REOVIB MTS - L443 - LED-Display  Thyristor Controller for Vibratory Feeders

Operating Instructions

### 3-Channel Thyristor Controller for Vibratory Feeder
A compact control unit for a typical parts-feeding station comprising Bowl, Linear and Hopper Feeder.
Depending on the version with integral functions for track control, solenoid valve and warning signals. Touch panel with LED display for all settings and adjustments.

3 Output channels 0...210 V for Bowl- Linear- and Hopper feeder
Connectors: Han 3 + PE
3 Sensor inputs for 24 V, PNP Sensors:
  - Track-control, Level-control, Air jet or Present signal
2 Outputs 24 V, DC for Air-valve or Present signal (M12 Connector)
2 Status outputs for 'READY' Mains ON and 'ENABLE ON' conditions
1 Enable input 24 V, DC or Switch (M12 Connector)

### Overview of Functions:
- **Feeder**
  - Feeder Throughput
  - Invert Enable
  - Ramp up time
  - Ramp down time
  - Maximum limit
  - Vibrating Frequency: Full/Half Wave
  - 50/100 Hz (60/120 Hz)
- **Track Control**
  - Sensor 1 Invert
  - Switch ON delay
  - Switch OFF delay
  - Time out (Empty warning)
- **Hopper Control**
  - Sensor 2 Invert
  - Switch ON delay
  - Switch OFF delay
  - Time out (Empty warning)
- **Logic**
  - Sensor 1 / Sensor 3
  - MIN-MAX Vibration levels
  - "AND"
  - "OR"
  - Twin Track / Air
- **Air Jet / Present**
  - Sensor 3 Invert
  - Switch ON delay
  - Switch OFF delay
- **Solenoid Output**
  - Output 1: ON with bowl feeder/ delayed OFF
  - Output 2,
    - Using sensor 3
    - Air jet or 'Present' signal
  - Switch ON delay
  - Switch OFF delay

### Ordering Codes:

<table>
<thead>
<tr>
<th>Type</th>
<th>Order no:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard controller</td>
<td></td>
</tr>
<tr>
<td>REOVIB MTS 443-LED</td>
<td>44350 (with Mains input cable)</td>
</tr>
<tr>
<td>REOVIB MTS 443-LED</td>
<td>44351 (with Mains coupling socket)</td>
</tr>
</tbody>
</table>

Feed Station with Bowl, Linear and Hopper feeders
Safety Instructions

This description contains the necessary information for the correct application of the product described below. It is intended for use by technically qualified personnel.

Qualified personnel are persons who, because of their training, experience and position as well as their knowledge of appropriate standards, regulations, health and safety requirements and working conditions are authorised to be responsible for the safety of the equipment at all times, whilst carrying out their normal duties and are therefore aware of and can report possible hazards (Definition of qualified employees according to IEC 364)

WARNING !
Hazardous Voltage!

Failure to observe can kill, cause serious injury or damage
Isolate from mains before installation or dismantling, as well as for fuse changes or post installation modifications
Observe the prescribed accident prevention and safety rules for the specific application
Before putting into operation check if the rated voltage for the unit conforms with the local supply voltage
Emergency stop devices must be provided for all applications, operation of the emergency stop must inhibit any further uncontrolled operation
Electrical connections must be covered
The earth connection must be checked for correct function after installation and prior to operation

Installation

Check !
Are the supply, feeder coil and controller input voltages correct?
Is the controller adequate for the rated power of the feeder?
Is the vibrating frequency set to the correct value for the feeder?

Connect the unit in accordance with the wiring instructions and ensure that the earthing is correct!

Beware !
An incorrect feeder frequency setting can cause drive coil (magnet) damage. Ensure that the output frequency of the control unit matches the frequency of the connected coil

Important !
New units are factory set to the parameters shown in the setting table (Default)
If there is any doubt with regard to the settings, the factory defaults can be re-instated from the service menu

Specified Use

The units described in this document are electrical goods for use in an industrial environment. They designed for the control of electromagnetic vibratory feeders

Declaration of Conformity

We declare that this product conforms with the following standards:
EN 61000-6-2 and EN 61000-6-4 in accordance with directive 2004/108/EC.

REO ELEKTRONIK AG, D-42657 Solingen

We reserve the right to make technical changes should we deem them necessary.
Technical Data:

Supply Voltage: 110 / 240 V, 50/60 Hz  
Supply Current: max 10 A, RMS  
Output Voltage per channel: 0...100 / 0...210 V  
Output Current: max. 10 A, RMS  
Output Current Chan 1: max. 8 A, RMS  
Output Current Chan 2: max. 6 A, RMS  
Output Current Chan 3: max. 6 A, RMS  

Sensor type: PNP, 24 V  
Output Status: 24 V, DC, 20 mA  
Control Output 1: 24 V, 200 mA  
Control Output 2: 24 V, 200 mA  
Time out Status - Track: 24 V, 200 mA  
Time out Status - Hopper: 24 V, 200 mA  
Enable Input: 24 V, 10 mA  
Operating temp: 0... 45°C  
Storage temp: -10...80 °C  
Recommended Fusing: 16 A  

Sensor input X4.3 and 24V output X 21:  
The interlocking of channels is predetermined and cannot be altered. The unit enable also enables the linear feeder and all other feeders. If the bowl feeder is inhibited then the hopper feeder also stops.  

Sensors 1 (X4.1) and 3 (X4.3) can be configured for Track control, Sensor 3 can also be configured for an Air Jet reject output.  
Sensor 2 (X4.2) is always used to control the hopper feeder  

24V Output 1 switches ON as the bowl feeder starts and switches OFF after a 0...60 secs delay. Should an air valve be required to operate before the bowl feeder starts then the soft start time should be increased  

24 V Output 2 can be used to indicate that components are present on a transfer section at the end of the linear feeder or for controlling an air jet. The output can then be controlled from sensor 3 and ON/OFF time delays can be adjusted in the program under ‘AIR JET’  

In the LOGIC menu Sensors 1 and 3 can be configured for track control (MIN/MAX), OR AND or twin track/air operation  

Time out Function:  
The Time Out function can be used to warn that the hopper or bowl feeder have run out of product, but still allowing the feeder to run. If it is required that the feeder stops after the Time-Out delay has elapsed, the ‘Time Out ON’ must be set to ‘1’ in the sensor menu.  

When the Time-Out occurs the feeder stops, the corresponding output is energised and a clock symbol is displayed.  

A Time-Out signal or shutdown can be reset with the green ‘I’ key on the touchpanel or by operation of the associated sensor.
## Features

<table>
<thead>
<tr>
<th>Setting</th>
<th>Range</th>
<th>Code</th>
<th>Factory setting</th>
<th>Menu code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed rate Bowl Feeder</td>
<td>0...100 %</td>
<td>0.A.</td>
<td>0 %</td>
<td>000, 020</td>
</tr>
<tr>
<td>Feed rate Linear Feeder</td>
<td>0...100 %</td>
<td>i. A</td>
<td>0 %</td>
<td>000, 021</td>
</tr>
<tr>
<td>Feed rate Hopper Feeder</td>
<td>0...100 %</td>
<td>u.</td>
<td>0 %</td>
<td>000, 022</td>
</tr>
<tr>
<td>Maximum limit Bowl Feeder</td>
<td>50...100 %</td>
<td>0.</td>
<td>100 %</td>
<td>020</td>
</tr>
<tr>
<td>Maximum limit Linear Feeder</td>
<td>50...100 %</td>
<td>i.</td>
<td>100 %</td>
<td>021</td>
</tr>
<tr>
<td>Maximum limit Hopper Feeder</td>
<td>50...100 %</td>
<td>u.</td>
<td>100 %</td>
<td>022</td>
</tr>
<tr>
<td>Vibrating frequency Bowl Feeder</td>
<td>0 / I</td>
<td>0.</td>
<td>HA.</td>
<td>0</td>
</tr>
<tr>
<td>Vibrating frequency Linear Feeder</td>
<td>0 / I</td>
<td>i.</td>
<td>HA.</td>
<td>0</td>
</tr>
<tr>
<td>Vibrating frequency Hopper Feeder</td>
<td>0 / I</td>
<td>u.</td>
<td>HA.</td>
<td>0</td>
</tr>
<tr>
<td>Soft start Bowl Feeder</td>
<td>0...60 Sec.</td>
<td>0. /</td>
<td>0.1 Sec.</td>
<td>020</td>
</tr>
<tr>
<td>Soft start Linear Feeder</td>
<td>0...60 Sec.</td>
<td>i. /</td>
<td>0.1 Sec.</td>
<td>021</td>
</tr>
<tr>
<td>Soft start Hopper Feeder</td>
<td>0...60 Sec.</td>
<td>u. /</td>
<td>0.1 Sec.</td>
<td>022</td>
</tr>
<tr>
<td>Soft stop Bowl Feeder</td>
<td>0...60 Sec.</td>
<td>o. /</td>
<td>0.1 Sec.</td>
<td>020</td>
</tr>
<tr>
<td>Soft stop Linear Feeder</td>
<td>0...60 Sec.</td>
<td>i. /</td>
<td>0.1 Sec.</td>
<td>021</td>
</tr>
<tr>
<td>Soft stop Hopper Feeder</td>
<td>0...60 Sec.</td>
<td>u. /</td>
<td>0.1 Sec.</td>
<td>022</td>
</tr>
<tr>
<td>Invert enable Bowl Feeder</td>
<td>0 / I</td>
<td>o.-En.</td>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>Invert enable Linear Feeder</td>
<td>0 / I</td>
<td>i.-En.</td>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>Invert enable Hopper Feeder</td>
<td>0 / I</td>
<td>u.-En.</td>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>Switch on time delay Bowl Feeder</td>
<td>0...60 Sec.</td>
<td>o. l.</td>
<td>5 Sec.</td>
<td>007</td>
</tr>
<tr>
<td>Switch on time delay Hopper Feeder</td>
<td>0...60 Sec.</td>
<td>u. l.</td>
<td>5 Sec.</td>
<td>004</td>
</tr>
<tr>
<td>Switch off time delay Bowl Feeder</td>
<td>0...60 Sec.</td>
<td>o.O.</td>
<td>5 Sec.</td>
<td>007</td>
</tr>
<tr>
<td>Switch off time delay Linear Feeder</td>
<td>0...60 Sec.</td>
<td>i.O.</td>
<td>5 Sec.</td>
<td>006</td>
</tr>
<tr>
<td>Invert sensor Bowl Feeder</td>
<td>0 / I</td>
<td>o.-SE.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Invert sensor Hopper Feeder</td>
<td>0 / I</td>
<td>u.-SE.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sensor time out</td>
<td>0 / I</td>
<td>o.E.E.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Time out time Bowl Feeder</td>
<td>1...240 Sec.</td>
<td>o.E.</td>
<td>180</td>
<td>015</td>
</tr>
<tr>
<td>Time out time Hopper Feeder</td>
<td>1...240 Sec.</td>
<td>u.E.</td>
<td>180</td>
<td>015</td>
</tr>
<tr>
<td>Air valve</td>
<td>0...60 Sec.</td>
<td>Ai.</td>
<td>4</td>
<td>020</td>
</tr>
<tr>
<td>Linear section Motor</td>
<td>0 / I</td>
<td>i.H.E.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hopper Motor</td>
<td>0 / I</td>
<td>u.H.E.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hopper pulsed operation On-Time</td>
<td>0... 60 Sek.</td>
<td>H</td>
<td>1,0</td>
<td>022</td>
</tr>
<tr>
<td>Hopper pulsed operation On-Time</td>
<td>0... 60 Sek.</td>
<td>h.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sensor logic ExOr (MIN-MAX-jam)</td>
<td>0 / I</td>
<td>S.E.</td>
<td>0</td>
<td>014</td>
</tr>
<tr>
<td>Sensor logic OR</td>
<td>0 / I</td>
<td>S.O.</td>
<td>0</td>
<td>014</td>
</tr>
<tr>
<td>Sensor logic AND</td>
<td>0 / I</td>
<td>S.A.</td>
<td>0</td>
<td>014</td>
</tr>
<tr>
<td>Sensor logic Twin Track / Air</td>
<td>0 / I</td>
<td>Ai.2</td>
<td>0</td>
<td>014</td>
</tr>
<tr>
<td>Remove feeder Interlocking</td>
<td>0 / I</td>
<td>ind.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Save user settings</td>
<td></td>
<td></td>
<td>PUSH</td>
<td>143</td>
</tr>
<tr>
<td>Restore factory settings</td>
<td></td>
<td></td>
<td>FAC.</td>
<td>210</td>
</tr>
<tr>
<td>Restore user settings</td>
<td></td>
<td></td>
<td>US.PA.</td>
<td>210</td>
</tr>
<tr>
<td>Hide programming menus</td>
<td>0 / I</td>
<td>H.d.C.</td>
<td>117</td>
<td></td>
</tr>
<tr>
<td>Hide set point adjustment</td>
<td>0 / I</td>
<td>di.S.</td>
<td>137</td>
<td></td>
</tr>
</tbody>
</table>
**Display and controls**

- Increase value
- Decrease value
- Return
- Programming mode or Enter
- Outputs active
- Outputs inactive (Stop)

**Instructions:**

Menus are used for changing settings. The different parameters are selected by entering a code.

All adjustments are made by first pressing the P key, followed by selecting the menu code, using the cursor keys.

**Settings**

Pressing the cursor key for a short time causes one digit increase/decrease, holding down for a longer time gives changes in ten-digit steps.

Changed settings are saved when exiting the menu or automatically if a key is not pressed for 60 seconds.

---

**Operating displays**

- **Hopper Feeder**
  - u. 900
  - Feed rate in %

- **Bowl Feeder**
  - a. 900
  - Feed rate in %

- **Linear Feeder**
  - OFF
  - Enable OFF
  - Full
  - track “full”
  - STOP
  - Timer running
  - t.out
  - Sensor time out
  - Initialization phase

---

No code number is required to change the feeder throughput: pressing the P key twice will call up the set point display

**Code 000  Feed rate set point**

- P P u. 00
- P P u. 1000

- Feed rate Hopper Feeder
- Feed rate Bowl Feeder
- Feed rate Linear Feeder

- Run mode

**Feed rate adjustment**

- Symbol for Hopper Feeder
- Symbol for Bowl Feeder
- Symbol for Linear Feeder
Code C 020 Bowl feeder

- **P C 000 C 020 P**
  - Feed rate
  - **P a 00 a 1000 P**
  - Umax
  - **P a- E 0 a- E 1 P**
  - 0 = Enable
  - 1 = Invert enable
  - **P aH 00 aH 1 P**
  - Vibrating frequency
  - 50 / 100 Hz (60 / 120 Hz)
  - HA_ = 0 = 100 Hz (120 Hz)
  - HA_ = 1 = 50 Hz (60 Hz)
  - **P a- 00 a- 40 P**
  - Soft start
  - **P aH 00 aH 40 P**
  - Soft stop
  - **P R 0 R 10 P**
  - Air valve output run on time
  - 0...60 Sec.
  - **P R 1 R 10 P**
  - Air valve output run pre time
  - 0...60 Sec.
  - **P 1000 P**
  - Run mode
  - **P 2 500 P**
  - Coarse / fine control with two feed rates
  - In Menu C 003 set "S.P.2." = 1!

Symbol for Bowl Feeder

- **Set point**
  - **P 2 500 P**
  - Limiting the maximum feed rate.
  - The set point will still display 0...100% even though it is limited internally.

Enable input

- **+24 V Signal or closed contacts will enable the output.**

Frequency selection

- **The frequency setting depends upon the feeder type.**
- **Important!**
  - The wrong frequency setting can damage coils.

Soft start / stop

- **Time ramp for starting and stopping the feeder.**

on- and pre run time for the Air valve output (X 20)

- **Valve ON**
  - **Feeder ON**
  - **Feeder OFF**
  - **Valve OFF**

- **on- and pre run time for the Air valve output (X 20)**

KBA_443_LED_DE_EN_FR_ES_29-12.DSF 19.07.2012 Phase angle control for vibratory feeders -REOVIB MTS 443-LED-
**Code C 021 Linear feeder**

- **P C 000 C 020 P**
  - Feed rate
- **P L 1000 L 900 P**
  - Umax
- **P l -E D l -E / P**
  - 0 = Enable
  - I = Invert enable
- **P l H A D l H A / P**
  - Vibrating frequency
  - 50 / 100 Hz (60 / 120 Hz)
  - HA. = 0 = 100 Hz (120 Hz)
  - HA. = I = 50 Hz (60 Hz)
- **P l . C D l . C / P**
  - Soft start
- **P l . S D l . S / P**
  - Soft stop
- **P l H E D l H E / P**
  - Pre feed motor drive
  - 0 = OFF
  - 1 = ON
- **P l 1000 P**
  - Run mode

**Set point**

- Limiting the maximum feed rate.
- The set point will still display 0...100% even though it is limited internally.
- +24 V Signal or closed contacts will enable the output.
- +24 V Signal or closed contacts will inhibit the output
- The frequency setting depends upon the feeder type.
- Important! The wrong frequency setting can damage coils.
- Time ramp for starting and stopping the feeder.
- Operating mode for belt type pre feeder with a 1-phase motor drive

**Symbol for Linear feeder**

- Set point
- Maximum limit
- Enable input
- Vibrating frequency
- Soft start/stop
- Output
**Code C 022 Hopper feeder**

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>P C 000</td>
<td>C 020</td>
</tr>
<tr>
<td>P L 000</td>
<td>L 1000</td>
</tr>
<tr>
<td>P U 000</td>
<td>U 900</td>
</tr>
<tr>
<td>P U- E 0</td>
<td>U- E</td>
</tr>
<tr>
<td>P UHA 0</td>
<td>UHA</td>
</tr>
<tr>
<td>P U4 0</td>
<td>U4</td>
</tr>
<tr>
<td>P U5 0</td>
<td>U5</td>
</tr>
<tr>
<td>P UHE 0</td>
<td>UHE</td>
</tr>
<tr>
<td>P M 20</td>
<td>M 30</td>
</tr>
<tr>
<td>P P 1000</td>
<td>P</td>
</tr>
</tbody>
</table>

**Symbol for Hopper feeder**

- **Set point**
  - Limiting the maximum feed rate.
  - The set point will still display 0...100% even though it is limited internally.

**Enable input**

+24 V Signal or closed contacts will enable the output.

**Enable input**

+24 V Signal or closed contacts will inhibit the output.

**Vibrating frequency**

50 / 100 Hz (60 / 120 Hz)

HA. = 0 = 100 Hz (120 Hz)

HA. = I = 50 Hz (60 Hz)

**Soft start**

Time ramp for starting and stopping the feeder.

**Soft stop**

**Output**

**Pre feed motor drive**

0 = OFF

1 = ON

**Hopper pulsed operation ON-Time**

**Hopper pulsed operation OFF-Time**

**Operating mode for belt type feeder with a 1-phase motor drive**

**Pre feed motor drive**

0 = OFF

1 = ON

**Hopper pulsed operation ON-Time**

**Hopper pulsed operation OFF-Time**

**Phase angle control for vibratory feeders -REOVIB MTS 443-LED**
### Code C 007 Track control - Sensor input X 4.1

**Bowl feeder**

- **P C 000 C 007 P**
- **P a 20 a 50 P**
- **P a 20 a 50 P**
- **P a 5 a 5 P**
- **P i 000 Run mode**

Switch on time delay 0...60 Sec.

Switch off time delay 0...60 Sec.

Sensor function invert I = invert

Sensor input invert

Adjustment of the ON and OFF time delays

### Code C 004 Track control Hopper - Sensor input X 4.2

**Hopper feeder**

- **P C 000 C 004 P**
- **P a 20 a 50 P**
- **P a 20 a 50 P**
- **P a 5 a 5 P**
- **P i 000 Run mode**

Switch on time delay 0...60 Sec.

Switch off time delay 0...60 Sec.

Sensor function invert I = invert

Sensor input invert

Adjustment of the ON and OFF time delays

### Code 003 function settings

- **P C 000 C 003 P**
- **P S 0 P S 2 S 1 P**
- **P i 000 Run mode**

0 = Track control

I = Coarse-fine control with 2nd Set point

+24 V

Sensor input

Track control or Coarse / fine control with two feed rates
**Code C 015  Sensor time out**

- **Bowl Feeder**
  - 0 = Time-out STOP not active
  - 1 = Time-out STOP active

- **Hopper Feeder**
  - 0 = Time-out STOP not active
  - 1 = Time-out STOP active

**Time-out time delay [Sec.]**

**STOP active = Feeder switches off during time out**

**Sensor monitoring active.**
If no components are detected during the time out period the feeder switches off.

**Code C 006  Air blast / Present control - Sensor input X 4.3, Output X 21**

- **On time delay**
- **Off time delay**

**Sensor function invert**
- 0 = invert

**Sensor input invert**

**On / Off time delay**
A 24V Signal will generated depending on the transported material. (X 21)
Code C 014 Sensor logic

MIN - MAX - jam

Sensor 1, X4.1
Sensor 3, X4.3

Sensor 1 and 3 working as "Min / Max control"

Sensor 1 + 3 MIN-MAX

Sensor 1 or 3

OR

Sensor 1, X4.1
Sensor 3, X4.3

Track control for Channel 1 works if Sensor 1 or Sensor 3 is active.

Sensor 1 and 3

AND

Sensor 1, X4.1
Sensor 3, X4.3

Track control for Channel 1 works if Sensor 1 and Sensor 3 is active.

2-Track outlet with Air blast

Sensor 1, X4.1
Sensor 3, X4.3

2-Track-Air blast

Valve X20, Sensor 1

Valve X21, Sensor 3

channels independent, remove internal links

The internal link: linear feeder blocks bowl feeder and Hopper feeder blocks Bowl feeder will be disabled.

Run mode

Sensor logic

Max

Min

X4.3
X4.1
X1

0
0
1

0
1
1

0
1
0

0
0
1

X4.1
X4.3
X1

0
0
0

1
0
1

0
1
0

1
1
1

X4.1
X4.3
X20
X21
X1

0
0
0
1

1
0
1
0

0
1
0
1

1
1
1
0
### Code 117 Inhibit menu access

<table>
<thead>
<tr>
<th>P[000 C[117 P]</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Hide menus</td>
</tr>
<tr>
<td>1</td>
<td>Parameter menus cannot be accessed, except the feed rate set point</td>
</tr>
<tr>
<td>2</td>
<td>Parameter menus can be accessed</td>
</tr>
<tr>
<td>3</td>
<td>Run mode</td>
</tr>
</tbody>
</table>

### Code 137 Inhibit setpoint access

<table>
<thead>
<tr>
<th>P[000 C[137 P]</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Setpoint access On</td>
</tr>
<tr>
<td>1</td>
<td>Setpoint access Off</td>
</tr>
<tr>
<td>2</td>
<td>Setpoint can be adjusted</td>
</tr>
<tr>
<td>3</td>
<td>Setpoint cannot be adjusted</td>
</tr>
<tr>
<td>4</td>
<td>Run mode</td>
</tr>
</tbody>
</table>

### Code 143 Save current parameters

<table>
<thead>
<tr>
<th>P[000 C[143 P]</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Select parameters 0 to 3</td>
</tr>
<tr>
<td>1</td>
<td>Saves up to 4 different parameters (no. 0 - 3)</td>
</tr>
<tr>
<td>2</td>
<td>Save parameter settings</td>
</tr>
<tr>
<td>3</td>
<td>All previously set parameters are saved.</td>
</tr>
<tr>
<td>4</td>
<td>Run mode</td>
</tr>
</tbody>
</table>

### Code 210 Restore parameters

<table>
<thead>
<tr>
<th>P[000 C[210 P]</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Restore factory settings</td>
</tr>
<tr>
<td>1</td>
<td>Restore factory settings</td>
</tr>
<tr>
<td>2</td>
<td>Restore parameter settings which previously stored under C 143</td>
</tr>
<tr>
<td>3</td>
<td>Restore user settings</td>
</tr>
<tr>
<td>4</td>
<td>Run mode</td>
</tr>
</tbody>
</table>
Connections:

X 0  Mains Input  Cable or coupling socket, Type Han 3+PE
X 1  Bowl Feeder  Han 3+PE
X 2  Hopper Feeder  Han 3+PE
X 3  Linear Feeder  Han 3+PE
X 4.1  Sensor 1  M 12, 4 pin.
X 4.2  Sensor 2  M 12, 4 pin.
X 4.3  Sensor 3  M 12, 4 pin.
X 6.1  Enable / Status  M 12, 4 pin.
X 20  24 V Output 1  M 12, 4 pin.
X 21  24 V Output 2  M 12, 4 pin.
X 30  Time out Track  M 12, 4 pin.
X 31  Time out Hopper  M 12, 4 pin.

Information for Connectors

X0  HA-4-K-F / 090216
X1, X2, X3  HA-4-K / 090210
X4.1, X4.2, X4.3
X6.1, X20, X21
X30, X 31  RSV-M-12-4 / 090131
Dimensions:[mm]
Service:

Key Numbers for Special Settings:

By using special 'Key' numbers the end user can be prevented from accessing functions

Hide Parameter Menus: 0117
Hide Set point: 0137

The Key numbers are independent of each other and so both keys must be used if all parameters and the set point are to be closed

Error messages

Error OU          The unit input voltage is higher than the admissible value.
The error message may also be caused by voltage peaks.
Check the line Voltage and place a step down transformer if necessary.

Error ELi.        Error messages consisting of letter abbreviations are unspecified
errors and must be communicated to the manufacturer.

Error messages may be reset either using the green key "I" or in the service menu.