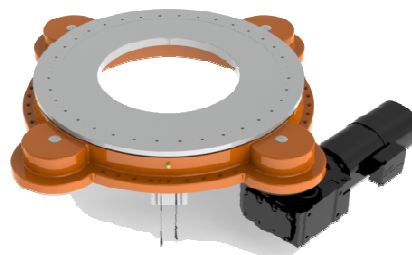
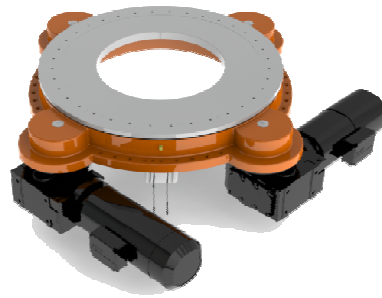


FIBROMAT

Brief interface description
**SINGLE- or TWIN- Drive
Converter**

MDX 61B xxxx-5A3-4-00



Original copy of the interface description

Without our express permission, this must not be provided to either third parties or competitors!

Subject to change without notice.

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Further information can be found in the SEW documentation.	SEW

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Descriptions

The **FIBROMAT SINGLE Drive or TWIN Drive** rotary table is driven by the **SEW MOVIDRIVE** converter.

Communication with the parent control system of the customer (PLC) takes place via fieldbus.
(PROFIBUS, DeviceNet or PROFINET, ModbusTCP, EthernetIP)

The corresponding operating modes and positions to be approached are to be selected or transferred by the external control system; check-back signals of the drive set are sent to the external control system through Profibus communication, as well.

Thanks to the communications design with an external control system, a completely free procedure can be realized in the case of FIBROMAT, regardless of whether it is with or without the index or SINGLE or TWIN Drive.

In a freely selectable order, absolute or relative positions can be approached one after the other in various directions!

SEW servomotors with a gearbox have been provided as the drive set.
A pneumatically controlled indexing unit is used to fix the defined positions into place.

In the TWIN Drive variant, two frequency converters and two motors have been provided. A master and a slave with one converter each and the respective motor operate the rotary table.
In this case, the slave is used to support the moving and positioning procedures.

Motor and gearbox:

KF77/R DRL.....BE5/TF/AS7W (for a precise explanation, see the technical description of the rotary table documentation)
Ratio: e.g. 64.75:1 (for a precise explanation, see the technical description of the rotary table documentation)
Holding brake: 400-460VAC
Thermal sensor connected to the converter
Absolute encoder SEW Multiturn

Rotary table

Ratio: (for a precise explanation, see the technical description of the rotary table documentation)

Indexing unit

Pneumatic cylinder with two integrated end position monitors, 24VDC, PNP
Pneumatic valve with two separate coils for actuation, 24VDC

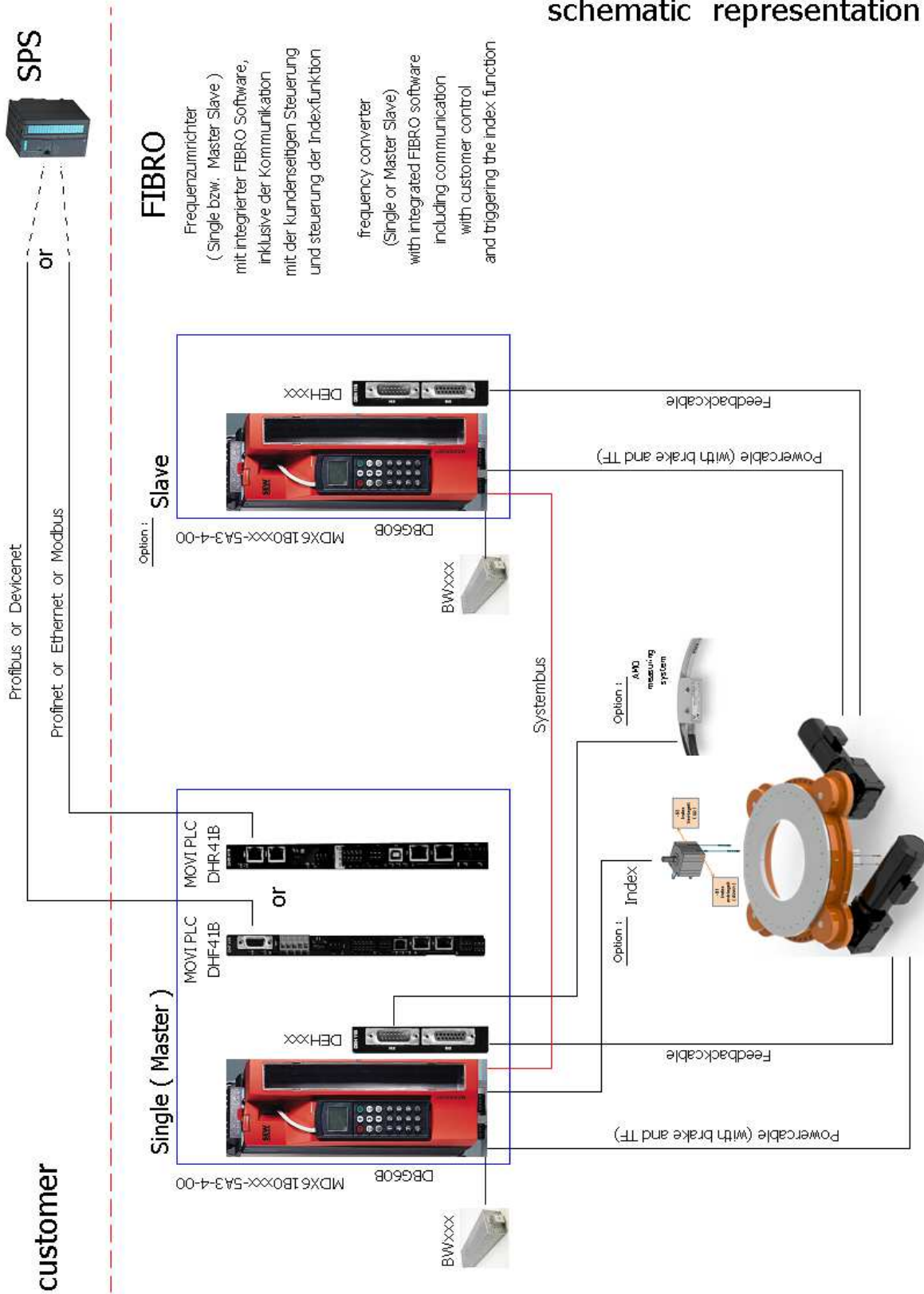
Converter

MDX61B xxxx-5A3-4-00 (for a precise explanation, see the technical description of the rotary table documentation)
With sensor card DEH11B for the connection of the absolute encoder
and control card DHF41B or control card DHR41B with Fieldbus interface for connection to the external control system

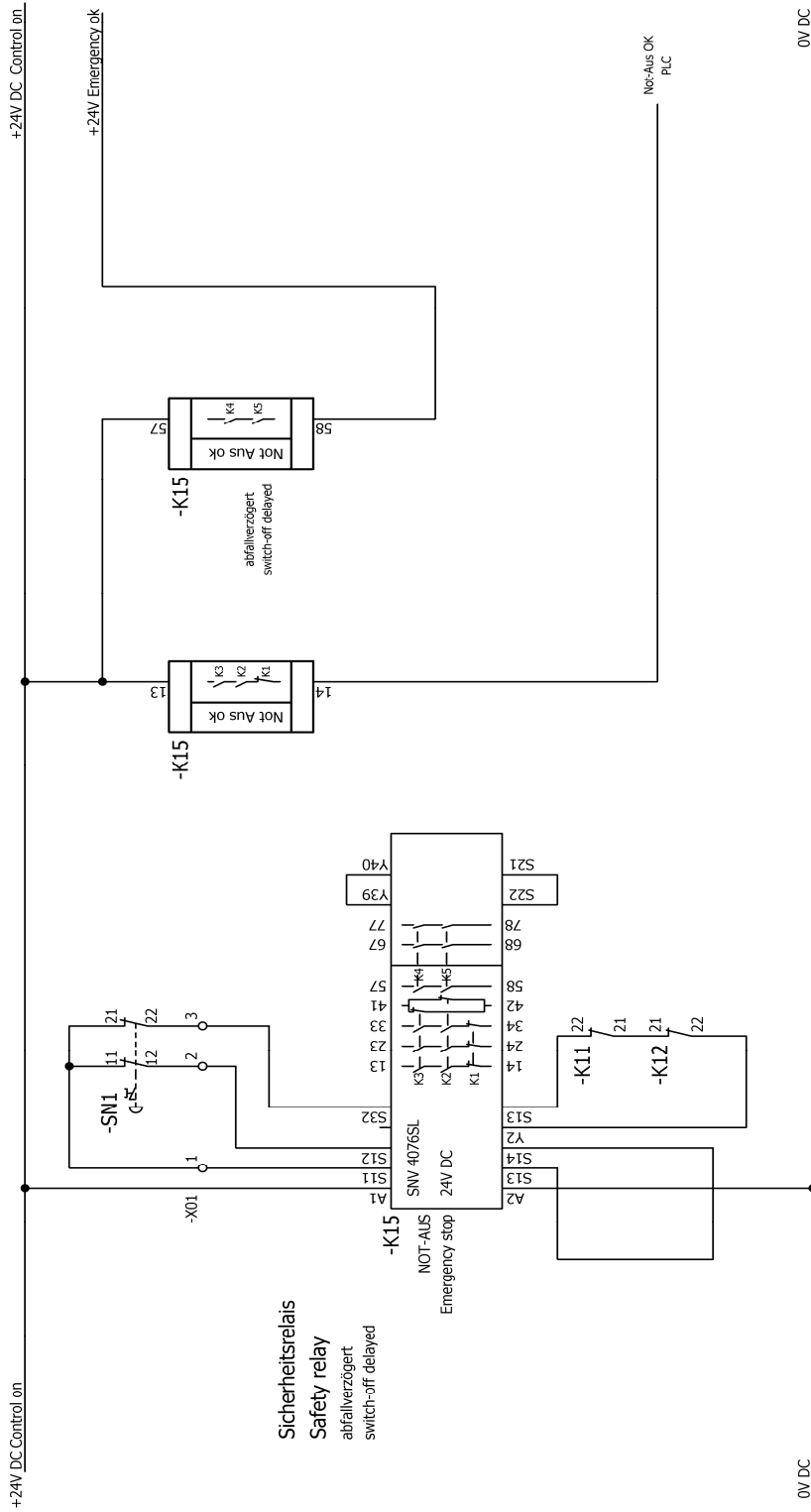
Converter FIBROMAT , technical information , delivery

<i>Voltage</i>	3x 380V AC -10% -- 3x 500V AC +10% 50/60Hz			
<i>FIBROMAT</i>	AT.0800	AT.1000	AT.1250	AT.1600
<i>FIBRO article</i>	4-957-044-xxxx	4-958-044-xxxx	4-959-044-xxxx	4-960-044-xxxx
<i>Typ MDX61B</i>	-0055-5A3-4-00	-0075-5A3-4-00	-0110-5A3-4-00	-0220-503-4-00
<i>power</i>	5,5 KW	7,5 KW	11,0 KW	22,0 KW
<i>size in mm B x H x T</i>	105 x 335 x 294	105 x 335 x 294	135 x 315 x 285	200 x 465 x 308
<i>Brake resistor</i>	BW147	BW147	BW039-026	BW018-035
<i>size in mm L x H x T</i>	465 x 120 x 185	465 x 120 x 185	649 x 120 x 275	295 x 270 x 490
<i>Network filter</i>	/	/	/	NF048-503
<i>size in mm L x H x T</i>	/	/	/	315 x 100 x 60
<i>operating unit</i>	DBG60B-01	DBG60B-01	DBG60B-01	DBG60B-01
<i>encoder interface</i>	DEH11B	DEH11B	DEH11B	DEH11B
<i>Controller Profibus or Controller Profinet</i>	DHF41B	DHF41B	DHF41B	DHF41B
	DHR41B	DHR41B	DHR41B	DHR41B

schematic representation



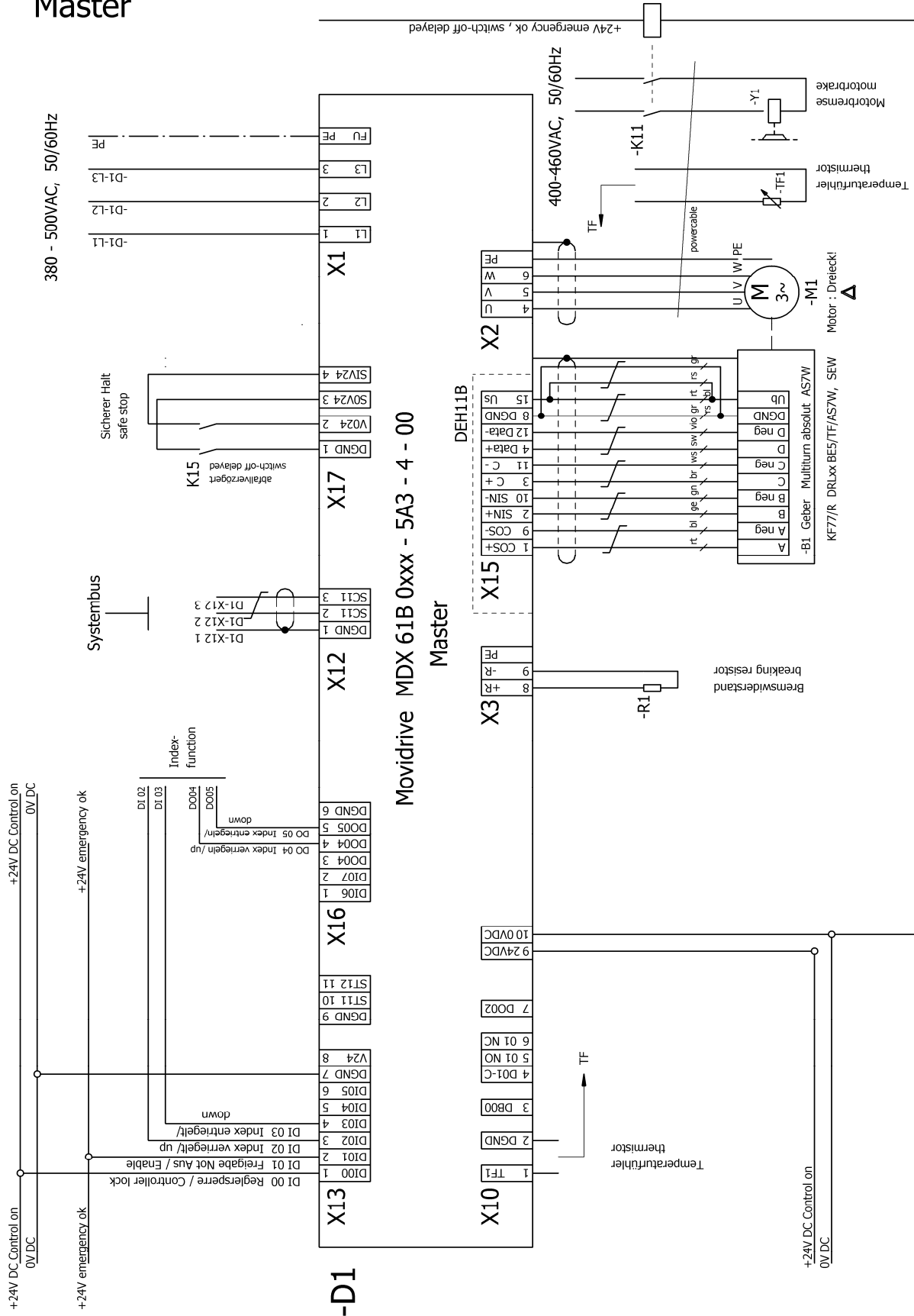
Circuit diagrams



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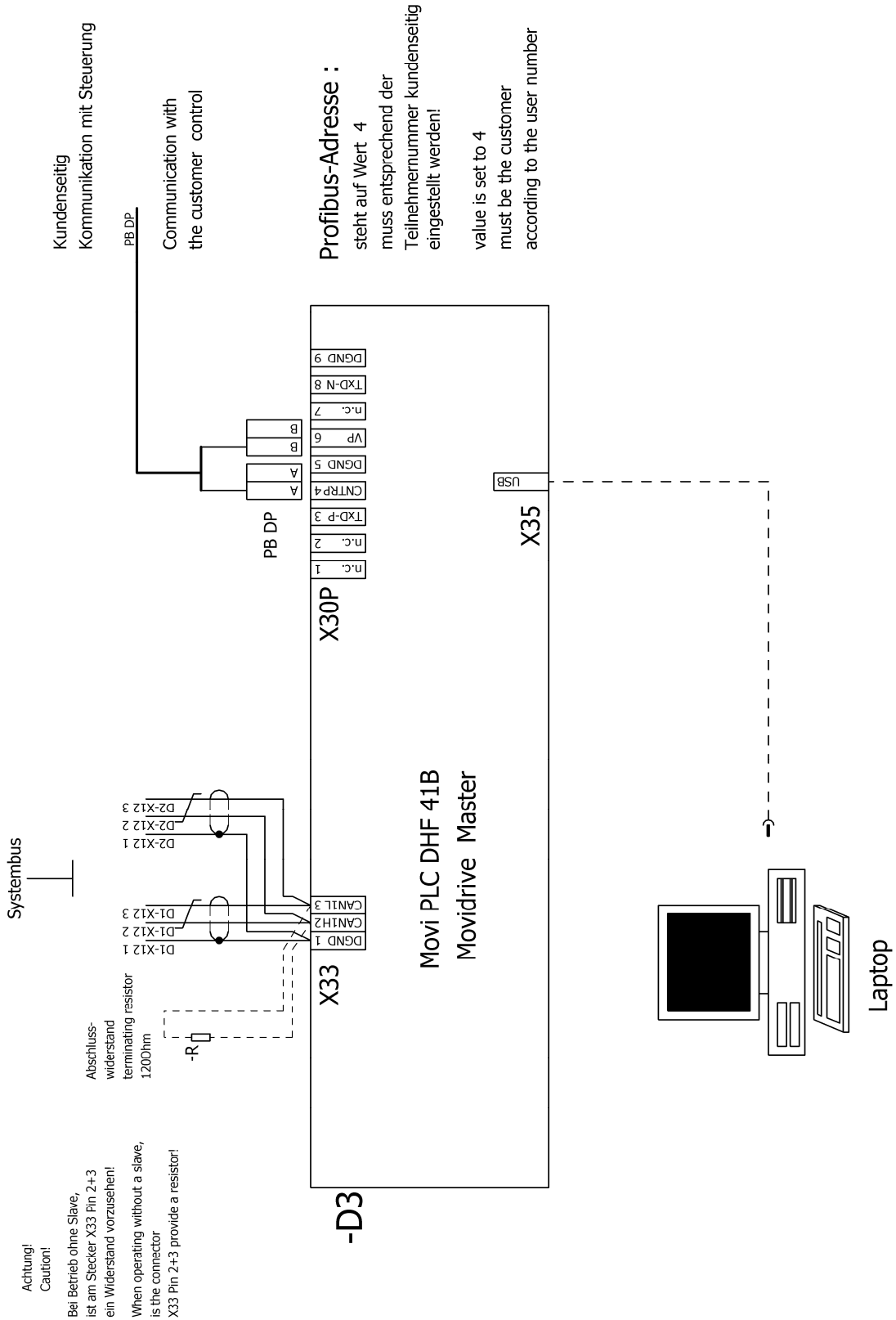
Master



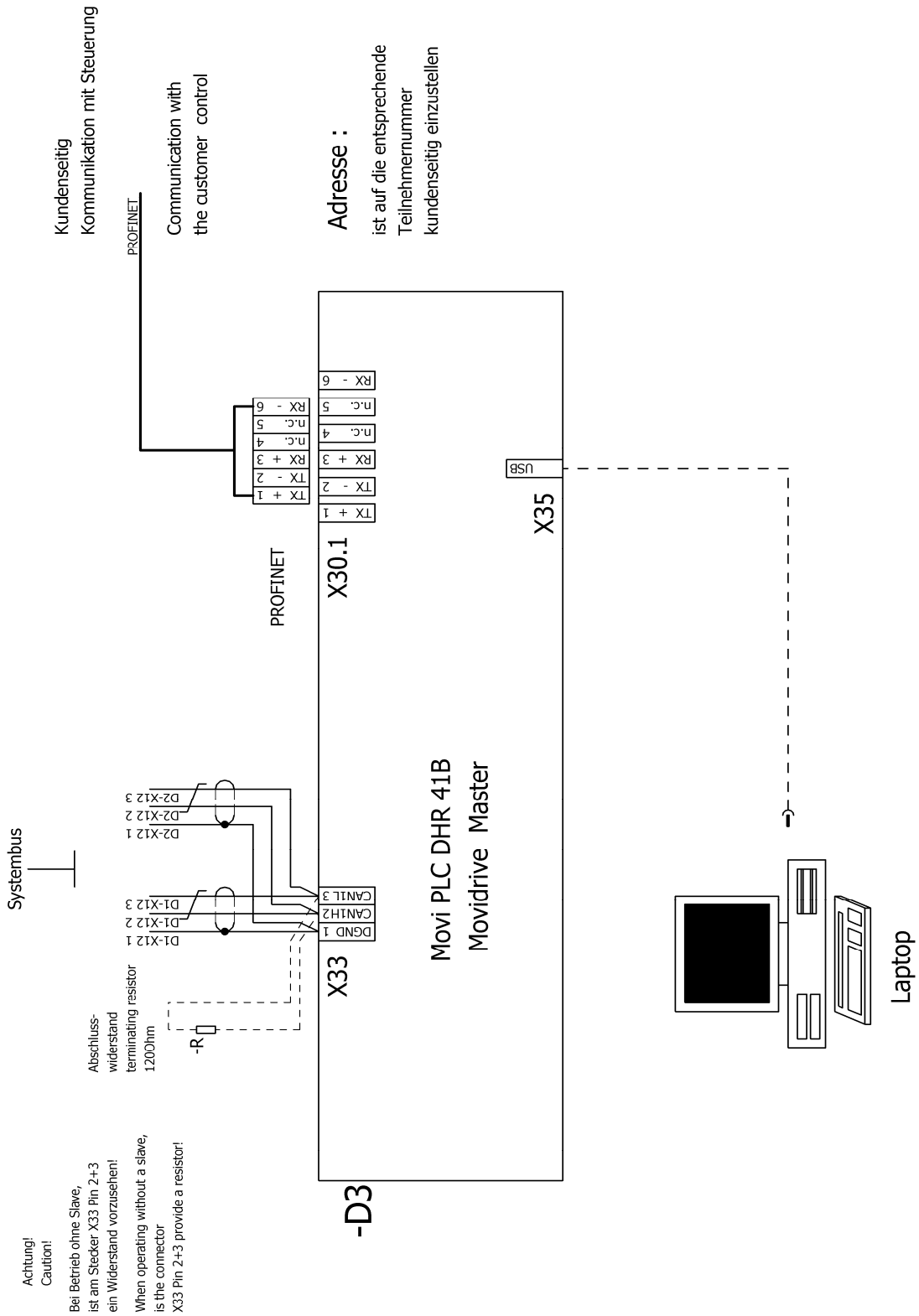
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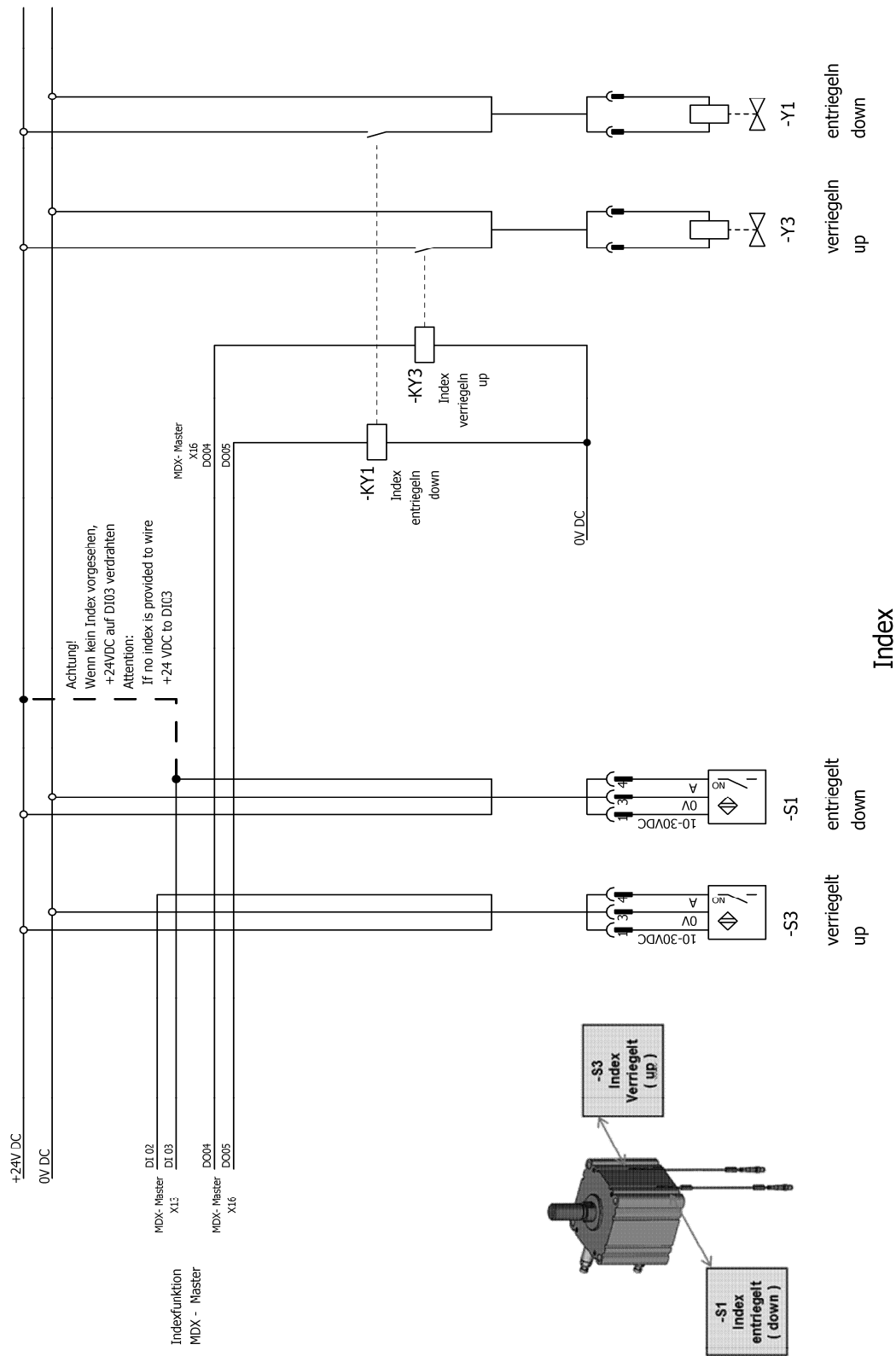
Movi PLC : Profibus or Devicenet



Movi PLC : Profinet or Ethernet or Modbus



Option Index



Caution!!!

The converter and rotary table are adjusted and commissioned together according to the technical data.

There are no customer side changes to the parameters necessary!!!

Delivery FIBRO :

- **Frequency inverter with Movi PLC, control panel, encoder card**
- **Braking resistor**
- **Feedbackcable (standard lengt 5m)**

Drive and rotary table are in the house FIBRO with PROFIBUS or PROFINET communication commissioning by.

DeviceNet, Modbus TCP, EtherNet communication is by the customer according to the SEW settings DHF41B or DHR41B perform

Using the following description of functions, operating modes, and circuit diagrams, actuation can take place without a problem!

In the various operating modes, speed, ramps, and shock limitation should be given preference.

This information is calculated especially for each application and can be found in the technical data of the rotary table specification of FIBRO.

This data absolutely may not be exceeded!

Index function

The index is used to fix the defined positions precisely.

The index can be selected or deselected as required.

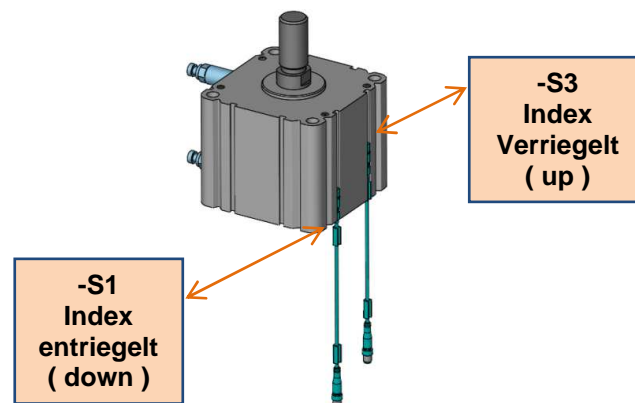
The limit switches and valves of the index function are connected to the converter (master) and accordingly controlled.

If a move command is present, the index will be actuated first. If the index bolt is down, the rotary table turns into the set position.

Once it arrives in this position, the index will be moved up again and the rotary table is fixed into place.

The positions are queried with initiators and pneumatic valves are provided for actuation.

As required, the index function can also be deselected.



The index is controlled by the inverter (master). Accordingly, limit switches and valves must be wired strictly to inputs and outputs of the inverter!!!

Attention!

Ensure, when the selection of the pneumatic valves that the outputs DO04 DO05 of the inverter and max. **50mA** to switch.

Optionally, the valves are about coupling relays or equivalent to switch valve amp

If FIBROMAT is driven without an index, it must be deselected in the software.

(control word PA1 Bit 3)

Input DI03, index down, must be assigned with +24VDC in this case!

Operating modes

The following functions and operating modes can or must be selected and run by the PLC:

- **Controller lock**
Release of the software controller lock
- **Enable/drive stop**
Software enable of the axes, stop in case of emergency stop
- **Jog mode**
Free movement of the axis, for the setting of the positions
- **Reference point run (setting)**
Dimensional reference between the rotary table and the measuring system of the master
- **Automatic absolute cw**
Clockwise approach of the absolute position
- **Automatic absolute ccw**
Counterclockwise approach of the absolute position
- **Automatic cycle (relative) cw**
Clockwise approach of the relative position
- **Automatic cycle (relative) ccw**
Counterclockwise approach of the relative position

The selection and running of the operating modes take place through control word PA1.
The corresponding preselection can be found under the "Communication" section!

For cyclic communication between the converter and external control system, the MOVIDRIVE Modulo Positioning manual of SEW Eurodrive must be observed!

Communication of ext. control system (PLC) - converter

The frequency converters are operated on the basis of the SEW Modulo function, whilst communication is realised via **fieldbus**.

The defined process data (control and status words in **fieldbus**) are used for data exchange between the frequency converter and external control system. **Eight words** each are exchanged.

Control words are used for the actuation of functions by the external control system.

Status words show the status of the converter.

For signal exchange between the converter and external control system, the MOVIDRIVE Modulo Positioning manual of SEW Eurodrive must be observed!

The actuation and voltage supply of the terminal strips on the converters can be seen in the electrical diagrams!

Process data assignment of Fieldbus:

PA1 =	Control word	PE1 =	Status word of master
PA1 =	Target position	PE2 =	Actual position
PA3 =	Target position	PE3 =	Actual position
PA4 =	Set velocity	PE4 =	Actual velocity
PA5 =	Acceleration ramp	PE5 =	
PA6 =	Brake ramp	PE6 =	Status word of slave
PA7 =		PE7 =	
PA8 =	Shock limitation	PE8 =	I / O Index function

Control word PA1 :

Bit 0 :	Controller lock
Bit 1 :	Quick stop
Bit 2 :	Stop
Bit 3 :	Index active
Bit 4 :	Raise index
Bit 5 :	Lower index
Bit 6 :	Fault reset
Bit 7 :	
Bit 8 :	Start
Bit 9 :	Jog +
Bit 10 :	Jog -
Bit 11 :	Operating mode 2/0
Bit 12 :	Operating mode 2/1
Bit 13 :	Operating mode 2/2
Bit 14 :	
Bit 15 :	

Status word PE1 / PE6 :

Bit 0 :	Motor running	
Bit 1 :	Converter BB	Converter BB
Bit 2 :	Drive referenced	
Bit 3 :	Target position reached	
Bit 4 :	Brake released	Brake released
Bit 5 :	Fault	Fault
Bit 6 :		
Bit 7 :		
Bit 8 :	Status/errorcode Inverter BCD	
Bit 9 :	Status/errorcode Inverter BCD	
Bit 10 :	Status/errorcode Inverter BCD	
Bit 11 :	Status/errorcode Inverter BCD	
Bit 12 :	Status/errorcode Inverter BCD	
Bit 13 :	Status/errorcode Inverter BCD	
Bit 14 :	Status/errorcode Inverter BCD	
Bit 15 :	Status/errorcode Inverter BCD	

Statuswort PE8 :

Bit 0 :	Index lifted (NI)
Bit 1 :	Index lowered (NI)
Bit 2 :	Index lift (Output)
Bit 3 :	Index loweren (Output)

Process data assignment of Fieldbus:

Control word PA2 :

Control word PA3 :

Target position : Value in degrees/100 (absolut 1 - 36000 degrees/100)
(cycle 1 - xxxxx degrees/100)

Control word PA4 :

Set velocity : Value in degrees/min (1 - xxxx degrees/min)
(for a precise explanation, see the technical specification of the rotary table documentation)

Control word PA5 :

Control word PA6 :

Acceleration

Brake ramp : Value in degrees/min/sec (1 - xxxx degrees/min/sec)
(for a precise explanation, see the technical specification of the rotary table documentation)

Control word PA7 :

Control word PA8 :

Shock limitation : Value in degrees/min/sec² (0 - xxxx degrees/min/sec²)
0 = off

(for a precise explanation, see the technical specification of the rotary table documentation)

Caution!

Control word PA2, control word PA3:

For higher position settings, **automatic cycle** (relative movement), e.g. by **720°** (table rotates twice), the values is to be loaded as a data double word in **control word PA2!**

Control word PA6 :

In case of an emergency stop or failure of the enable, the axis is positioned at the last active brake ramp at standstill.

If the rotary table should be stopped faster, a corresponding ramp can also be set in this case.

Caution!

The technical data provided by FIBRO may not be exceeded.

Reference point and positions

Reference point:

To always have a defined reference between the control system, converter, and FIBROMAT rotary table, it is absolutely necessary to define a reference point and save it in the converter.

Marks that can help determine the reference point have been applied to the rotary table housing and table top. The following procedure makes sense:

FIBROMAT with index

Position the table top in jog mode at slow speed and at a corresponding ramp in such a way that the marks overlap precisely.

Raise or lower the index again and correct the position of the table top if necessary.

If no movement of the table top is detected during the raising of the index, the reference point can be set.

FIBROMAT without index

Position the table top in jog mode at slow speed and at a corresponding ramp in such a way that the marks overlap precisely.

The reference point can now be set.

The reference between the converter and rotary table is now established and remains saved.

During the exchange of the motor or converter, the reference must be reset!

Positions:

Now the various positions that should be approached with FIBROMAT according to the respective procedure can be determined.

FIBROMAT with index

Position the table top at the index in jog mode at slow speed and at a corresponding ramp.

Raise or lower the index again and correct the position of the table top if necessary.

If no movement of the table top is detected during the raising of the index, the position value can be assumed in the external control system.

FIBROMAT without index

Position the table top in jog mode at slow speed and at a corresponding ramp.

If this position is mechanically okay, the position value can be assumed in the external control system.

The determined positions can be seen in status words PE2 and 3. These values can be assumed in the external control system.

With the automatic operating modes, these values are transferred to the converter and the corresponding positions are approached.