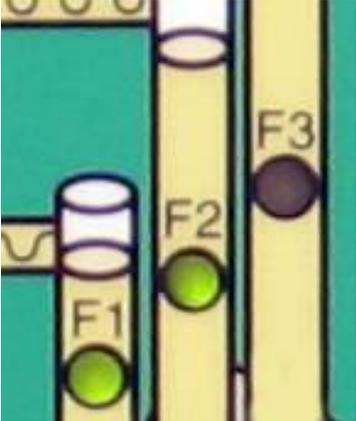
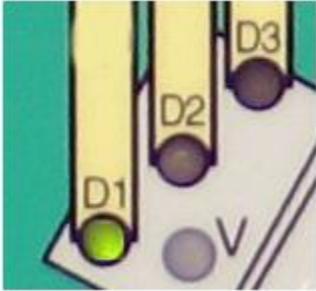
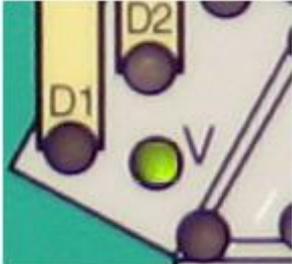
## Control panel – left-hand side

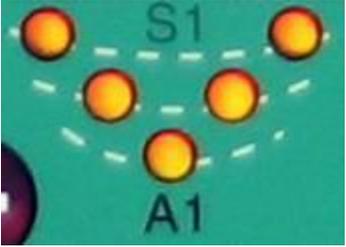
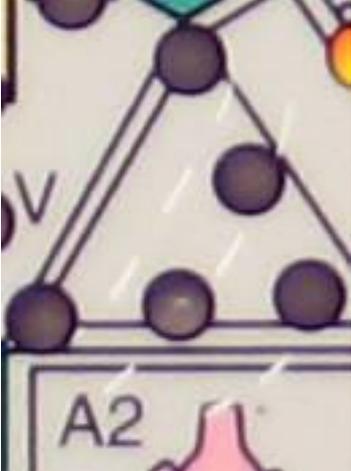
(Figure 16)

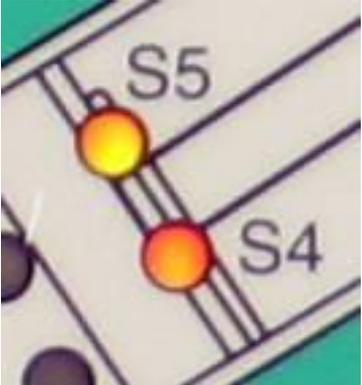
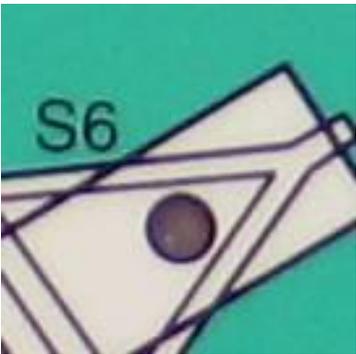
The schematic view of the feeding station shows a view of the current operating status.



**Figure 16:** Control panel - left-hand side

Designation	Color	Explanation
<p>Z1, Z2, Z3</p> 		<p>Shows the numbering of the maximum of three feeders laid down in the configuration</p> <p>This station has switched on the corresponding feeder. The corresponding indicator lights up.</p>
<p>F1, F2, F3</p> 	  	<p>Level in feed reservoir OK (the sensor in reservoir side wall detects feed)</p> <p>Level below sensor position. The pre-set feed reserve is used up.</p> <p>LED flashing: consumption limit reached (e.g. 50% of reserve reached) A feed request is initiated</p> <p>Although there is a feed request the feed reservoir was not filled up to the sensor position. The adjacent symbol lights up, the station is blocked and the warning lamp on top of the MAC Box lights up.</p>
	 	<p>Dispenser active</p> <p>Refers to a faulty dispenser function</p>
<p>V</p> 		<p>Water supply valve opened</p>

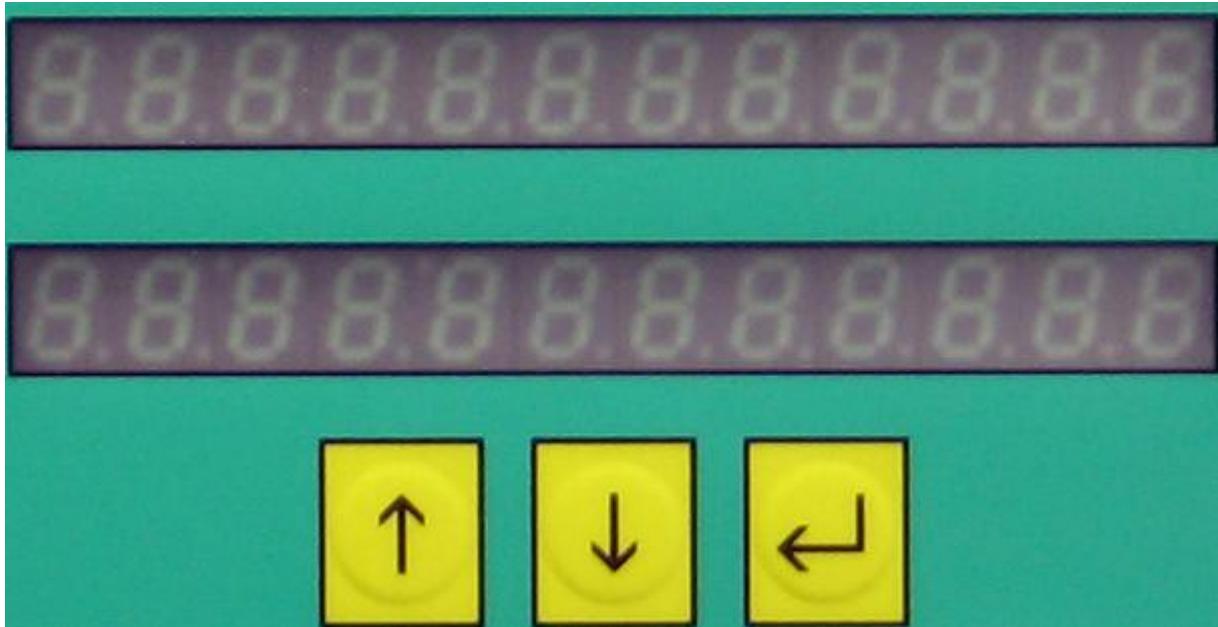
Designation	Color	Explanation
<p>A1, A2</p>  	     	<p>Valid transponder has been identified</p> <p>The LED flashes for as long as no valid transponder is identified</p> <p>LED flashing: antenna tuning is active</p> <p>Antenna tuning failed</p> <p>The warning lamp on the Intec MAC Box lights up and error codes are shown in the text field:</p> <p>Error code 6010 (entrance antenna)</p> <p>Error code 6011 (trough antenna)</p>
<p>S1</p>		<p>No function</p>
<p>S2</p> 	 	<p>The entrance door has been locked mechanically</p> <p>Locking is not possible within a predefined time slot</p>
<p>S3</p> 	 	<p>The sensor (on the left-hand side of the entrance frame) has identified an animal</p> <p>The sensor permanently or never reports that an animal has been identified (clean/check the sensor, the station will continue feeding)</p>

Designation	Color	Explanation
<p>S4, S5</p> 		<p>Doors are closed</p> <p>S4 = Exit door 2 S5 = Exit door 1</p>
<p>S6</p> 	 	<p>Selection/sorting not set to main herd</p> <p>Selection/sorting set to main herd</p>
<p>Numerical field + LEDs 1-3</p> 	 	<p>After an animal has been identified the total feed amount in kg (sum of max. 3 dispensers) is displayed here</p> <p>The LEDs of the individual dispensers 1 – 3 light up in the event of a feed demand</p>

Designation	Color	Explanation
<p>Selection/sorting Color marking Ext. 1 / Ext. 2</p> 		<p>The treatments displayed have been planned for the animal identified</p>

## Configuration and service settings

(Figure 17)



**Figure 17:** Control panel - lower part

If the feeding station is operational and the program has completely started up, you can go to the configuration by pressing and holding the  button for 1 second. You can navigate in the configuration using the arrow buttons.

The Configuration Menu (*CONF-dATA*) is displayed automatically when the program is started provided that the Configbox is empty (not configured).

This menu can also be selected for five seconds by briefly pressing the Enter button during start phase 5 (is displayed)!

Examples of configuration entries with text displays and their meanings are listed below.

Briefly press the arrow buttons to scroll through the menus.

### Feed calibration

<pre> 00FEED-CALIB 00000000EAEER         </pre>	<p>Press the <i>Enter</i> button briefly to select feed calibration</p>
<pre> 00FEED-CALIB d01-02209r         </pre>	<p>The dispensers (d 1, 2, 3) are queried one by one by pressing the <i>Enter</i> button. The feed amount (grams per portion dispensed) is changed by pressing the arrow buttons. If the value is 0, the value set using the Pig MAC PC program is used.</p>

### Feed amount volume in the feed pipe

<pre> 000FEED-PIPE 00000000EAEER         </pre>	<p>Press the <i>Enter</i> button briefly to select the amount of feed that is still available</p>
<pre> 000FEED-PIPE d01-055009r         </pre>	<p>The dispensers (d 1, 2, 3) are queried one by one by pressing the <i>Enter</i> button. The feed amount is changed in steps of 100 grams by pressing the arrow buttons. If the value is 0 only the global reserve amount is used.</p>

### Power supply check

<pre> 00-SUPPLY-00 00000000EAEER         </pre>	<p>Press the <i>Enter</i> button briefly to select</p>
<pre> 00-SUPPLY-00 0-234001-014         </pre>	<p>The voltage applied (here 23.4 V) and the current consumption (here 0.14A) are displayed. The display is cleared after one minute or it can be cleared earlier by pressing the <i>Enter</i> button.</p>

### Antenna tuning

<pre> ASRSD00-Enter                 </pre>	<p>Briefly press the <i>Enter</i> button to start automatic antenna tuning</p>
<pre> ASRSD00-Enter                 </pre>	<p>This display as shown as confirmation</p>

### Ignore entrance door sensor

<pre> IgnorE-SEnS                 </pre>	<p>Press the <i>Enter</i> button briefly to select</p>
<pre> IgnorE-SEnS                 </pre>	<p>Press the Up/Down arrow to toggle between <i>no</i> and <i>yes</i> If <i>yes</i> is confirmed by pressing the <i>Enter</i> button, the entrance door sensor will be ignored in the future</p>

### Configure station

<pre> CONF-dAER                 </pre>	<p>Press the <i>Enter</i> button briefly to select</p>
<pre> CONF-dAER                 </pre>	<p>After the above selection has been made, the fields in the display are first selected in turns by pressing the <i>Enter</i> button. The fields can be changed by means of the Up/Down buttons. Press and hold the <i>Enter</i> button to jump back one field. The following pages are shown after selecting the display fields:</p>
<pre> CONF-dAER d0S11-d1                 </pre>	<p>Dispenser allocation The dispensers (d 1, 2, 3) are queried one by one by pressing the <i>Enter</i> button. The dispenser allocation (d1, d2, d3, no) is configured using the Up/Down buttons</p>
<pre> CONF-dAER SELECE-YES SELECE-NO                 </pre>	<p>Selection gate available? Use the Up/Down arrows to toggle between <i>no</i> and <i>yes</i> Press <i>Enter</i> to confirm</p>

<p>□□□□C0nF-dAeA□          C0L0U0-0YES□          C0L0U0-0no□</p>	<p>Color marking available?          Use the Up/Down arrows to toggle between <i>no</i> and <i>yes</i>          Press <i>Enter</i> to confirm</p>
<p>□□□□C0nF-dAeA□          E0100-0REGU□          E0100-0CLAW□          E0100-0PARAS□          E0100-0no□</p>	<p>Extensions available?          The extensions (E1, 2, 3) are queried one by one by pressing the <i>Enter</i> button          They can be configured (<i>REGU</i> = Regumate, <i>CLAW</i> = claw spray, <i>PARAS</i> = parasite spray, <i>no</i> = not available) using the Up/Down buttons.  <i>Enter</i> to confirm</p>
<p>□□□□C0nF-dAeA□          0FEED-0UE01□</p>	<p>Feeder output          If this appliance has to drive a feeder, the feeder number (feeder circuit) is selected using the Up/Down buttons.          Display 0 = no control          Press <i>Enter</i> to confirm</p>
<p>□□□□C0nF-dAeA□          ALRE-0UE0YES□          ALRE-0UE0no□</p>	<p>Alarm output available?          Use the Up/Down arrows to toggle between <i>no</i> and <i>yes</i>          Press <i>Enter</i> to confirm</p>
<p>□□□□C0nF-dAeA□          00SEL-PEN01□</p>	<p>Allocation to a selection pen          The selection pen number is selected here using the Up/Down buttons          Display 0 = no associated selection pen          Press <i>Enter</i> to confirm</p>

**After this last *Enter* the Intec MAC will save the changes to the Configbox and restart the system.**

## **Description of the steps when the Intec MAC program starts**

While the Intec MAC program is starting up, numbers are shown in the text display to indicate the individual program steps. The main steps are explained below.

### **Step 5**

To be able to make changes to the Configbox while the program is starting up, such as changing the barn/section/pen or adding new dispenser units, there is a 5-second slot in step 5 during which the Enter button can be pressed. The Intec MAC configuration menu in which such changes can be made is displayed next.

Please refer to the relevant chapter of these Operating Instructions for further details about the Intec MAC configuration menu.

### **Step 8**

A new internal database is built up here. This procedure is mainly carried out after replacing the Intec MAC Box or after a program update and takes approx. one minute.

### **Step 11**

The Intec MAC Box first connects to the server here. This process will usually take only a few seconds. If the program start stops here, the system has not been configured completely! Please refer to the relevant chapter of these Operating Instructions for further details about initial commissioning.

### **Step 14**

The Intec MAC Box requests the current data from the server at this point. This program step can take several minutes, depending on the file size.

### **Step 15**

The Intec MAC Box configuration is verified here. This process will usually take only a few seconds. If the program start stops here, this Intec MAC Box has not yet been reported to the system!

Please refer to the relevant chapter of these Operating Instructions for further configuration details.

### **Step 17**

In this step it is checked whether changes to the data can be exchanged with the server. This process will usually take only a few seconds. If the program start stops here, the devices must be reconfigured. Please refer to the relevant chapter of these Operating Instructions for further configuration details.

### **Step 20**

The Intec MAC program has started up completely and the system is on standby.

## Options

### Selection

(Figures 18,19)

The selection gate (1) can be installed after the exit. This enables individual animals to be separated from the main herd and directed into the selection pen using transponder identification.

The pneumatic drive (2) with the swivel bar (3) and the position contact (4) have been installed at the top and are protected against direct access on all sides. The green safety cover (5) has been screwed onto the frame for safety reasons. All leads and circuits (6) have been laid in the upper frame and are protected.

In normal operating mode, the selection gate is in its "selection off" position.

The selection gate swivels into its "selection" position when

- an animal which is to be selected is identified at the trough and
- both exit door sensors report that the doors are closed and
- the max. number of animals to be selected has not been reached

The selection gate swivels back into its "selection off" position when

- Both exit door sensors have reported that an animal has properly left the station, or
- an animal which is not to be selected is identified at the trough

If the maximum number of animals for the selection pen has been reached, the station is locked to prevent it from becoming too full.

The selection is confirmed as follows on the Intec MAC Box.

### Selection confirmation menu (if configured)

<pre> SELECTION ENTER         </pre>	<p>Press the <i>Enter</i> button briefly to select</p>
<pre> PEN 1 2-20 CLEAR - NO CLEAR - YES         </pre>	<p>The selection pen 1 holds between 2 and 20 animals Up/Down arrow to toggle between <i>no</i> and <i>yes</i> If <i>yes</i> is confirmed by pressing the <i>Enter</i> button, the selection pen counter is reset</p>

The PIG MAC PC program is used to program which animals should be selected.

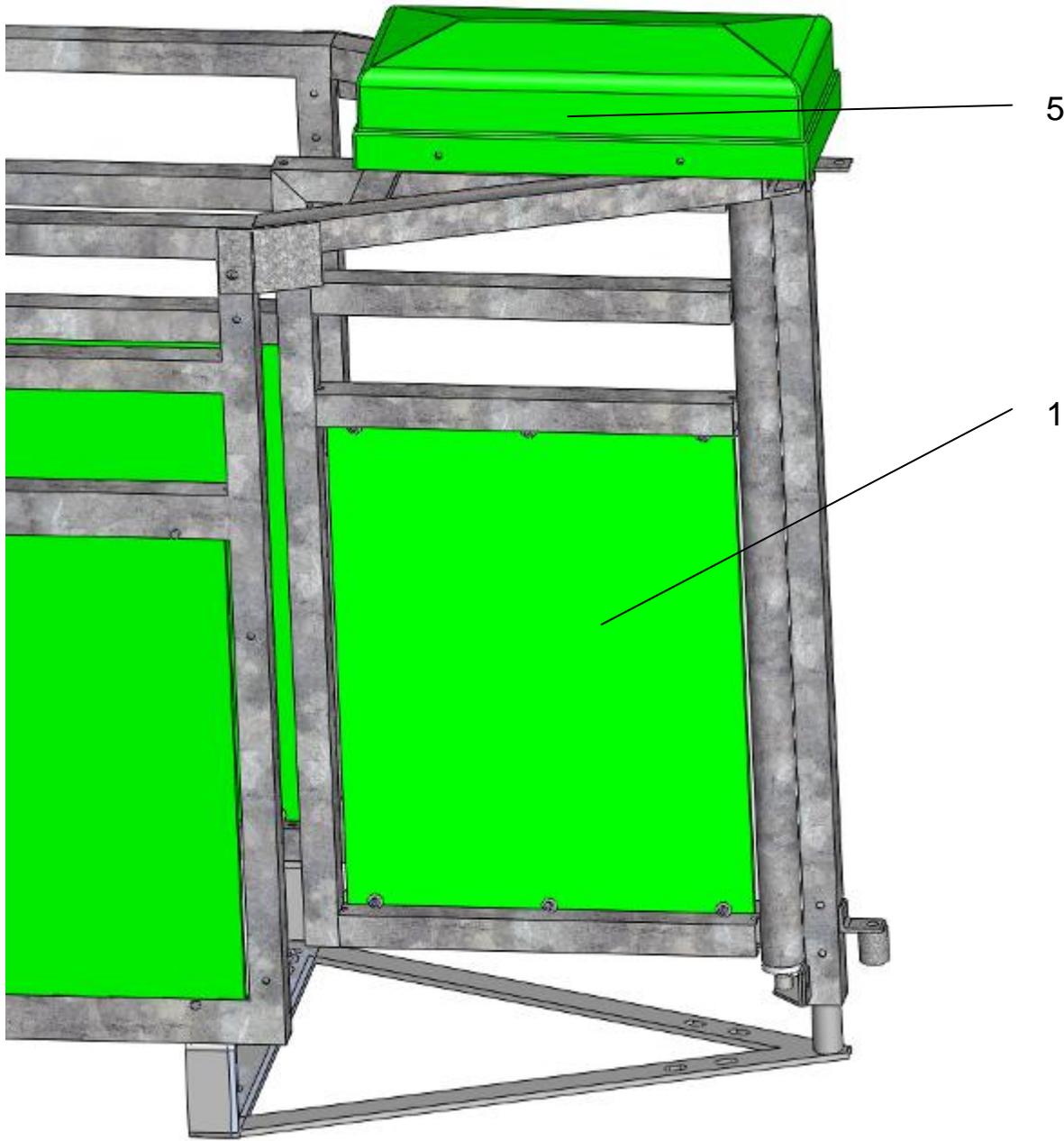


Figure 18: EXIT

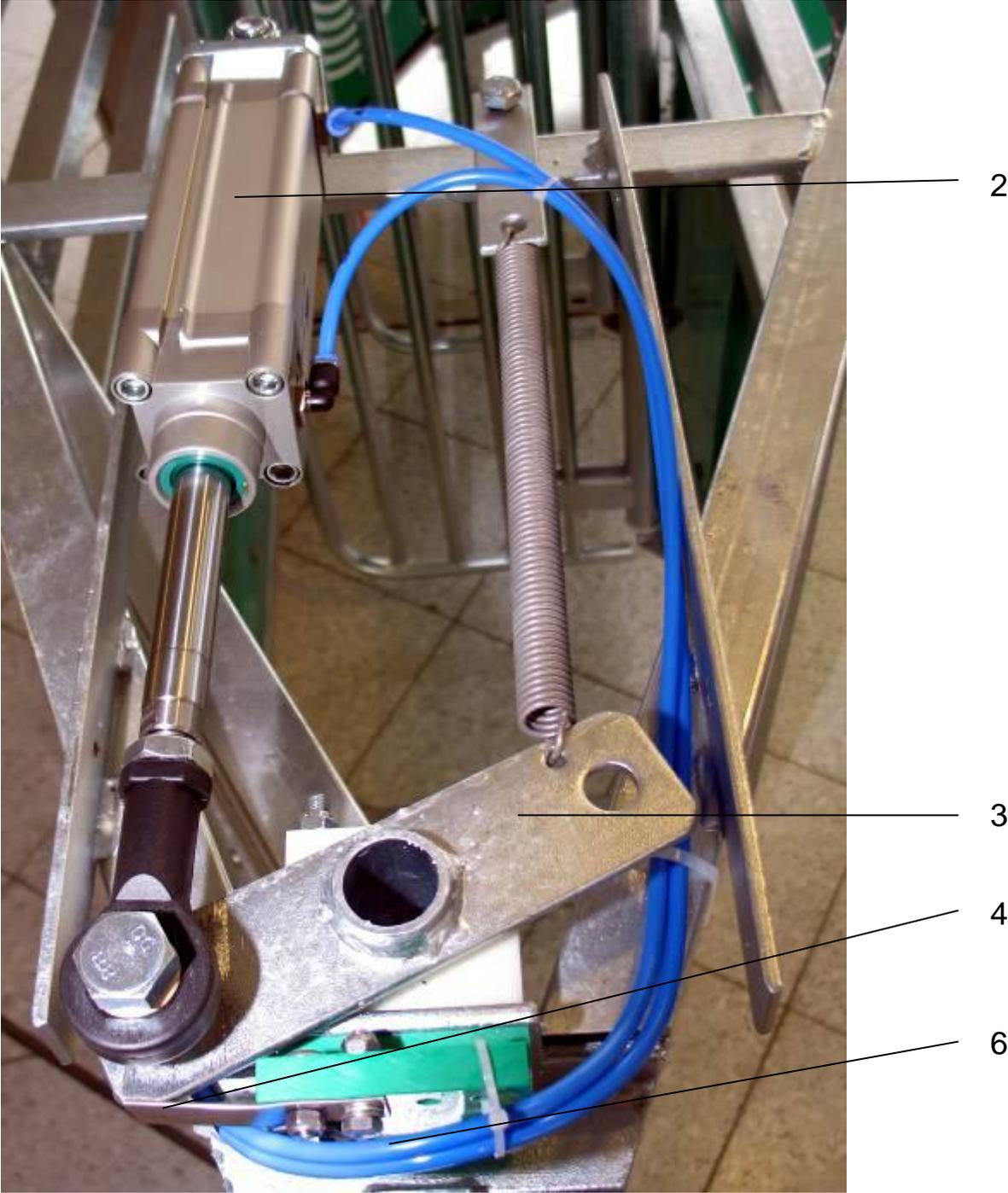


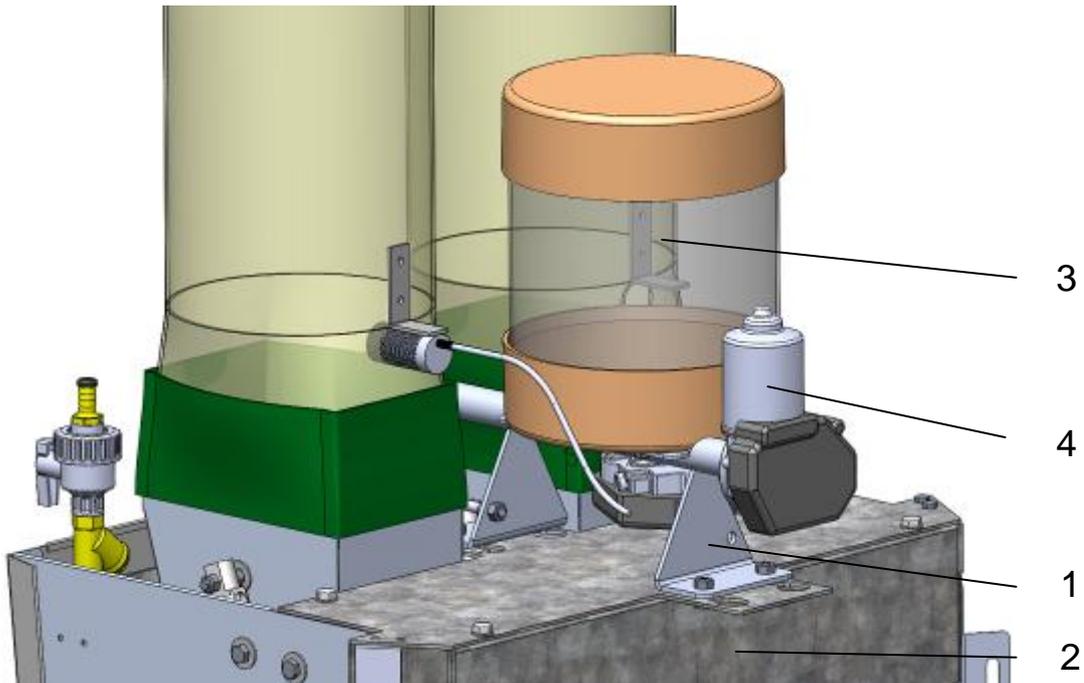
Figure 19: Exit

## Substance dispenser

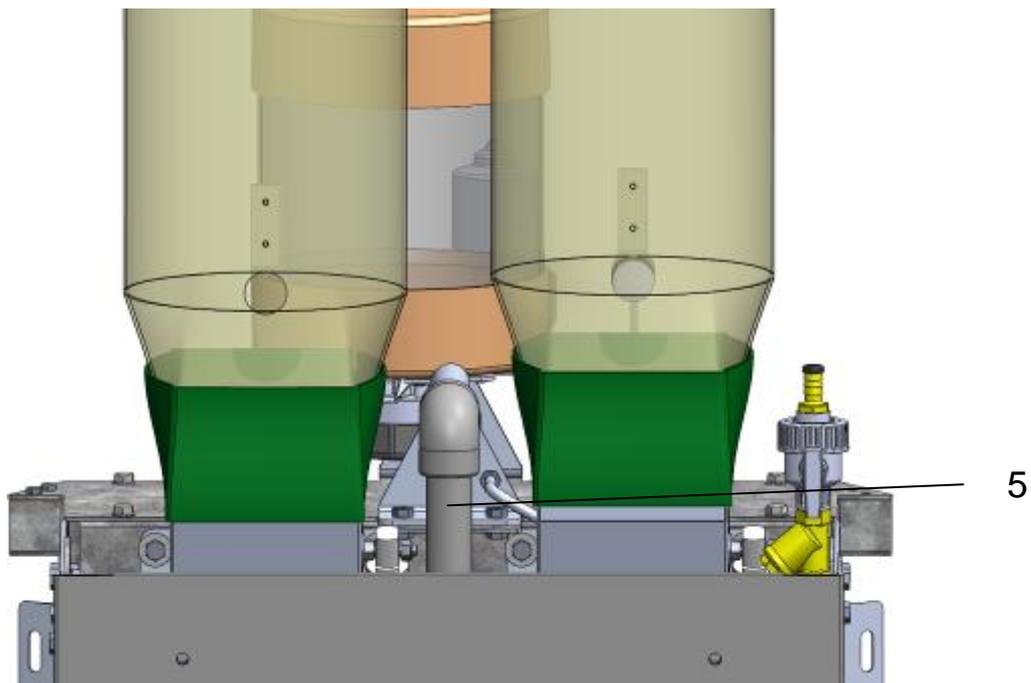
(Figures 20 - 21)

In addition to both dispensers, a substance dispenser can be installed on the junction box (2) using a bracket (1). This dispenser consists of a reservoir (3), the integrated dispensing action is driven by an electric drive (4). The dosing volume is 2g per dosing action, depending on the substance of the mixture.

This is configured by means of the Intec MAC Box; the amount of substance for every animal is configured using the PIG MAC PC program.



**Figure 20: Substance dispenser**



**Figure 21: Substance dispenser – pipe to trough**

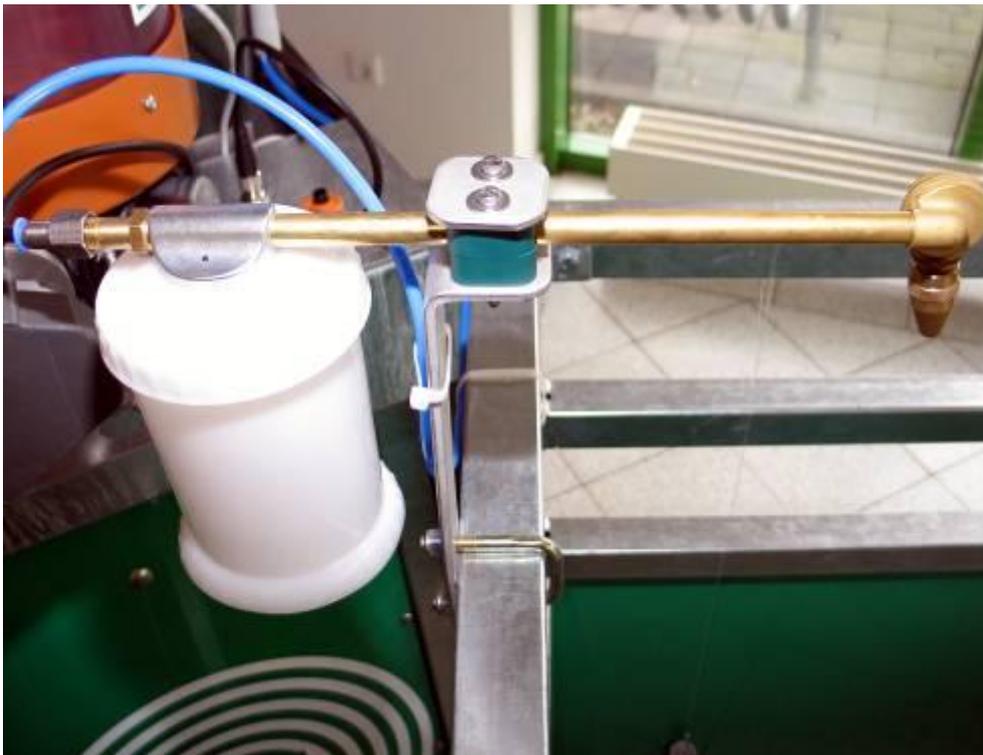
## Color marking

(Figure 22)

The color marking unit has been installed above the trough. The color paint is sucked out of the reservoir by means of compressed air and sprayed onto the animal's back through a brass pipe with a swiveling nozzle.

Color marking is initiated when an animal designated for color marking is identified by the trough antenna.

This is configured by means of the Intec MAC Box; the color marking for every animal is configured using the PIG MAC PC program.



**Figure 22:** Color marking

## Claw spray unit

(Figure 23)

The claw spray unit can be installed in the entrance zone to treat the animals' claws. Stainless steel pipes (1) with nozzles are attached to the frame on both sides for this purpose

This is configured by means of the Intec MAC Box; the amount of substance for every animal is configured using the PIG MAC PC program.



**Figure 23:** Claw spray unit

## Regumate

(Figure 24)

A dispenser unit for Regumate (for heat synchronisation in young sows) is optionally available and is integrated directly in the feed box. It is driven by an additional pneumatic valve and a small pneumatic cylinder.

The sows which have to be treated with Regumate and the duration of this treatment are selected manually or automatically.

This is configured by means of the Intec MAC Box; the amount of Regumate for every animal is configured using the PIG MAC PC program.



**Figure 24:** Regumate

## Regumate counter menu (Regumate addition, if configured)

After an empty Regumate reservoir has been replaced by a new reservoir, the internal portion counter must be reset. This is reset directly at the Intec MAC Box.

Proceed as follows  
:

Press and hold the Enter button on the Intec MAC Box for at least 5 seconds.

The Regumate Counter menu will be displayed

<pre> REGUMATE ADDITION XXXXXXXXXXXXXXXXXX           </pre>	<p>Press the Enter button briefly to select</p>
<pre> XX REGUMATE 63-65 XX CLEAR - NO XX CLEAR - YES           </pre>	<p>Regumate portion 63 of 65 dispensed</p> <p>Up/Down arrow to toggle between <i>no</i> and <i>yes</i></p> <p>If <i>yes</i> is confirmed by pressing the <i>Enter</i> button, the Regumate counter is reset</p>

### Code 6013

If the Intec MAC has registered an empty Regumate reservoir, the animals which should be treated with Regumate will no longer be fed at this feeding station!

Code 6013 (empty Regumate reservoir) will be displayed!

## Technical specifications

Connection specifications:

Electrical:	18 V/DC / 6.3 A
Pneumatic:	min. 5 bar – max. 10 bar
Water:	1 – 6 bar

## General safety instructions

Refer to the general safety instructions at the beginning of these Operating Instructions.

## Modifications to the machine

In principle, changes to the machine are only allowed in consultation with and subject to permission from PigTek Europe GmbH and may only be carried out by properly authorized and qualified personnel.

## Requirements placed on the operating staff

The machine must only be operated, maintained and repaired by staff who have had sufficient induction training. This must at least be confirmed in writing by the company management.

The induction time is laid down specifically for every individual employee, depending on their relevant prior knowledge and qualifications. The actual induction is provided by the superior or by experienced colleagues.

## Special risks

You will find the instructions about special risks and about the dangers of noise and hazardous and other substances in these Operating Instructions and in the technical documentation of devices and equipment that are not dealt with in these Operating Instructions.

Further instructions are also contained in the material safety data sheets of additives and consumables.

## Transporting machine parts - safety instructions

The safety instructions provided below must absolutely be observed to prevent serious injury, damage to the machine and other damage to property while transporting machine parts of the Intec MAC.



**Danger!**

- **The lifting or hoisting devices and sling gear must comply with the regulations on accident prevention!**
- **Take the weight of the machine part into consideration when selecting lifting or hoisting devices and sling gear!**
- **Machine parts must only be hoisted or lifted by the hoisting or lifting points provided for that purpose!**
- **The transport routes must be secured and marked such that no unauthorized personnel can access the danger zone!**
- **The transport route must always be secured by a third person!**
- **The transport activities must only be carried out by properly qualified and authorized personnel, duly observing the safety instructions!**
- **Stay away from under suspended loads at all times!**

## Delivery

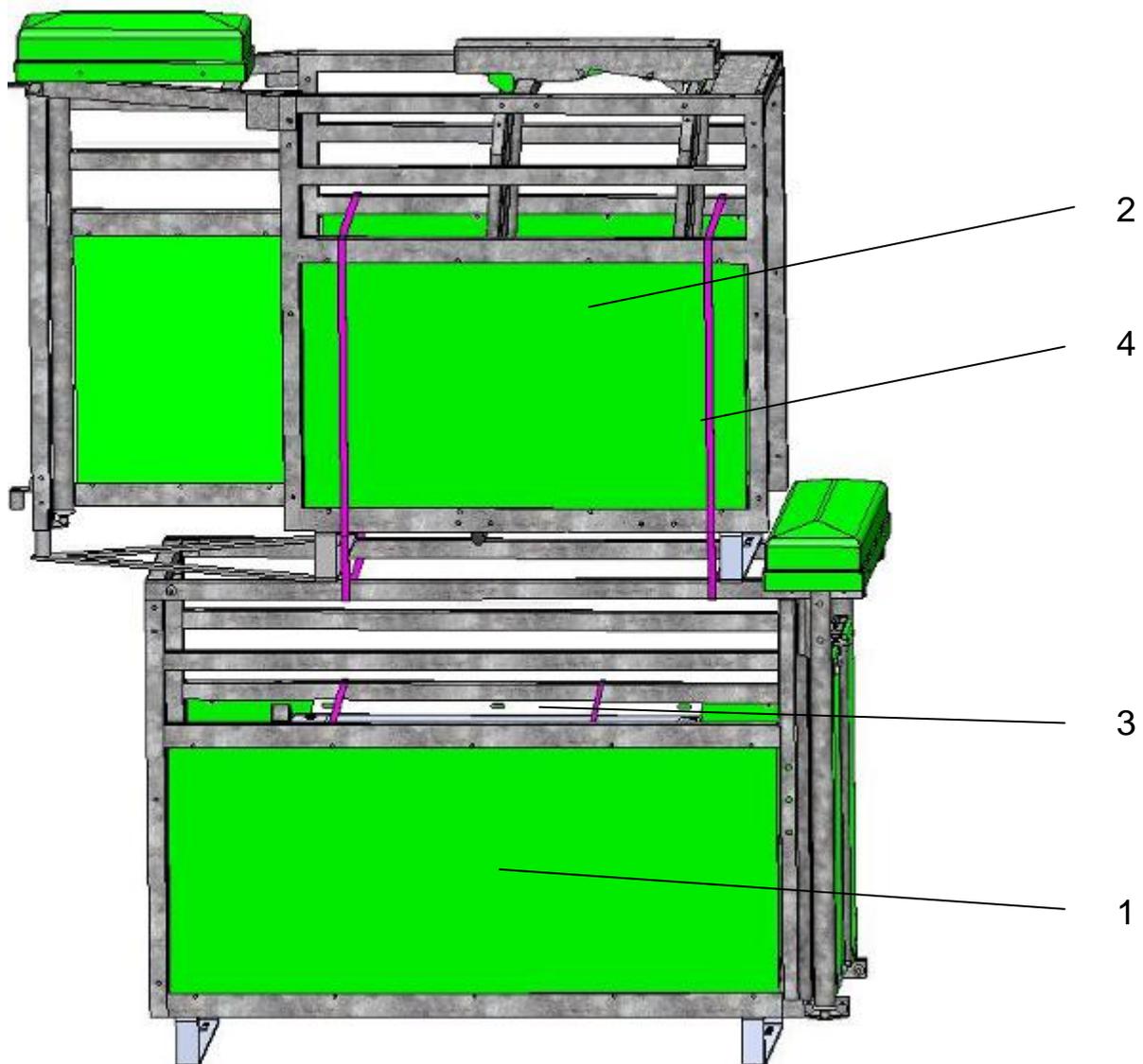
(Figures 25, 26)

The Intec MAC feeding station is installed ready assembled as follows:

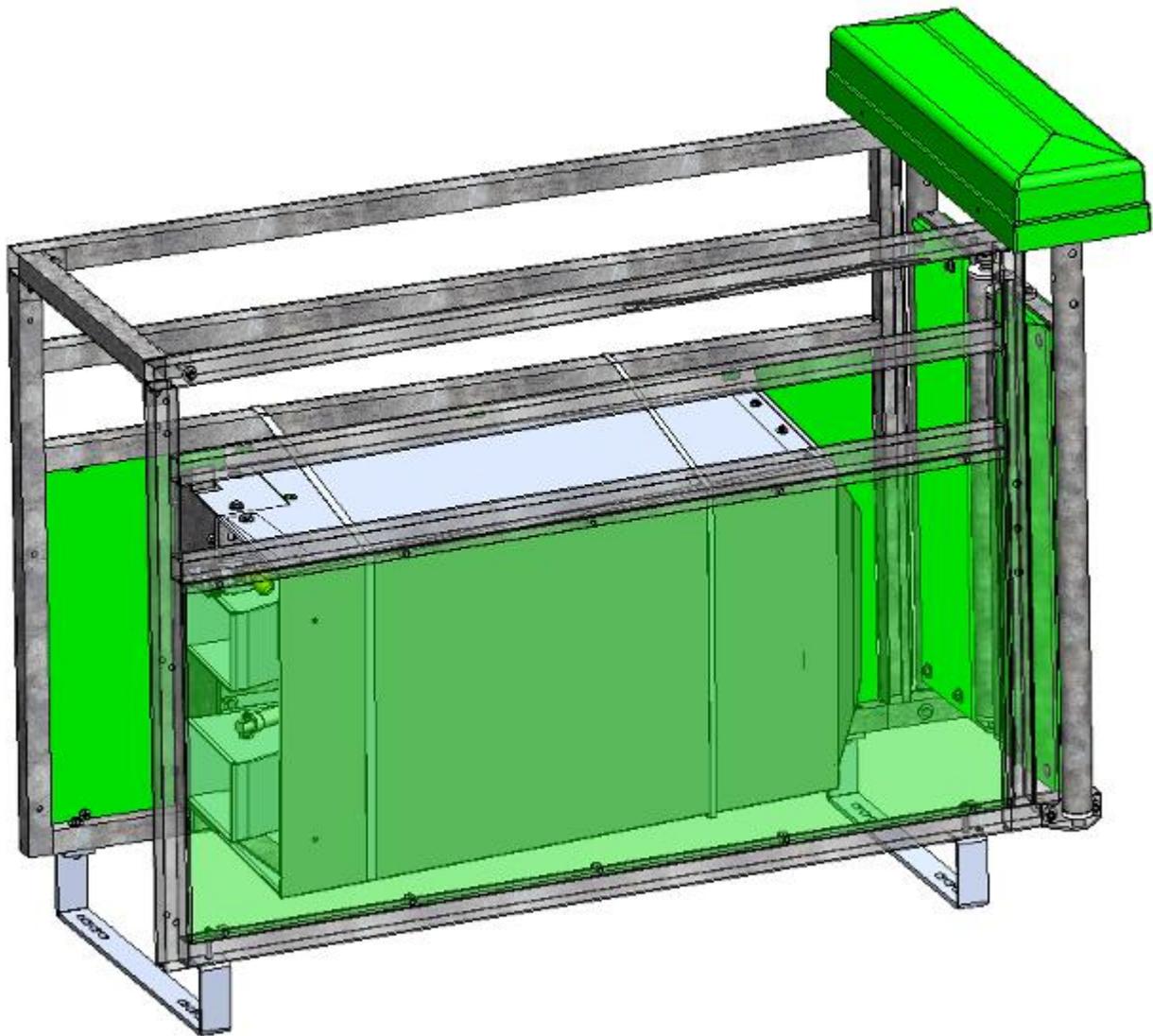
1. Entrance door with entrance (1)
2. Exit with both exit doors, with a selection gate (2) if applicable
3. Feed box with integrated dispensers (3)
4. Intec MAC Box and further accessories (are packaged separately)

All leads, circuits and pipes have been installed and provided as far as possible with connections.

The preassembled parts are strapped together (4) as a transport safety feature.



**Figure 25: Transport safety features on Intec MAC**



**Figure 26:** Transport safety features on feed box



**Danger!**

- Before removing the transport safety features secure the machine parts so that they cannot fall

### **Requirements as regards storing spare parts**

No special provisions apply to spare parts which are put into storage. They must be stored in a frost-free location where they will stay dry.

## Dimensions and weight

### Dimensions in mm

Designation	Length	Width	Height
Intec MAC with selection	2750	2200	1800

**Weight:** 816 lbs. with selection gate

## Assembly

### General

The safety instructions provided below must absolutely be observed to prevent serious injury, damage to the machine and other damage to property while carrying out installation activities on the Intec MAC.



**Danger!**

- The installation activities - assembly and installation of the machine/spare part - must only be carried out by properly qualified and authorized personnel, duly observing the safety instructions.
- Make sure that the load bearing capacity of the floor at the machine installation location is sufficient.
- Check the machine/spare part for transport damage before starting to perform the assembly activities.
- Make sure that there are only authorized personnel in the work area and that no other people are exposed to dangers due to the assembly activities.
- All machine connections such as cables, hoses and pipes must be laid such that people or animals cannot trip over them.
- Carefully observe the prescribed bending radii when laying the cables, hoses and pipes.
- Disconnect the electrical connections from the Intec MAC Box to the station before carrying out any welding work by removing all circuits from the box.
- There is a risk of fire due to welding - familiarise yourself with the fire extinguishing facilities at the installation location. Remove all flammable materials from the work area.
- Also read the "General safety instructions" in these Operating Instructions.

## Assembly and installation

The electrical and pneumatic assembly and installation instructions are provided in appendix 2 "Assembly Instructions".

The Intec MAC or the parts of the Intec MAC must only be assembled and installed by personnel with the relevant technical qualifications. The staff must have read and understood these Operating Instructions. The safety instructions must be observed.

The units are installed in accordance with the current barn layout. The manufacturer can provide you with information about the status of the barn layout.



*Any changes to the machine or to parts of the machine that differ from the installation drawing, and specifically changes to the support structure or load-bearing parts, may negatively affect the statics and must be coordinated with the manufacturer.*

*The manufacturer is not liable if any changes are made without the manufacturer's permission.*

## Safety features

The Intec MAC is provided with all safety features required for its operation.

## General information on commissioning and/or recommissioning

To prevent damage to the machine or serious injury while commissioning/re-commissioning the machine, the following points must definitely be observed:



**Danger!**

- **The machine must only be commissioned by properly qualified personnel, duly observing the safety instructions!**
- **Make sure that there are only authorized personnel in the machine working range and that no other people are exposed to dangers due to the machine being started up.**
- **Before starting up the machine for the first time ensure that all tools and foreign parts have been removed from the machine.**
- **All safety features must be in place and in a technically proper state before commissioning the machine.**
- **Activate all safety features before commissioning the machine.**
- **Make sure that there are only authorized personnel in the machine's working range and that no other people are exposed to dangers due to the commissioning activities.**
- **When carrying out commissioning activities, ensure that the machine can be switched off at all times, e.g. by placing a second person at the main switch.**
- **Also read the "General safety instructions" in these Operating Instructions.**

Before recommissioning the machine after major repairs, all pneumatic and electrical connections must be restored.

### De-commissioning

Stop the machine and interrupt the power supply by switching off the main switch

### Basic adjustments



**Danger!**

- **The activities to set and adjust the machine must only be carried out by properly qualified personnel, duly observing the safety instructions!**
- **Also read the "General safety instructions" in these Operating Instructions.**

## Commissioning the MAC system

### Preconditions for commissioning

A precondition for successful commissioning is the proper installation of the network and power cables; this is not discussed in any more detail here. You can find the installation details in the Installation Instructions.

To operate and configure the MAC system you must install the Mozilla Firefox browser. This can be downloaded for free from <http://www.mozilla-europe.org/>.

You will need Adobe Flash Player to display the graphic feed curves. This can be downloaded for free from <http://www.adobe.com>.

It is assumed that both programs have been installed on the PC and that you have basic knowledge of working with PCs.

The free 'SearchAgnes' tool is necessary to determine the agnes IP address (agnes = AgriNetServer).

This can be downloaded from <http://www.pigtek.eu/service/download.php>.

### Commissioning the devices

To be able to properly commission the devices, it is absolutely necessary that only the server is connected to the power grid and starts up its system first!

The reason for this is as follows:

If feeding devices and the server are started at the same time, the feeding devices will start up faster than the server.

However, since the feeding devices will request a network address (IP address) from the MAC Server when the system is started but will not get one (the MAC Server is not ready yet), the devices will start up with their old IP addresses which were assigned to them sometime ago by some server. This could lead to the problem that several devices are working with the same IP address.



**Caution!**

**Correct commissioning with double IP addresses is not possible!**

This risk no longer exists after successful commissioning, as the server has properly allocated all IP addresses.

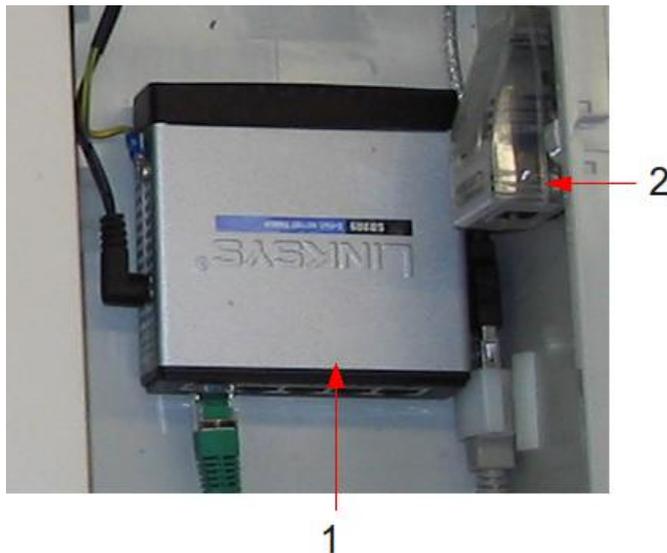
## Network connection of the desktop PC

(Figure 27)

Provided that the desktop PC is not connected to an internal network, the network cable of the desktop PC must be connected to the MAC server switch (1). The PC will then be assigned an address by the DHCP server of the MAC server.

If an internal network is already available, this network must be connected to the additional USB network adapter (2) of the MAC server.

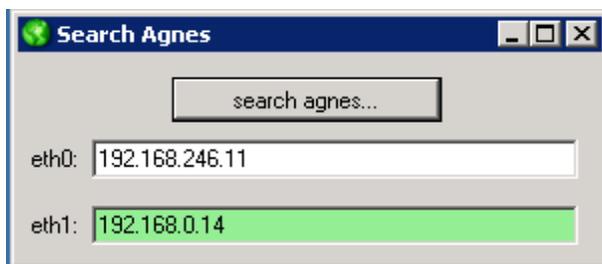
In this event, the USB network adapter of the MAC server will be assigned an address by the customer network DHCP server.



**Figure 27:** MAC system Ethernet switch

## Determining the network address

To determine the network address for accessing agnes (agnes = AgriNetServer) from the desktop PC, the 'SearchAgnes' program must be started on the desktop PC.

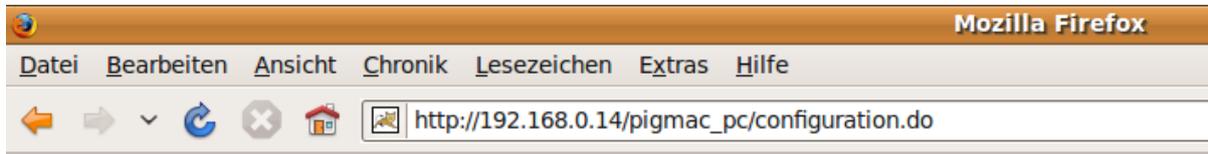


Click the 'search agnes...' button to start a search of the network. The network addresses of the MAC server will then be shown in the input fields. The upper input field (eth0) shows the IP address which can be accessed through the switch. The lower input field (eth1) shows the IP address which can be accessed through the additional USB network adapter. The IP address with the green background is the address which must be used by the desktop PC.

## The configuration menu

Now start the Firefox browser.

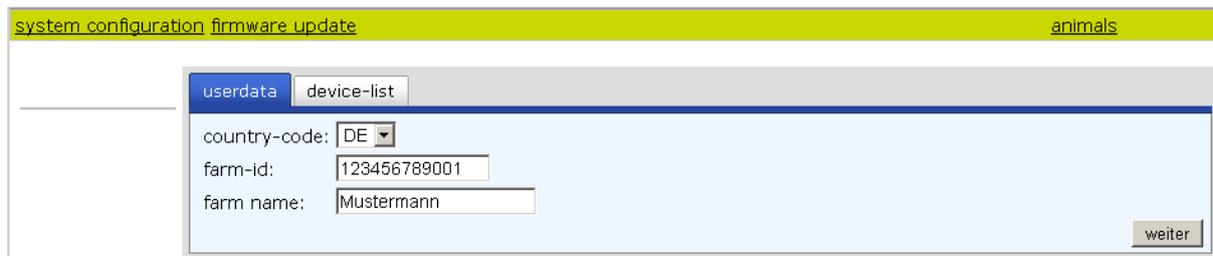
Enter the IP address found using the 'SearchAgnes' program and the extension /pigmac\_pc/configuration.do in the address field (e.g.: [http://192.168.0.14/pigmac\\_pc/configuration.do](http://192.168.0.14/pigmac_pc/configuration.do)) and press Enter to confirm.



The user data window will then open.

## The user data

The user data fields have already been factory-filled as far as possible. If necessary, some changes may be made here now. The country ID is particularly important as this affects the translation of the program. After filling the fields, click the 'continue' [weiter] button.



## Search devices

The devices already found are displayed on the page that will be displayed next. Please remember that a device may be counted several times.

The MAC Server is reported as two devices; once as server and once as a sow planner interface program.

Every Intec MAC is displayed once.

Every Heatec MAC is displayed once; but as double Heatec twice.

Every Fitmix MAC is displayed once; but as double Fitmix twice.

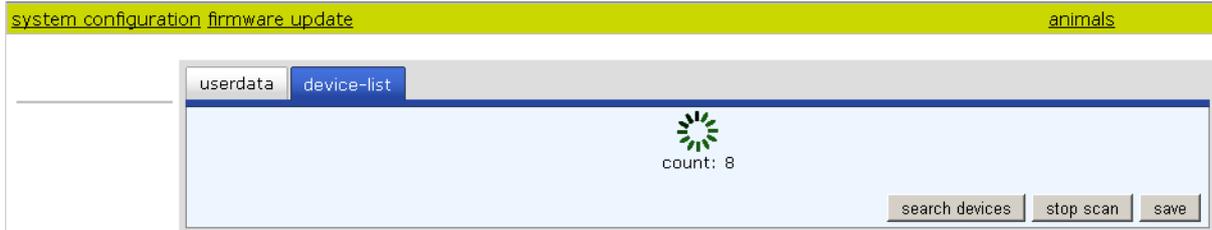
Every Rafu MAC is displayed once. If Rafu dispensers have already been configured, every feeding location will additionally be displayed once.

The complete search procedure may take up to several minutes, depending on the system in question.

It would be useful to first calculate the number of devices that should be found!

A calculation example with one MAC server, 4 Intec MAC and one double Heatec MAC:

Device	Number	Factor	Total
MAC Server	1	2	2
Intec MAC	4	1	4
Double Heatec MAC	1	2	2
			8



If the number of devices to be found is equal to the number calculated, you can end the search action by clicking the 'stop scan' button.

## The device list

The search function will come up with a list of all devices that have been found. The scroll bar can be used to display further details, such as the program versions of the devices.

Device	uri	s	a	b	g_Nr	g_typ	cc	farm_id	betriebsname	port
000010100101-0001	192.168.246.83	1	1	1	1	6	276	123456789001	Mustermann	5000
000010100102-0001	192.168.246.64	1	1	1	2	6	276	123456789001	Mustermann	5000
000010100103-0001	192.168.246.42	1	1	1	3	6	276	123456789001	Mustermann	5000
000010100104-0001	192.168.246.230	1	1	1	4	6	276	123456789001	Mustermann	5000
000010100105-0001	192.168.246.126	1	1	1	5	6	276	123456789001	Mustermann	5000
000010200001-0001	192.168.246.41	1	2	0	1	12	276	123456789001	Mustermann	5000
000010200002-0001	192.168.246.41	1	2	0	2	12	276	123456789001	Mustermann	5000
100000000001-0001	192.168.246.11	0	0	0	1	2	276	123456789001	Mustermann	5000

Check the following details before saving:

- IP addresses (uri) must be clear! Note: double devices have the same IP! Also see the chapter 'Commissioning the devices'.
- Device numbers (device\_id) must be clear! Every device\_id (composed of barn/section/pen/device number) must be unique! Also see the chapter 'Config-Data – Configuring the Configbox'.
- Have all devices actually been found? If not, determine the cause (device not switched on, error in the network...) and the scan procedure by clicking the 'search devices' button again.

If all details are correct, save the configuration by clicking the 'save' button.

## Saving the configuration



**Saving may take several minutes, depending on the installation size.**

Click the 'animals' link when saving has finished to access the Pig MAC control program.

## Troubleshooting

To prevent damage to the machine or serious injury while troubleshooting, the following points must definitely be observed:



**Danger!**

- **Only remedy a failure if you are properly qualified, as indicated.**
- **First prevent the machine from being started again unexpectedly by switching off the main switch to interrupt the power supply and padlocking it! The key to this lock must be held by the person who is carrying out the maintenance or repair work!**
- **Always put a second person in place who can switch off the machine in case of an emergency.**
- **Make sure that upstream and downstream units of the system have been switched off and padlocked.**
- **Also read the "General safety instructions" in these Operating Instructions.**

## Error messages

The following machine failures are shown in the text field of the Intec MAC Box by means of an error code.

code	Designation	Description/Remedy
6000	Configbox is empty	No data was found when reading the Configbox! Configure the Intec MAC in the Intec MAC configuration menu.  Press the 'Enter' button to access the Intec MAC configuration menu where you can set all the necessary parameters.  Please refer to the relevant chapter of these Operating Instructions for further details about the Intec MAC configuration menu.
6001	Configbox missing	Connect the Configbox! If no Configbox is connected, the Intec MAC cannot be operated!
6002	Fuse error	The main fuse, which protects the power supply unit of the Intec MAC, is faulty!  Replace, 6.3 A, slow-acting!

Code	Designation	Description/Remedy
6003	Entrance opening time set to "0"	The Intec MAC is locked as the entrance opening time has been set to '0'.  Specify a higher value in the Pig MAC PC control unit!
6004	Selection pen full	The Intec MAC is blocked as the selection pen is full. Herd the animals in the reverse direction (empty the pen) and confirm the selection on the Intec MAC Box or in the Pig MAC PC control program
6005	Feeding interruption	Feeding was interrupted because an interruption time is active. Feeding is continued when the interruption time has expired.
6006	Entrance closed by user	The Intec MAC was locked manually.
6007	Feed shortage at dispenser 1	The Intec MAC was locked due to a feed shortage at dispenser 1. Feeding will be resumed as soon as feed is available again.
6008	Feed shortage at dispenser 2	The Intec MAC was locked due to a feed shortage at dispenser 2. Feeding will be resumed as soon as feed is available again.
6009	Feed shortage at dispenser 3	The Intec MAC was locked due to a feed shortage at dispenser 3. Feeding will be resumed as soon as feed is available again.
6010	Entrance antenna error	The entrance antenna has not been connected or is broken
6011	Trough antenna error	The trough antenna has not been connected or is broken
6012	Feed start	This message is shown during the feed calculation. Feeding is continued when the feed calculation has been completed.

<b>Code</b>	<b>Designation</b>	<b>Description/Remedy</b>
6013	Regumate reservoir empty	If the Intec MAC has registered an empty Regumate reservoir, the animals which should be treated with Regumate will no longer be fed at this feeding station!  Code 6013 (empty Regumate reservoir) will be displayed!

## Maintenance and service

The following inspection and maintenance intervals are the minimum intervals that must be observed during the entire service life of the feeding station: make sure they are complied with!

- Monthly:** Clean the sensor at the entrance using a damp cloth  
Check the automatic compressor condensate removal
- Every 6 months:** Check the pneumatic system and mechanics of the entrance door  
Check the trough flap, exit doors, selection gate  
Check the springs of the entrance door, exit doors, selection gate  
Check the floor attachment of the station
- Every 12 months:** Clean the cylinder piston bars with a damp cloth  
Check the air hoses  
Check the water hose
- When changing over to other feed:** Calibrate the portion size

Observe the Maintenance and Repair Instructions for the components in the accompanying documents!

Immediately replace any machine parts that are not in perfect condition!

**Only use original spare parts!**



**Danger!**

- **Before carrying out any maintenance or repair activities, secure the working range of the machine so that no unauthorized personnel can access it! Apply or put up a warning sign to alert people to the maintenance or repair activity!**
- **Switch off the main switch to interrupt the power supply and padlock it before carrying out any maintenance and repair activities! The key to this lock must be held by the person who is carrying out the maintenance or repair work!**
- **Make sure that any parts of the system which have been depressurized cannot be unexpectedly switched on again!**
- **Use suitable and technically perfect lifting or hoisting devices and sling gear to move heavy machine parts!**
- **Dispose of any environmentally harmful lubricants, refrigerants or detergents in keeping with applicable regulations!**



Pay attention to the following after completing the maintenance activities and before starting the machine:



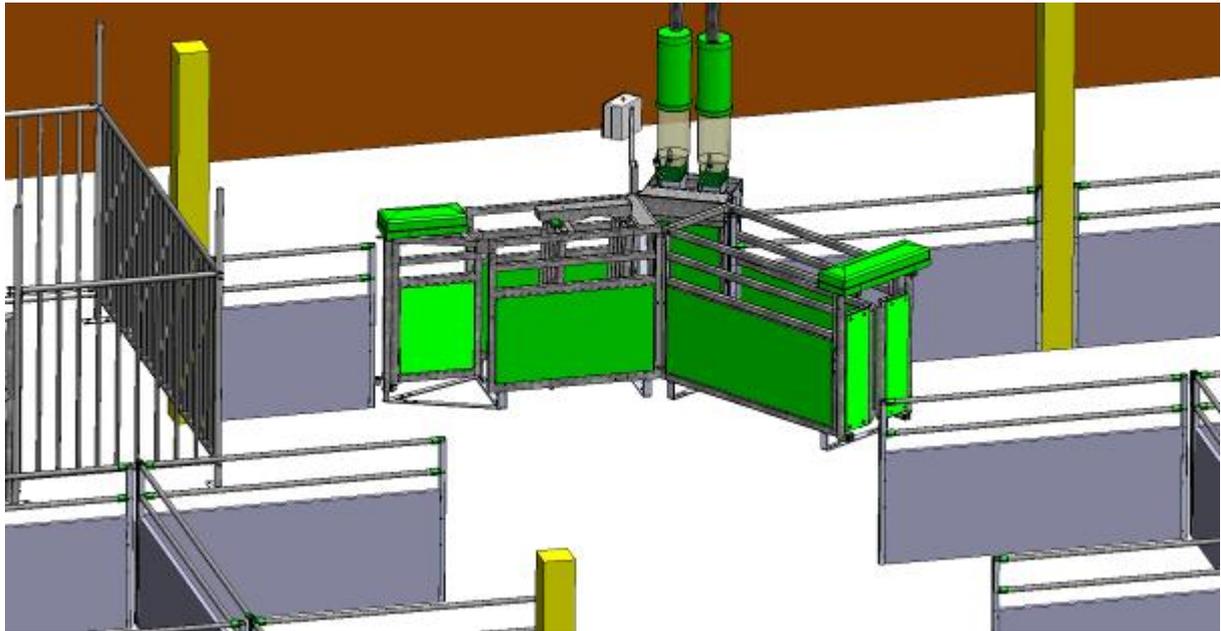
**Danger!**

- **Double-check that all screwed connections that were loosened are tight!**
- **Check that all safety features and covers that were removed have been properly installed again!**
- **Make sure that all tools, materials and other equipment used have been removed from the work area!**
- **Clean the work area and remove any liquids or other substances that have leaked out or escaped!**
- **Make sure that all safety features on the machine are working properly again!**

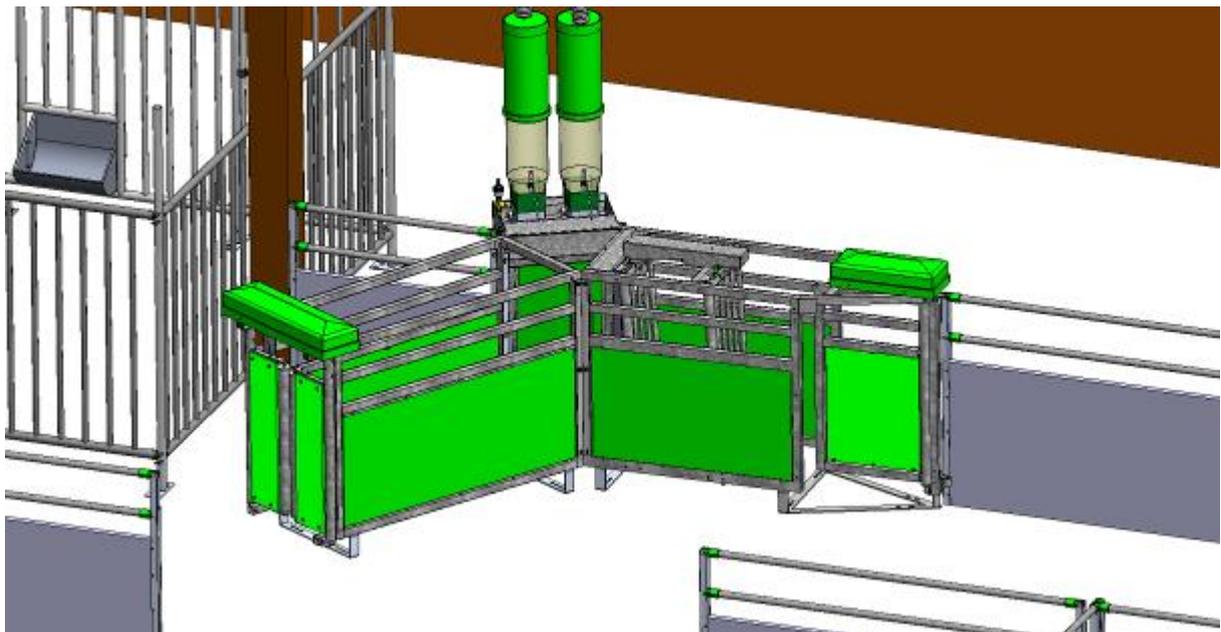
## Appendix 1 - barn layout

(Figures 28, 29)

### Example configuration for right-hand and left-hand versions of the Intec MAC



**Figure 28:** Intec MAC in a right-hand version



**Figure 29:** Intec MAC in a left-hand version

# Appendix 2 - Assembly Instructions

## Elements of the Intec MAC system

Main switch



Feeder control



Intec MAC



PC



Hand-held terminal (option)



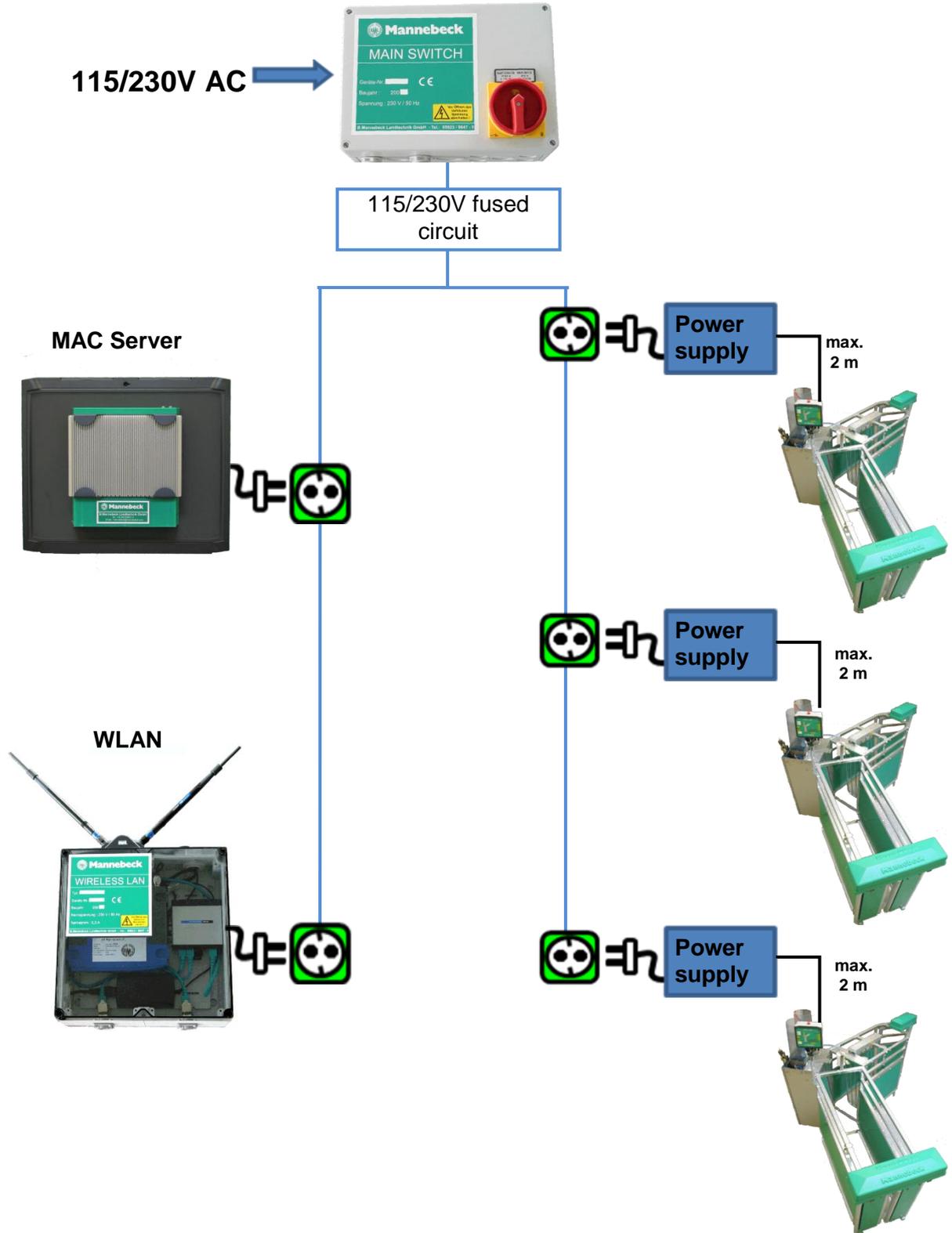
MAC Server



WLAN (option)

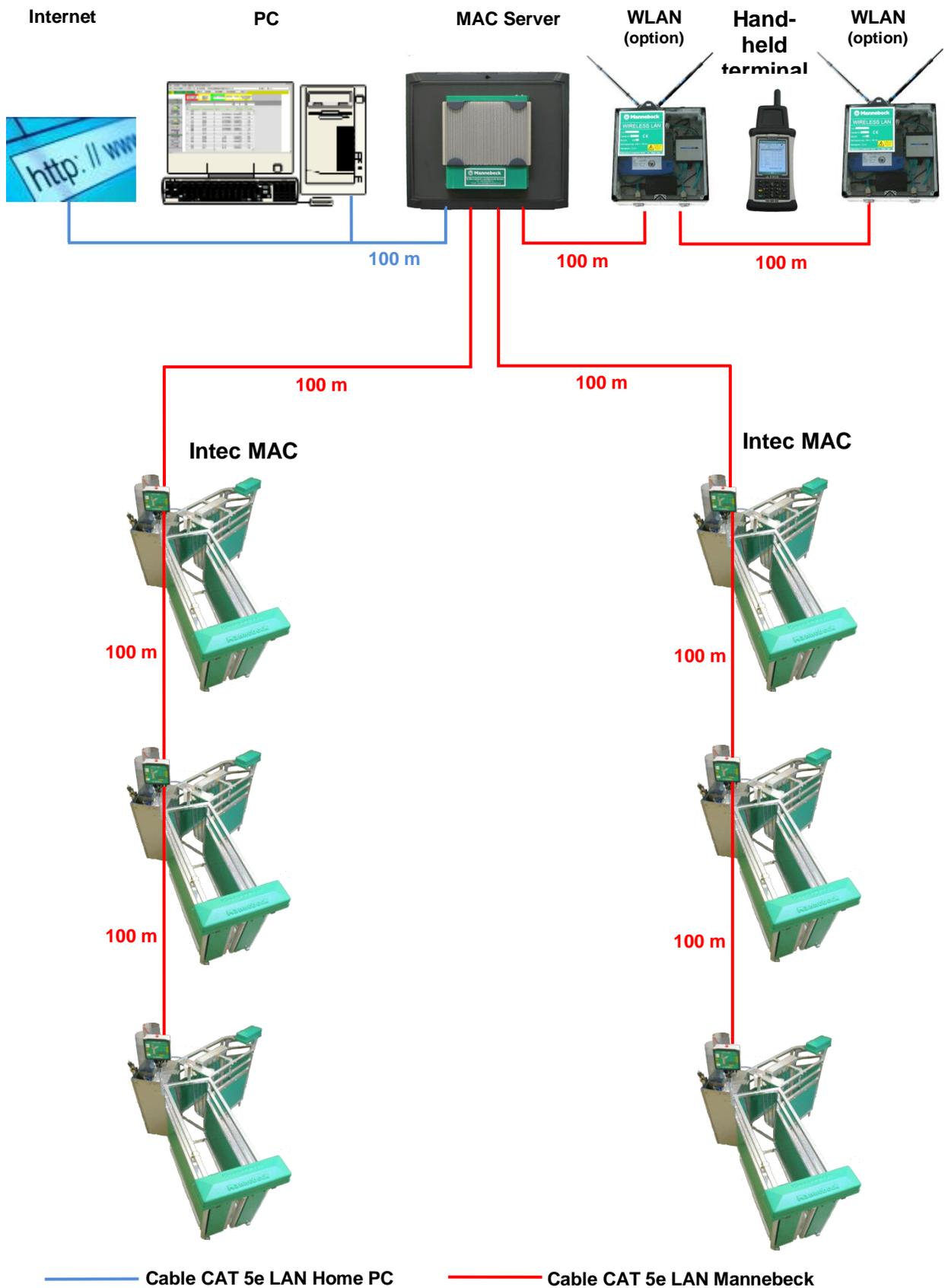


Example diagram for 115/230V wiring of the Intec MAC system



### Example diagram for Ethernet wiring of the Intec MAC system

(with specifications of the maximum cable lengths)



## General instructions on mechanical assembly of the Intec MAC

Assembly is carried out in keeping with the figures shown below.

The mechanical installation must only be carried out on a level barn floor of sufficient load-bearing capacity.

To start the assembly work, place the delivered station parts such that they are correctly orientated to each other and make sure they cannot fall over. Always bear in mind whether you are going to build a left- or right-hand side station (see barn layout)

All cables must be fed into the junction box at the trough before the parts are screwed together.

Do not tighten the screw connections until all parts of the Intec MAC are completely connected together.

Note: stainless steel screws and bolts must be used for the lower parts of the station. They are marked "VA" in this key

Do not screw the units to the floor until all screw connections between the parts have been tightened. Any minor unevenness can be compensated, e.g. by fitting plastic shims.

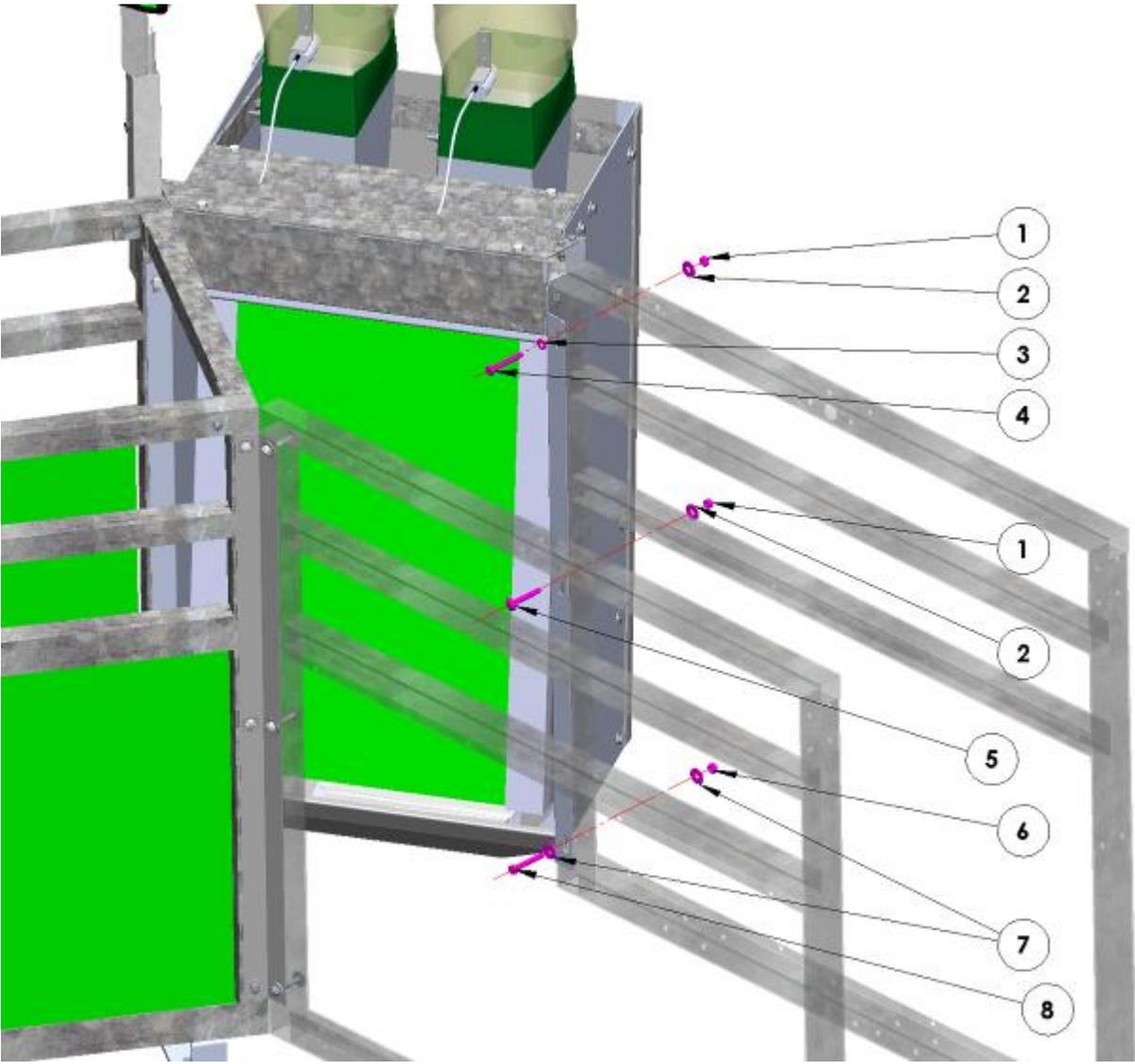


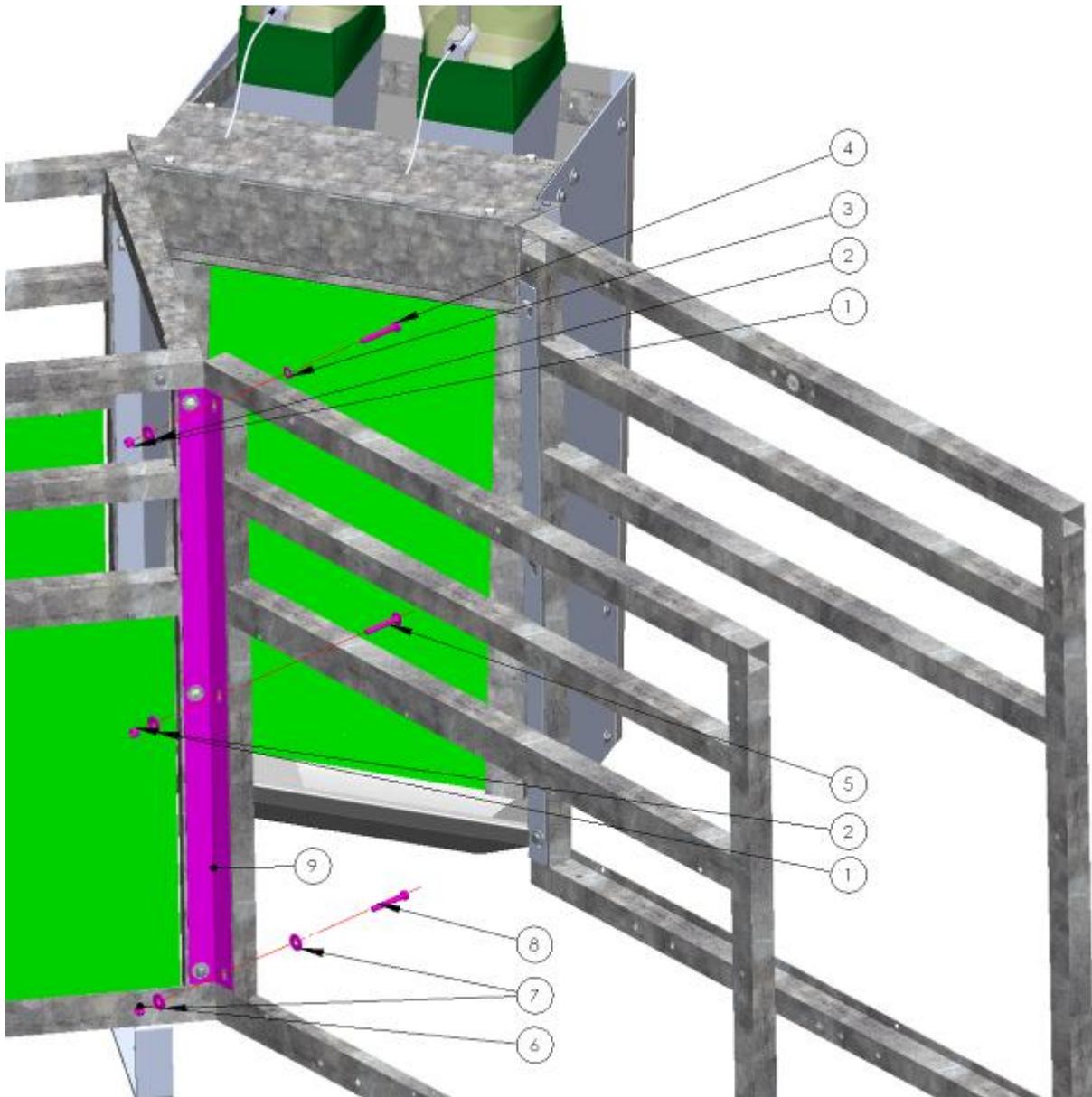
**Observe the following minimum bending radii when laying cables and hoses:**

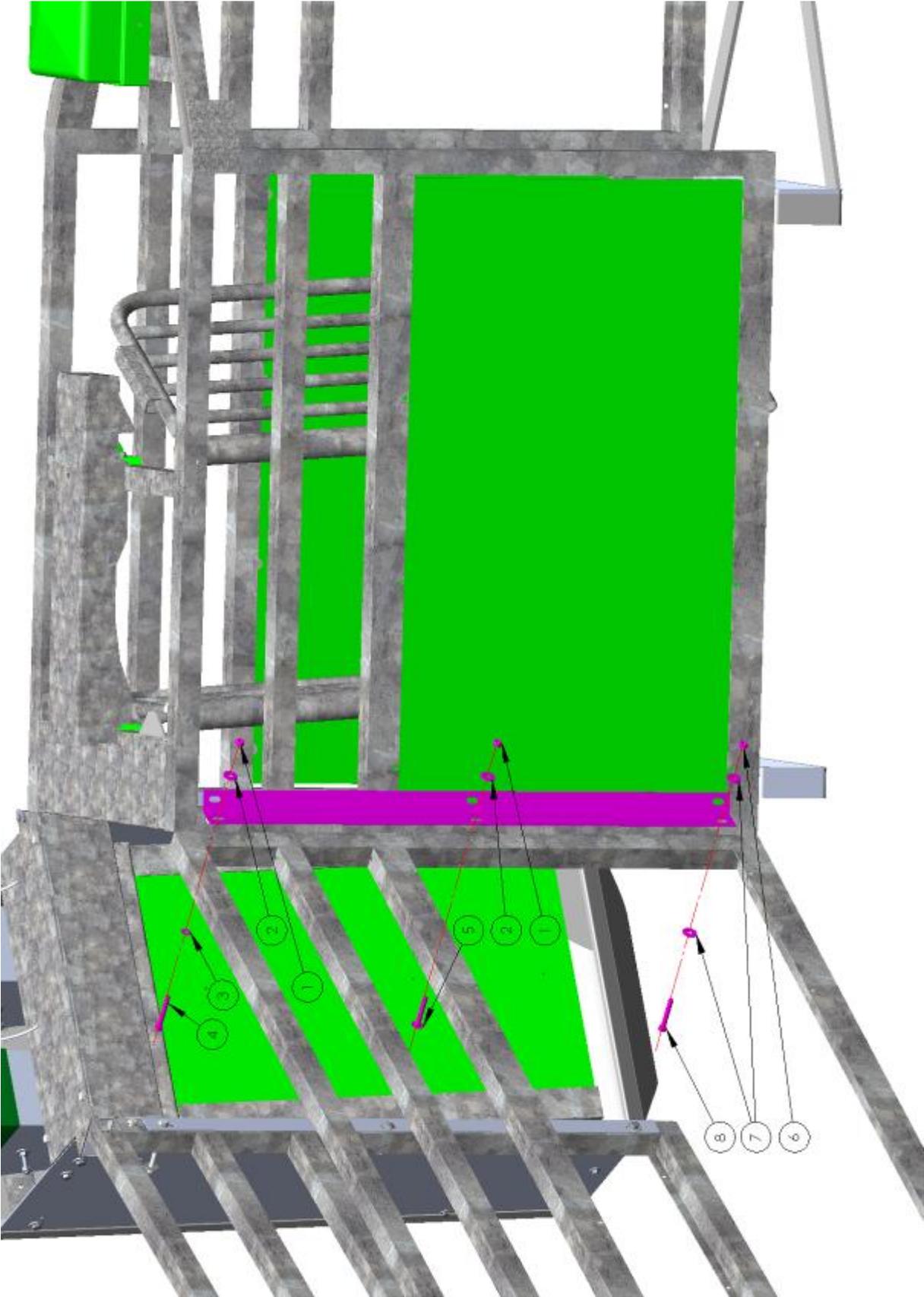
- **Cable: CAT5E**                    **28mm**
- **Air hose 6mm:**                    **18mm**
- **Air hose 8mm:**                    **30mm**

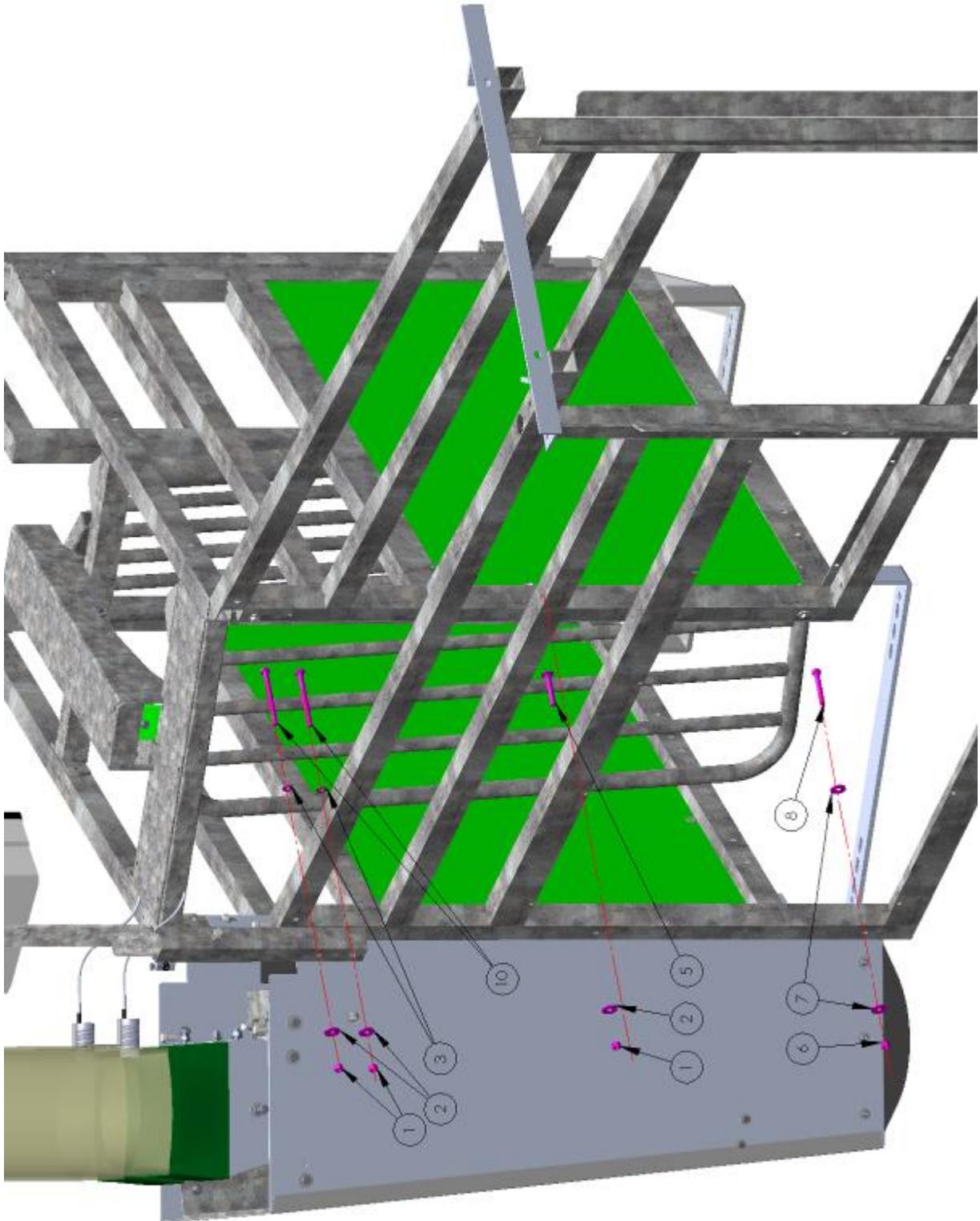
### Key to assembly instructions drawings 1 – 4

1. Die nut M8 -galv.-
2. Washer 8 x 25 -galv.-
3. Washer 8 mm (small) "DIN 125 B"
4. Hex bolt M8 x 60 -galv.-
5. Carriage bolt M8 x 55 -galv.-
6. Die nut M8 -VA-
7. Washer 8 x 25 -VA-
8. Hex bolt M8 x 55 -VA-
9. VA – sheet metal plate
10. Hex bolt M8 x 95 -galv.-





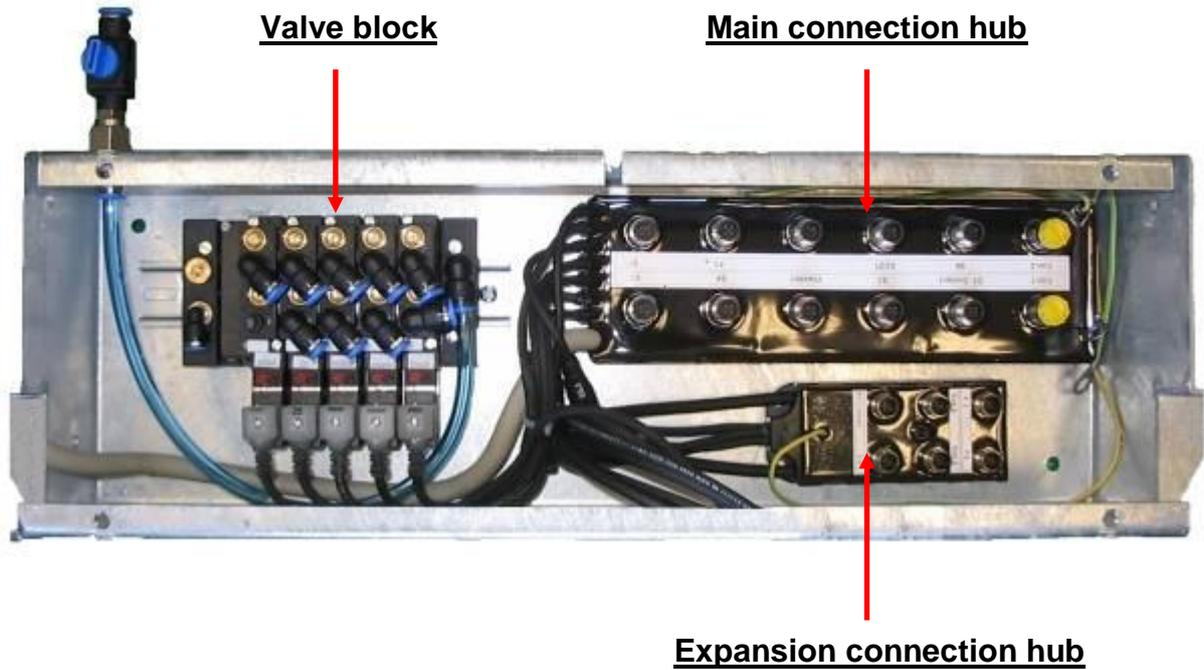




## Electrical and pneumatic assembly of the Intec MAC

All cables and pneumatic hoses are fed into the junction box at the trough. They are clearly marked and have been provided with all the necessary connections.

### Overview of junction box



**Elements in the junction box**

**Expansion connection hub (6fold)**



**Valve block**



- Con.1
- Con.2

- D2



**Main connection hub**

**Mac Box control cable**



- color
- sorting
- entrance
- trough
- ext.4
- D1
- D1 Contact

— Ground lead

## Configuration of the main connection hub

Mac Box control cable



— Ground lead

<b><u>Main connection hub</u></b>	
<b><u>M12 plug connector</u></b>	
<u>Designation</u>	<u>Description</u>
S1	No function
S5	Sensor exit door 1
F1	Feed sensor 1
S4	Sensor exit door 2
V(water)	Water valve
S2/Z1	Sensor entrance lock/feeder output
S3	Sensor
S6	Sensor selection gate
D3 Contact	Dispenser 3 drive and dispenser 3 contact (substance dispenser)
Con.2	Connection 2 for expansion connection hub
Con.1	Connection 1 for expansion connection hub
D1 Contact	Contact dispenser 1 or valve for liquid feed
Ext.4	Alarm output
<b><u>Valve plug</u></b>	
<u>Designation</u>	<u>Description</u>
D1	Dispenser 1 drive
trough	Trough flap drive
entrance	Entrance door drive
sorting	Selection gate drive
color	Color marking drive

## Connection configuration of the extension connection hub (6-fold)



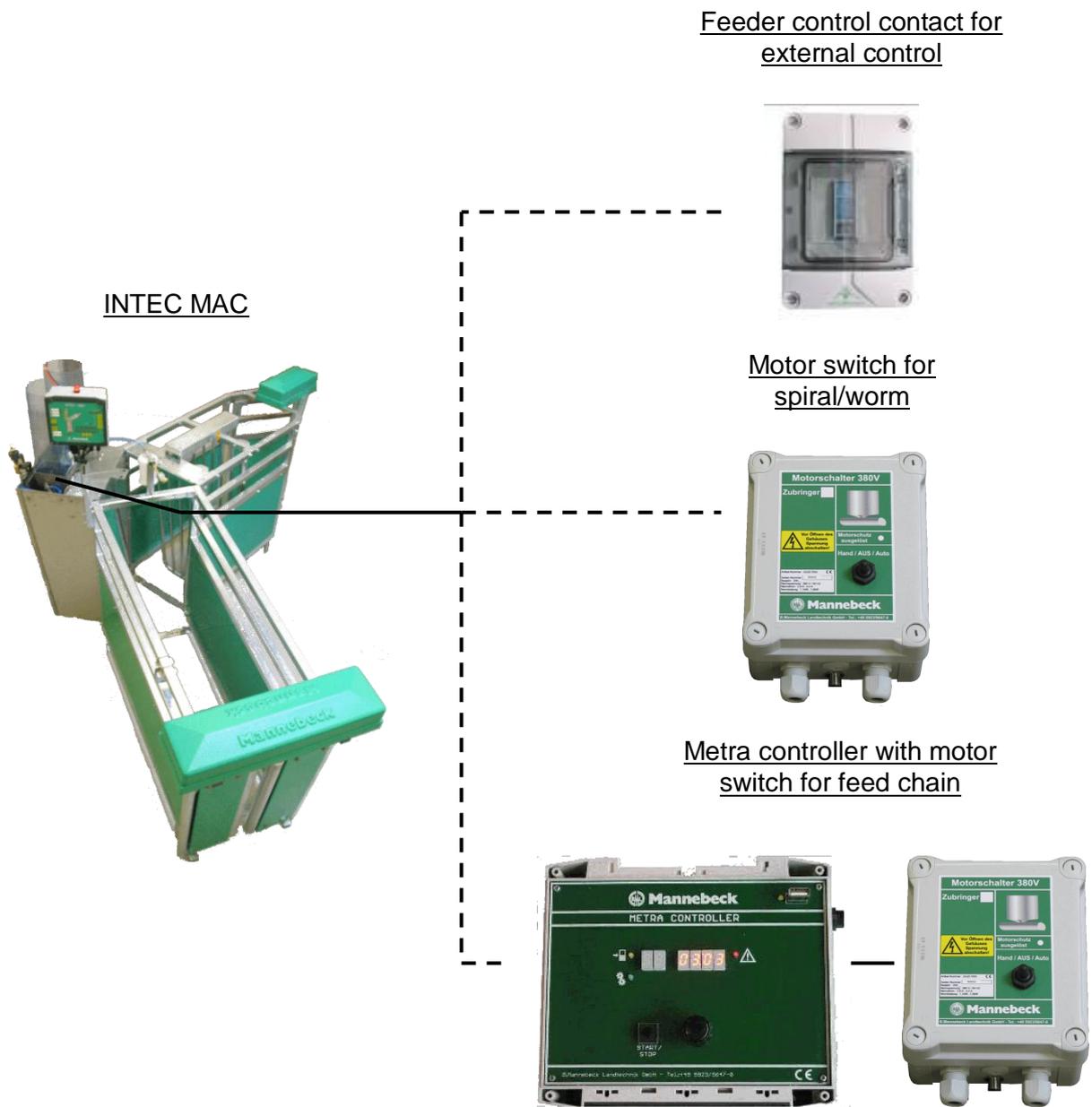
<b><u>Expansion connection hub</u></b>	
<b><u>M12 plug connector</u></b>	
<u>Designation</u>	<u>Description</u>
F2	Feed sensor 2
F3	Feed sensor 3
Ext.2	External 2
Ext.3	External 3
D2 Contact	Contact dispenser 2 or valve for liquid feed
Ext.1	External 1
Con.1	Connection 1 for expansion connection hub
Con.2	Connection 2 for expansion connection hub
<b><u>Valve plug</u></b>	
<u>Designation</u>	<u>Description</u>
D2	Dispenser 2 drive
Ext.1	External 1
Ext.2	External 2
Ext.3	External 3

**Contact configuration of the M12 sockets and plugs**

<b>Contact configuration M12 socket D3 Contact, S3, V(water), S4, S5. S6, S2/Z1, F1, S1</b>	
<b>Contact no.</b>	<b>Function</b>
1	+24V DC
2	Switch output 24V DC
3	0V DC earth
4	Switching input acc. to earth

<b>Contact configuration of plug color, sorting, entrance, trough, ext. 4, D1, D1 Contact</b>	
<b>Contact no.</b>	<b>Function</b>
brown	Switch output 24V DC
blue	0V DC earth

## Feeder control connection



INTEC MAC

Feeder control contact for external control



Motor switch for spiral/worm



Metra controller with motor switch for feed chain



## Intec MAC connection

### INTEC MAC



Connection Zx through a Y-cable for feeder control

### Connection Zx:

Feeder control connection, switching voltage 24 V DC

#### Contact configuration M12 socket Zx:

This connection enables a feed chain/feed spiral to be started by the INTEC MAC, if the output is switched to 24V DC.

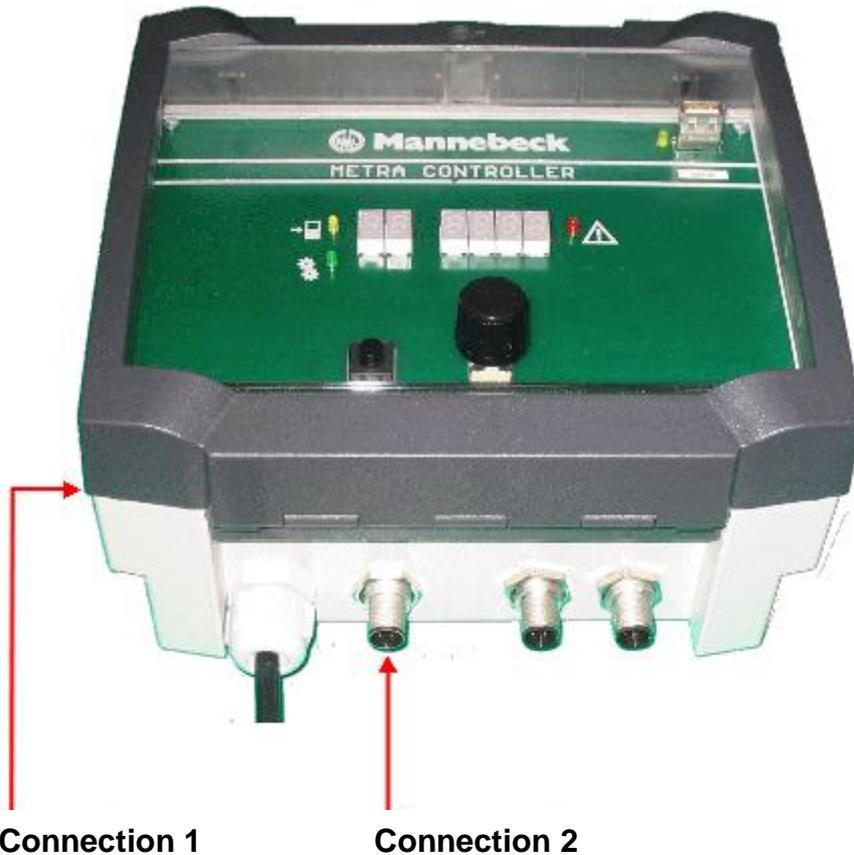
Contact no.	Function	Description
1	+24V DC	Supply voltage, 24V DC
2	Switching output	The external device switching input for the Metra Controller, the motor switch or the feeder control contact, connection Zx contact no.: 2, is connected here to switch on the feed chain/feed spiral.
3	0V DC earth	Earth (GND)
4		Must not be used/wired



Release the cable for the entrance sensor from the S2/Z1 socket of the INTEC MAC. Then plug the Y-cable onto the S2/Z1 socket and connect as follows:

- S2: Connection for entrance sensor
- Zx: Connection for feeder control

## Metracontroller connection

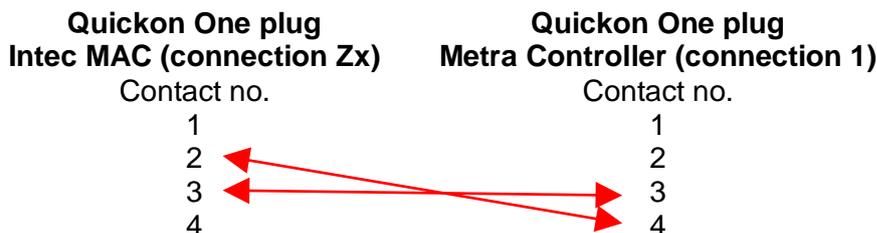


**Connection 1:** External feed start, switching voltage 24 V DC

Contact configuration of M12 socket connection 1  
 This connection enables the feed chain to be started by an Intec MAC when the input is switched to 24V DC.

Contact no.	Function	Description
1	+24V DC	Supply voltage 24V DC
2	Not used	
3	0V DC earth	Earth (GND)
4	Switching input +24V DC	The INTEC MAC switching output, connection Zx contact no.: 2, is connected here to switch on the feed chain.

### Intec MAC connection cable to Metra Controller



## Connection of feeder control contact for external control



**Connection 1**

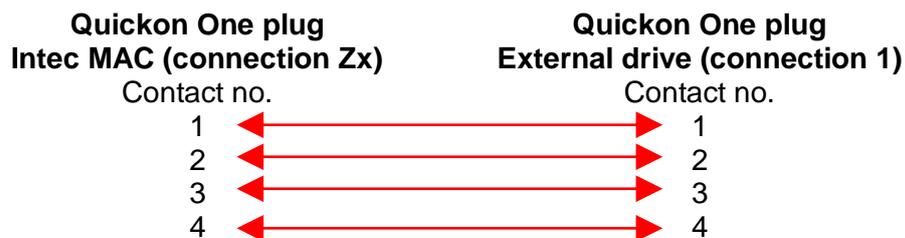
**Connection 1:** Feeder control contact for external control

Contact configuration of M12 socket connection 1

This connection enables an external control to be started when the input is switched to 24V DC.

Contact no.	Function	Description
1	+24V DC	Supply voltage 24V DC
2	Switching input +24V DC	The INTEC MAC switching output, connection Zx contact no.: 2, is connected here to switch on an external device
3	0V DC earth	Earth (GND)
4	Not used	

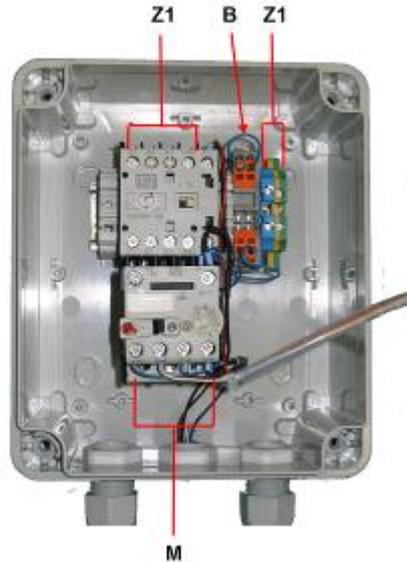
### Intec MAC connection cable to feeder control contact



## Motor switch connection



Connection



**Connection 1, motor** connection contacts for drive motor 380V AC, L1, L2, L3

### Contact configuration of M12 socket connection 2

The motor switch is connected to the METRA CONTROLLER or the INTEC MAC by means of this connection

Contact no.	Function	Description
1	+24V DC	Supply voltage 24V DC
2	Switching input +24V DC	The INTEC MAC switching output, connection Zx contact no.: 2 or that of the Metra controller, connection 3 contact no.: 2 is connected here to switch on the motor of the drive assembly.
3	0V DC earth	Earth (GND)
4	Switching output, motor safety relay, chain break sensor	<b>Does not apply to INTEC MAC. Is only necessary if the motor switch is driven by the Metra Controller.</b> The Metra Controller switching input, connection 3 contact no.:4, is connected here. This output switches when the motor safety relay, the chain break sensor or the switch for the drive guard plate have been triggered.

### Connection 3 contacts Z1:

Connection for the 380V AC lead L1, L2, L3, N, GND

### Contacts B:

The wire bridge must be removed here in order to connect a chain break sensor / switch for the drive guard plate. If both switches are available, they must be connected in series and instead of the wire bridge here.

#### Quickon One plug Intec MAC (connection Zx)

Contact no.

1  
2  
3  
4

#### Quickon One plug Motor switch (connection 2)

Contact no.

1  
2  
3  
4



**METRA CONTROLLER connection cable to the motor switch**



**Quickon One plug  
Metra Controller (connection 2)**

Contact no.

- 1
- 2
- 3
- 4

**Quickon One plug  
Motor switch (connection 2)**

Contact no.

- 1
- 2
- 3
- 4



## Quickon One plug connection



Quickon One connectors are used for low-voltage connections to the INTEC MAC, the Metra Controller and the motor switch. The individual wires of a cable are connected to the Quickon One connectors with their special fast connection technology. Also see the explanation on the packaging of the Quickon One connector.

### Contact configuration of the Quickon One connector

The contact configuration is identical for all connections (universal)

Contact no.	Function	Description
1 brown	+24V DC	Supply voltage 24V DC
2 white	Switching output	Output signal
3 blue	0V DC earth	Earth (GND)
4 black	Switching input	Input signal

## Y-cable connection



To connect a feeder control to the INTEC MAC, a Y-cable is added at the connection of the entrance sensor S2/Z1 by disconnecting the entrance sensor cable from the INTEC MAC and connecting it to plug S2 of the Y-cable. The feeder control is connected by means of the plug ZxZx.

**Contact configuration of the Y-cable (Zx)**

The contact configuration is identical for all connections (universal).

Contact no.	Function	Description
1 brown	+24V DC	Supply voltage, 24V DC
2 white	Switching output	Output signal for feeder control
3 blue	0V DC earth	Earth (GND)
4 black	Not used	

**Contact configuration of the Y-cable (S2)**

The contact configuration is identical for all connections (universal).

Contact no.	Function	Description
1 brown	+24V DC	Supply voltage, 24V DC
2 white	Not used	
3 blue	0V DC earth	Earth (GND)
4 black	Switching input	Entrance sensor

Notes: