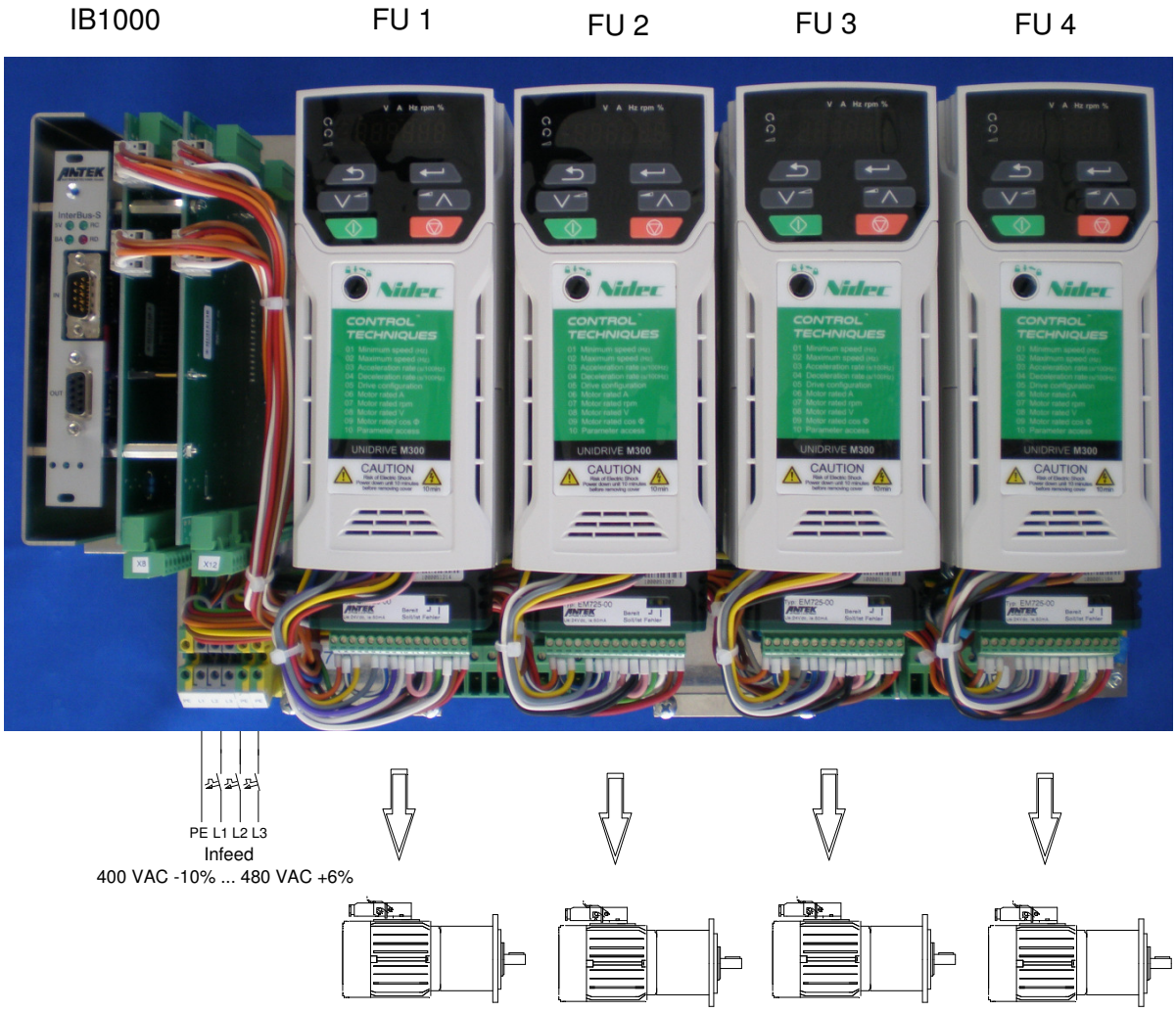
Retrofit mounting plate EP4M300-10(-20)

Duktor drive for 4 Units 1500min^{-1}(3000min^{-1})
Replacement for installation rack EP4FU3AM-10(-20)
Replacement for installation ER514-4-00



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Technical Description	Retrofit EP4M300-10(-20)
Document	M0022DE
Version	09/18

Content:

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1. Retrofit mounting plate EP4M300-10(-20)

1.1 Specification

General:

The Retrofit mounting plate contains all components for the replacement of the installation rack EP4FU3AM-10(-20), ER514-4-00, such as the controller M300 with EM725 and the Interbus module IB1000. The mains connection and the pluggable motor connections are easily accessible.
The control connections are pin-compatible, running on the corresponding terminals on the adapter board A519.
An easy replacement of the previous units is ensured.
Information regarding the regulator M300 please refer to the separate description.

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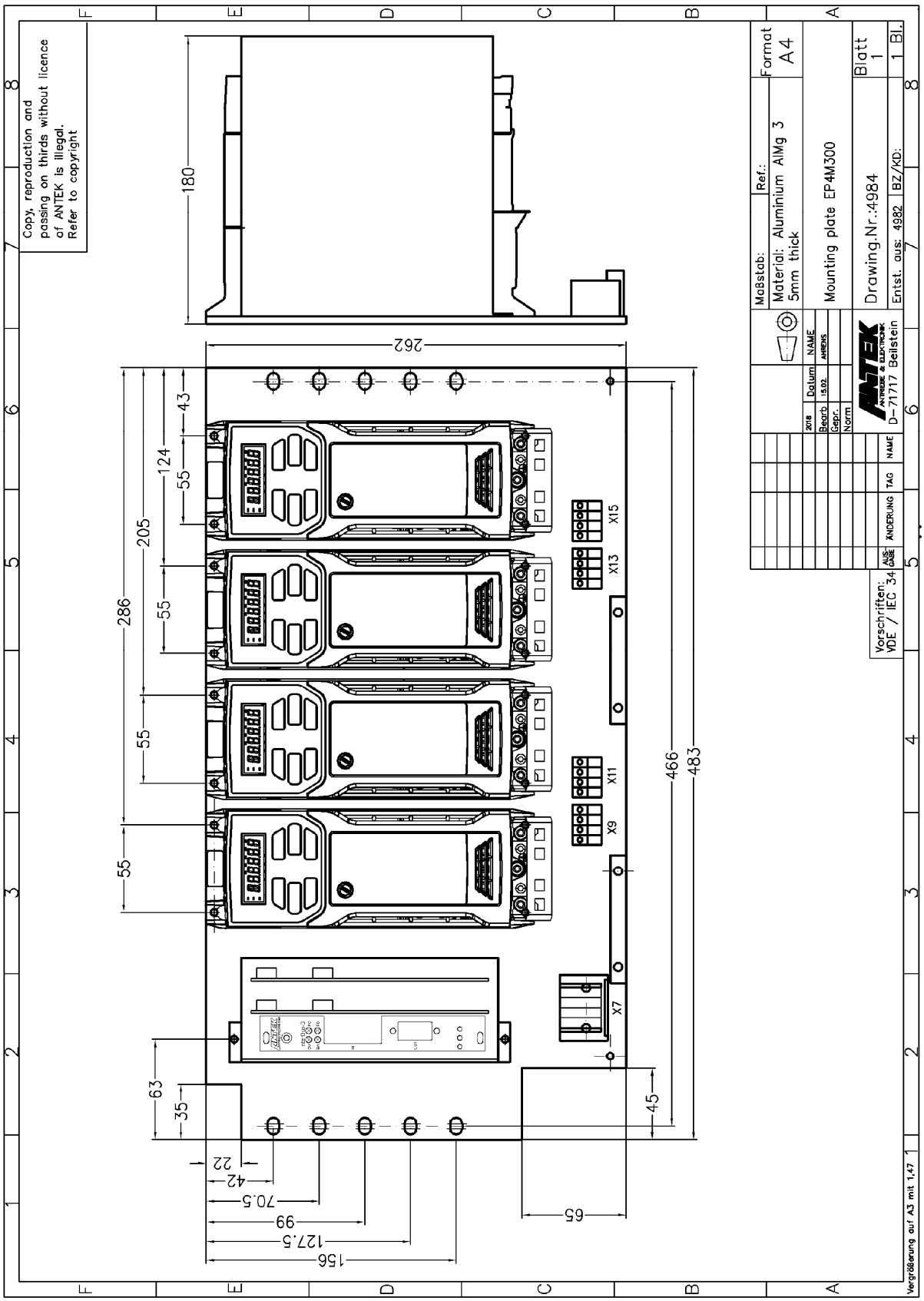
Technical Design:

Nominal terminal voltage:	3x 400 VAC -10% ... 480 VAC +6%, 50/60Hz
Nominal terminal current:	12 AAC
Fuses:	external ABB, S283-Z20 (UL specification)
Attention!:	**After the main voltage has been shut down, wait 30 s before the device is switched on again.**

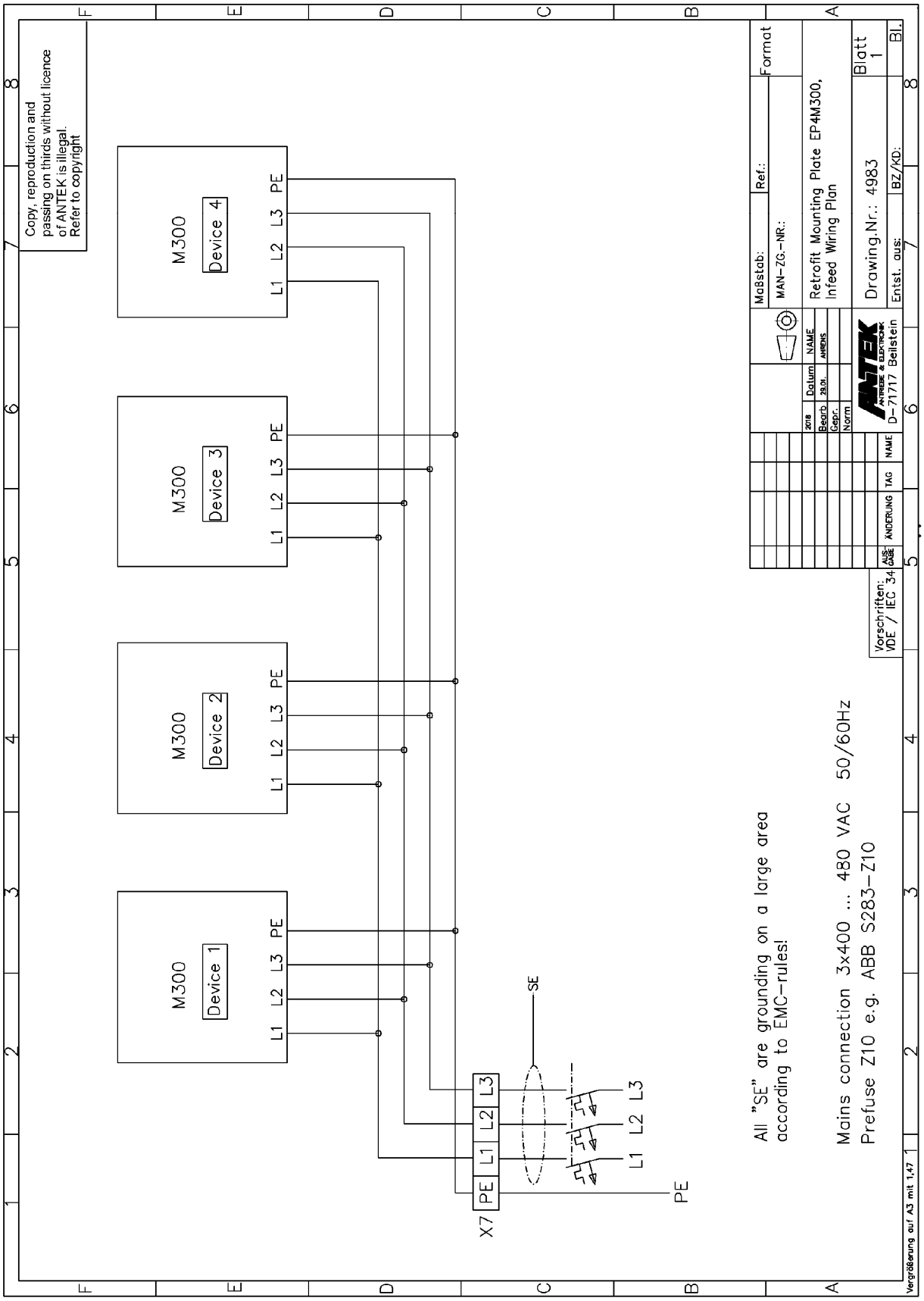
<u>Voltage supply</u>

24V Interbus	24 VDC ± 20% Current consumption approx. 250 mA External fuses
24V-G (Devices)	24 VDC ± 20% Current consumption approx ca. 1,6 A, External fuses
24V-EFS (Motion Monitoring System)	24 VDC ± 20% Current consumption approx. 260 mA External fuses
24V-L (Fan)	omitted
Construction	4 Frequency converter M300-06-03 (EP4M300-10) incl. EM725-00 or 4 Frequency converter M300-06-04 (EP4M300-20) incl. EM725-00 1 Interbus module IB1000-02
Weight	8,5 kg
Control terminals	plug-in terminals (terminal width 0.25-1.5mm²)
Power terminals	plug-in terminals (terminal width 0.5-2.5mm²)
Specification	DIN 57110b EN 60204 EN 55011 Class B
Motor connections	the stated technical specifications are valid for cable lengths of up to 100 m when LAPPKABEL ÖLFLEX-190CY cable is used and proper EMC installation precautions are observed.

1.2 Drawing, Retrofit Mounting Plate EP4M300, Drawing -No. 4984



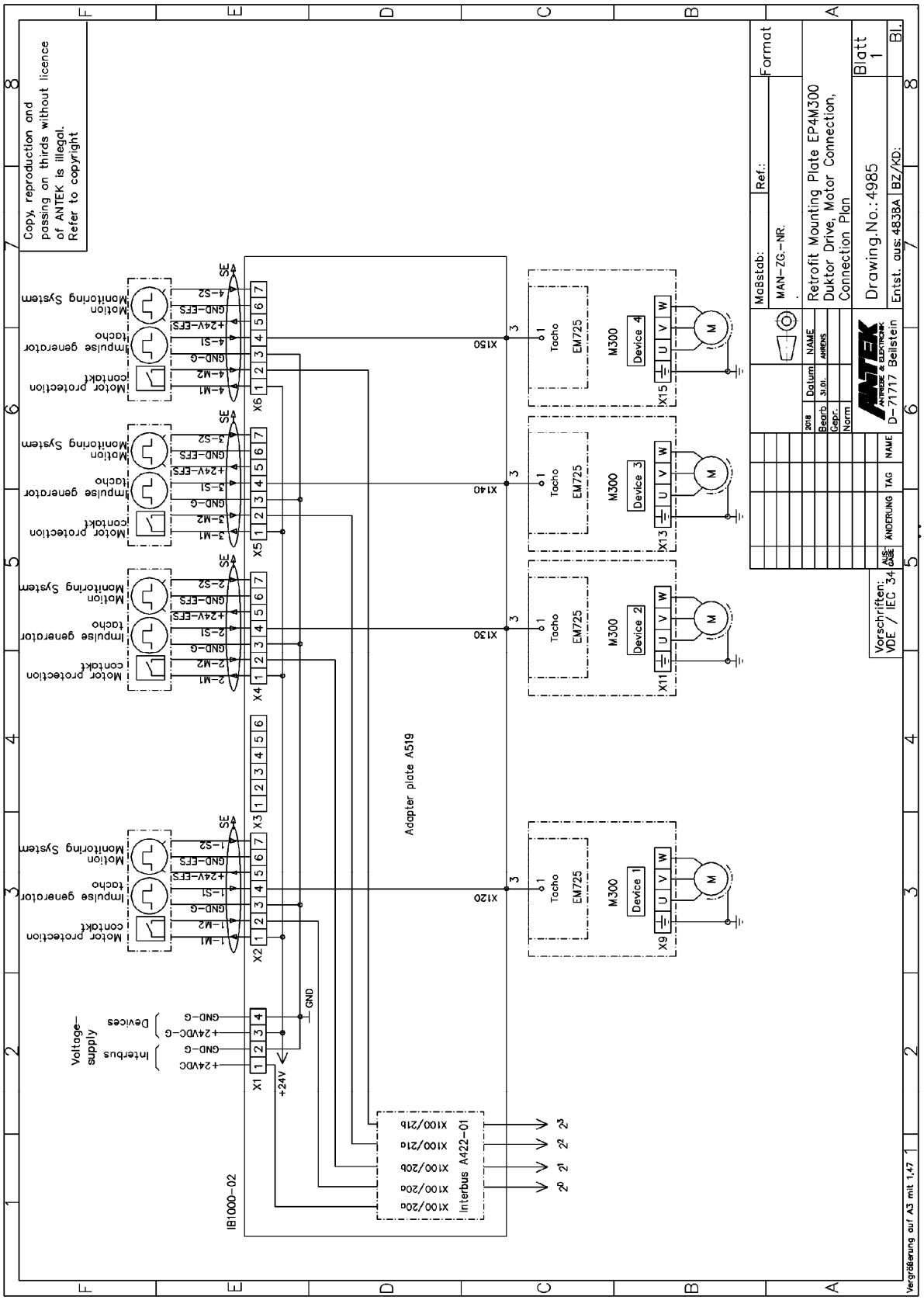
1.3 Wiring Plan, Retrofit Mounting Plate EP4M300 Infeed, Drawing -No. 4983



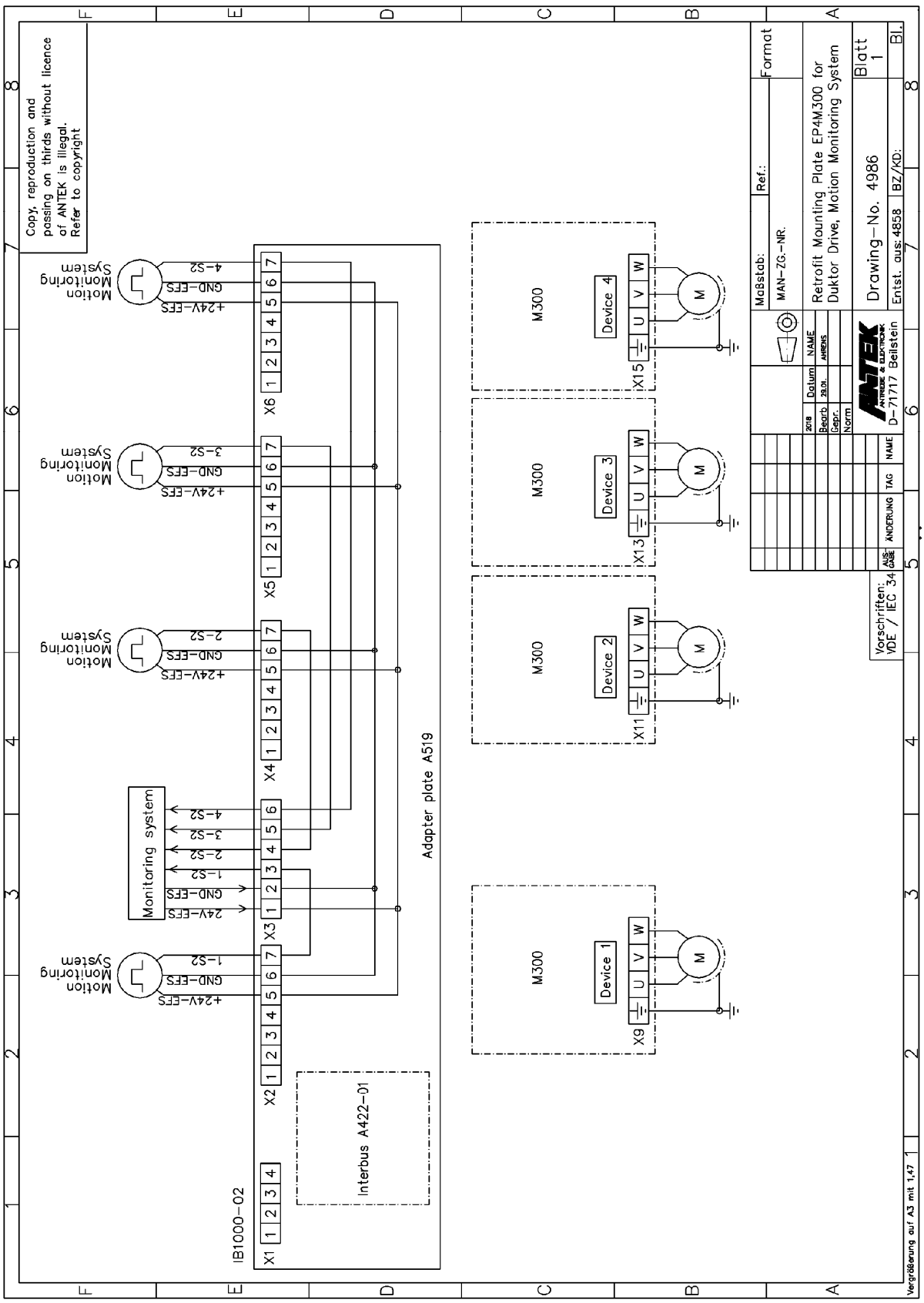
Terminal side: X7, X8, X9, X10, X11, X12, X13, X14 and X15

and connections X1, X2, X3, X4, X5 and X6

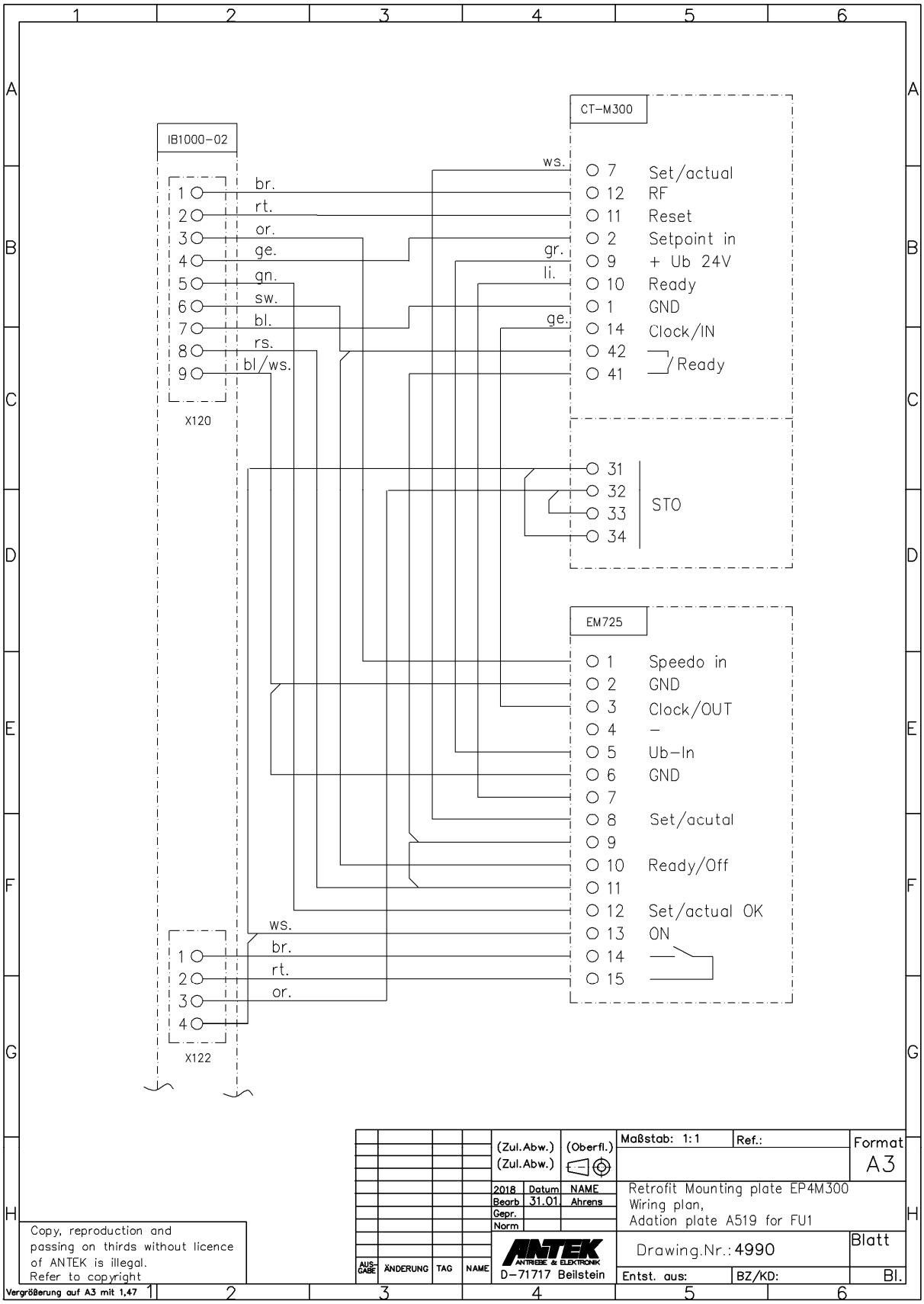
1.4 Connection Plan, Retrofit Mounting Plate EP4M300 Duktor Drive, Motor Connection, Drawing-No. 4985



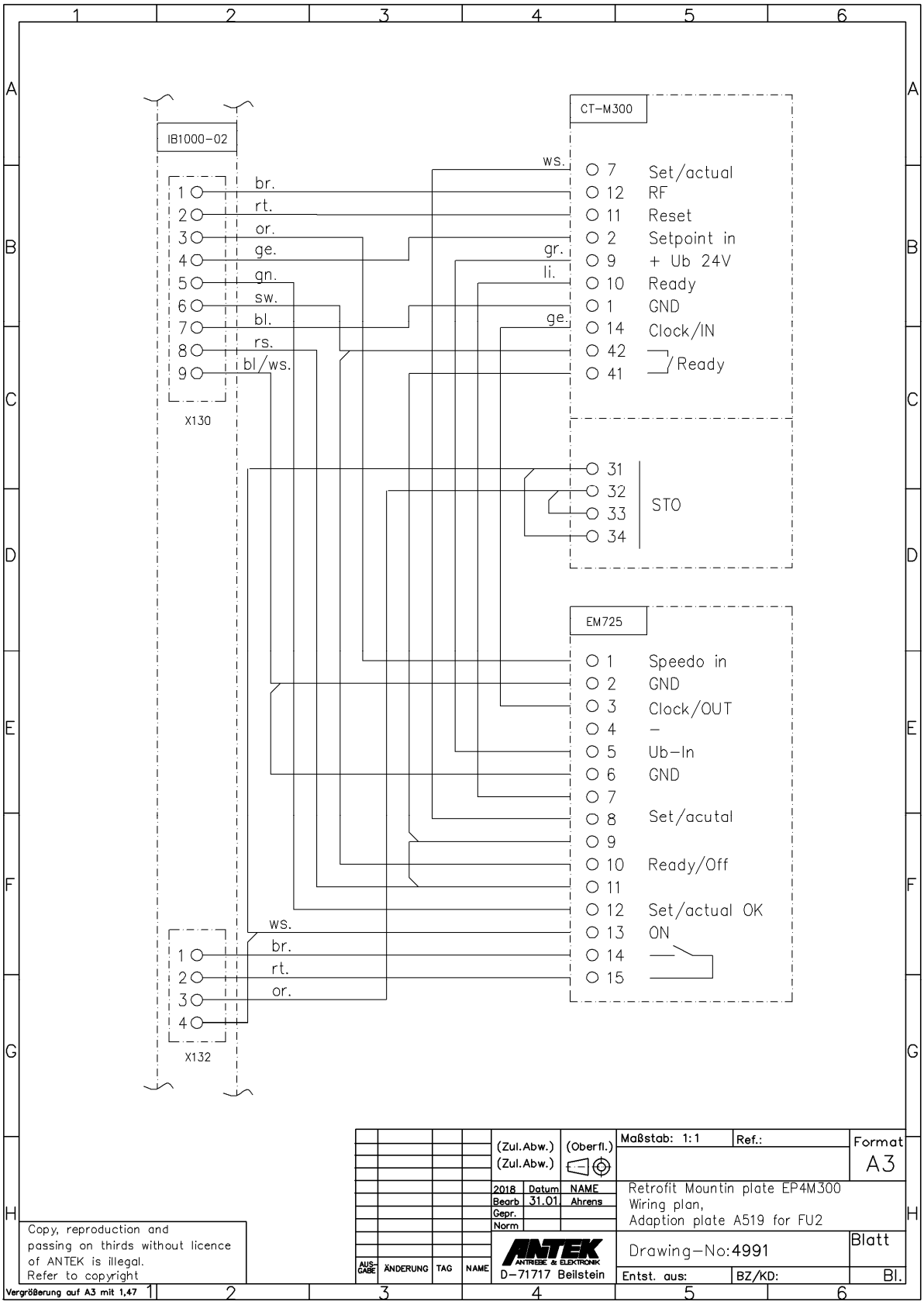
1.5 Retrofit Mounting Plate EP4M300 for Duktor Drive, Motion Monitoring System, Drawing-No. 4986



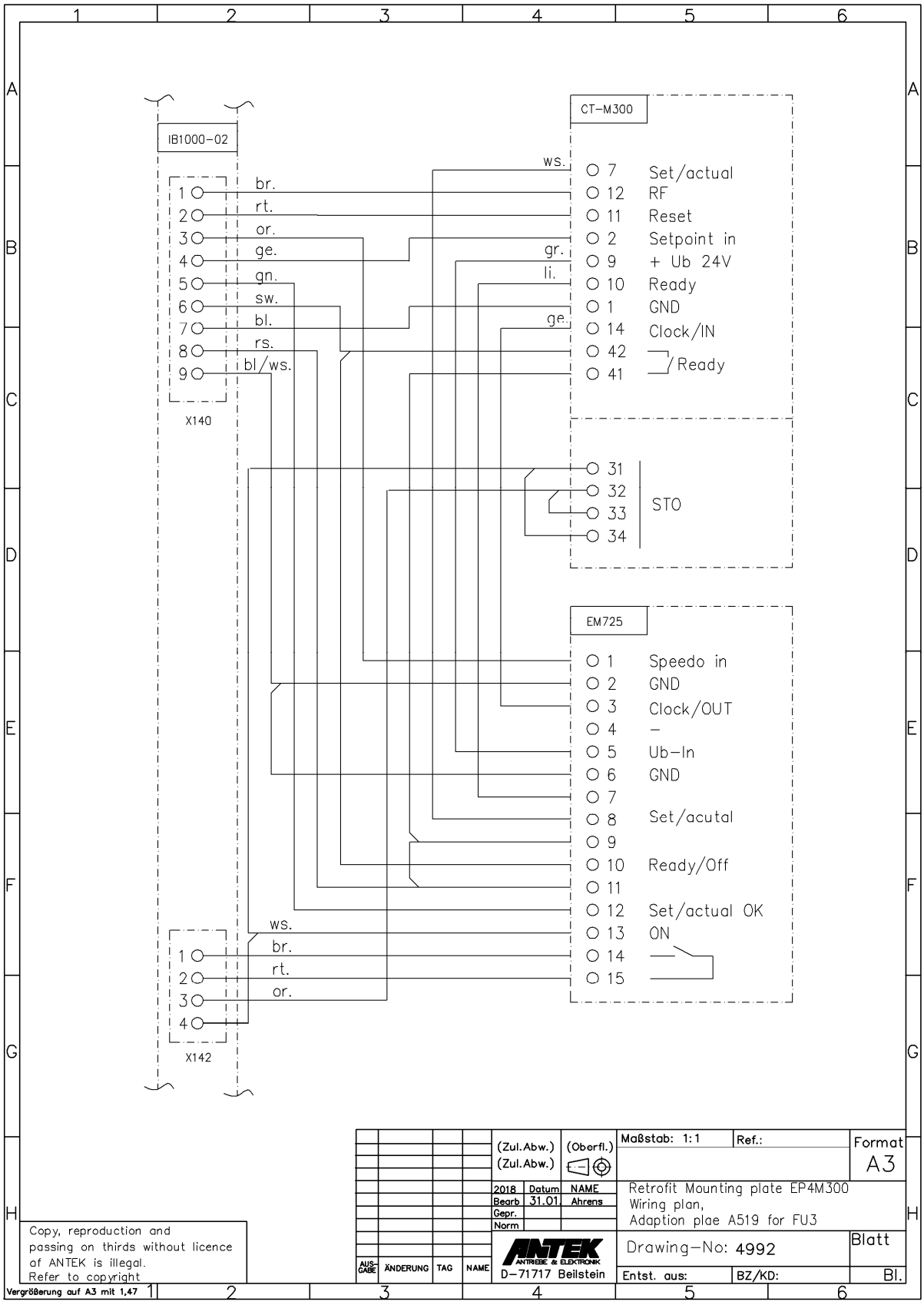
1.6 Retrofit Mounting Plate EP4M300, Wiring Plan, Adaption Plate A519 for FU1 Drawing-No. 4990



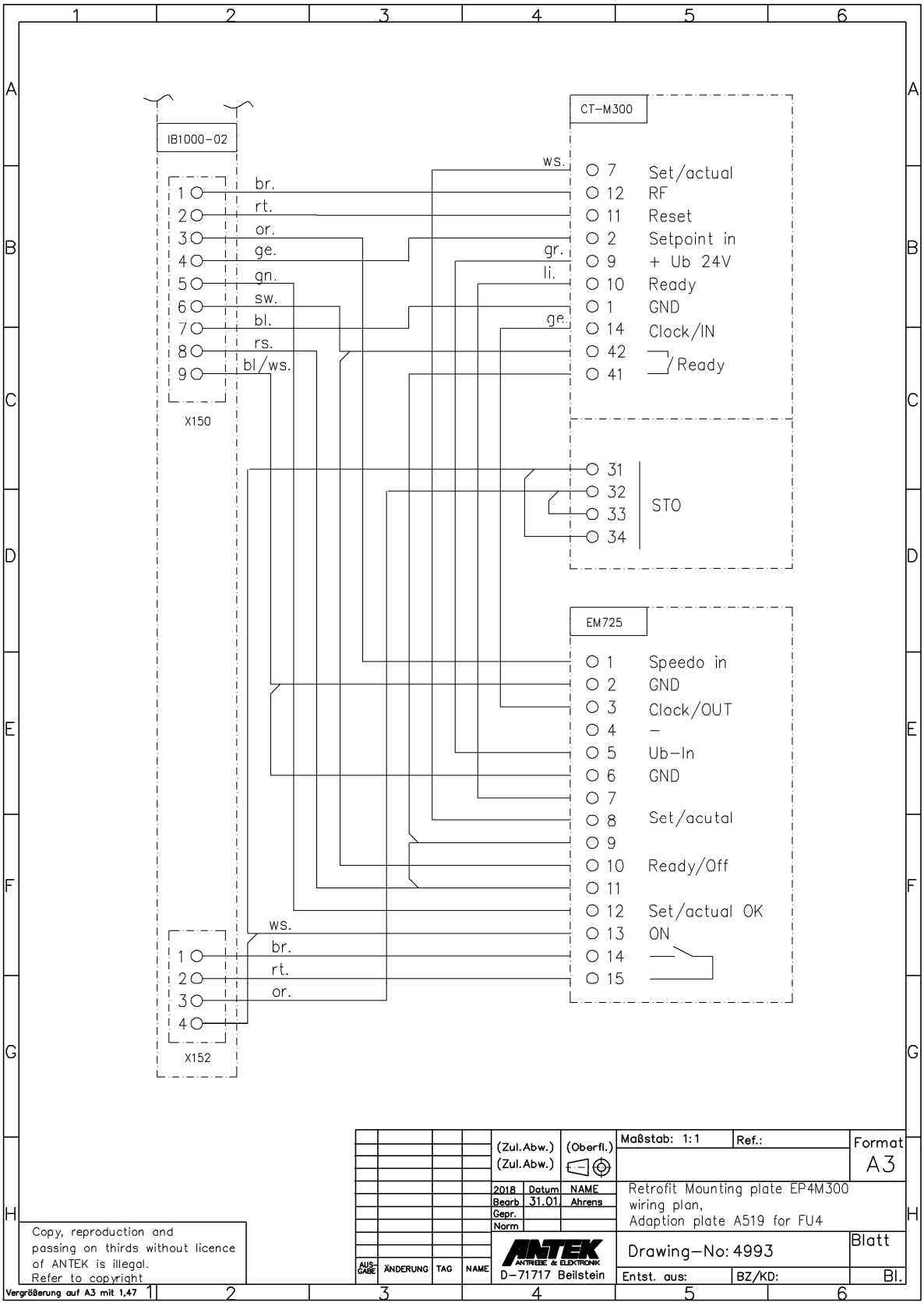
1.7 Retrofit Mounting Plate EP4M300, Wiring Plan, Adaption Plate A519 for FU2 Drawing-No -Nr. 4991



1.8 Retrofit Mounting Plate EP4M300, Wiring Plan, Adaption Plate A519 for FU3 Drawing-No. 4992



1.9 Retrofit Mounting Plate EP4M300, Wiring Plan, Adaption Plate A519 for FU4, Drawing-No. 4993



2. Retrofit EP4M300 Parameter set

2.1 P4M300-10

This device description is supplied with the parameter set for 1500rpm.
In this connection the following frequency inverters are installed:
M300-06-03 with Parameter set **1500 min^{-1}**, analogue control

2.2 EP4M300-20

This device description is supplied with the parameter set for 3000rpm.
In this connection the following frequency inverters are installed:
M300-06-04 with Parameter set **3000 min^{-1}**, analogue control

3. Controller M300 Operation and software structure

This chapter lists the user interfaces, menu structure, and safety levels of the drive.
(See also step by step instructions page 7, "step 10")

3.1 The Display

The control unit is firmly attached to the inverter. This will provide the user with information about the inverter operating status, alarms and shutdown codes. It also offers the possibility to change parameters, to operate and reset the inverter.

Note:
The red stop button is also used to reset the inverter in case of error! (RESET)

3.2 Operating unit

The display of the operating unit consists of a text line. Status information is displayed here.

Display	Description	Output stage of the inverter
inh	The inverter is disabled and can not be operated. The Drive Enable signal is not active.	disabled
rdy	**The drive is ready to run. The drive enable is active, but the drive inverter is not active because the final drive run is not active.**	**disabled**
StoP	The drive is stopped, holding zero speed.	enabled
Er. xxxx	A fault trip of the inverter has been triggered so that the motor is no longer controlled by the inverter. The error code is shown flashing on the display.	disabled
UV	The inverter is in the Undervoltage state	disabled
0-3000	The inverter runs and regulates the speed according to the specification.	enabled

3.3 Fault message

The display of the operating unit shows an error on this consists of a text line. Status information is displayed here.

Display	Description	
Er. UU	Under voltage converter	
Er. OVLd	Motor overload	
Er. IO AC	Overcurrent on the converter.	
Er. SOft	Software error	
Er. OU	Overvoltage converter	

To clear a fault, proceed as follows:

1. Turn off the inverter with controller enable, this goes e.g. on the contactor input.
   Then start the drive again externally. Message in the display (inh)
   The ready signal shows OK again.

2. Press the red reset button 2x. The drive restarts immediately, if the release is still pending, the ready signal shows OK again.
   Message in display (speed value).

3. When the controller enable is off, press the Red reset button 1x and the converter will report ready. Then restart enable. Message in the display (rdy).
   The ready signal shows OK again.

3.4 The Display:

The direction of rotation and the speed are displayed

With the key "ESC"
the display changes
on the utilization in%

utilization in %

red stop button(RESET)

4. EM725 Level converter, target / actual comparison

4.1 The electronics module EM725

The module indicates an internal ready message of the inverter, as long as the inverter is under voltage.

Similarly, the display of the set point / actual monitoring is displayed here if it is no longer complied to - error target / actual.

In the module, the required signals for the Ductor motor are processed and transferred to the converter. The module is plugged into slot 1 of the drive and is only available in combination with the drive M300-06-03 /-06-04.

5. InterBus Module Type IB1000-02

Consisting of: InterBus A422-01 and Adapter boards A519-03 and A519-04
Mounted on: bracket

5.1 InterBus-S remote bus A422

Short description:

The use of InterBus-S components allows for a uniform communication structure with considerably reduced wiring expenditure.
The compact remote bus on the A422 is matching in function and design to the ANTEK product range.

Technical Data:

Remote bus in 2-contuctor technology
16 Bit Input- peripheral coupling
ID-Code 3

Input voltage:	24 VDC ±20%
Input current:	ca. 250 mA
Fuse:	1 A
analogue output:	4
digital output:	6
digital input:	16
Connection:	50 pol. / 3pol. Pin-strip
Protection:	IP 00
Dimension:	100x160mm

Function assignment:

Control input

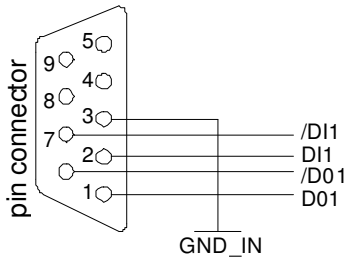
2^{15}	Analogue value Bit 7 = MSB
2^{14}	Analogue value Bit 6
2^{13}	Analogue value Bit 5
2^{12}	Analogue value Bit 4
2^{11}	Analogue value Bit 3
2^{10}	Analogue value Bit 2
2^{9}	Analogue value Bit 1
2^{8}	Analogue value Bit 0 = LSB
2^{7}	\ Selection: 00 = FU1, 01 = FU2
2^{6}	/ 10 = FU3, 11 = FU4
2^{5}	Reset - Fault
2^{4}	Regulator release FU1
2^{3}	Regulator release FU2
2^{2}	Regulator release FU3
2^{1}	Regulator release FU4
2^{0}	

Monitoring output

2^{15}	Ready FU4
2^{14}	Ready FU3
2^{13}	Ready FU2
2^{12}	Ready FU1
2^{11}	Set-actual FU4
2^{10}	Set-actual FU3
2^{9}	Set-actual FU2
2^{8}	Set-actual FU1
2^{7}	
2^{6}	
2^{5}	
2^{4}	
2^{3}	Motor protection contact FU4
2^{2}	Motor protection contact FU3
2^{1}	Motor protection contact FU2
2^{0}	Motor protection contact FU1

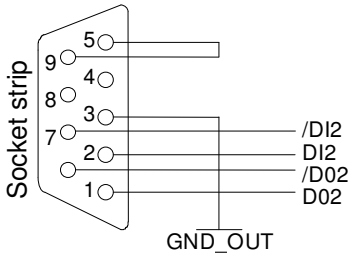
Terminal allocation:

Remotebus-IN

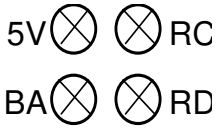


The remote bus in plug must not have a conductive connection to PE

Remotebus-OUT

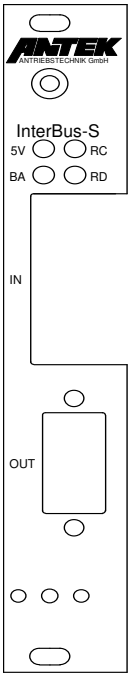


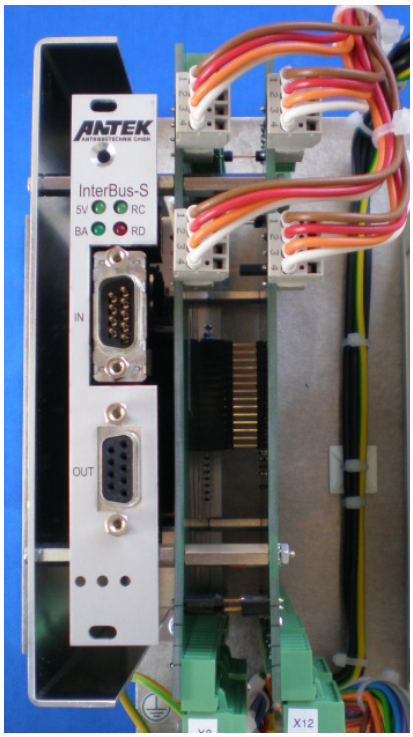
Displays:



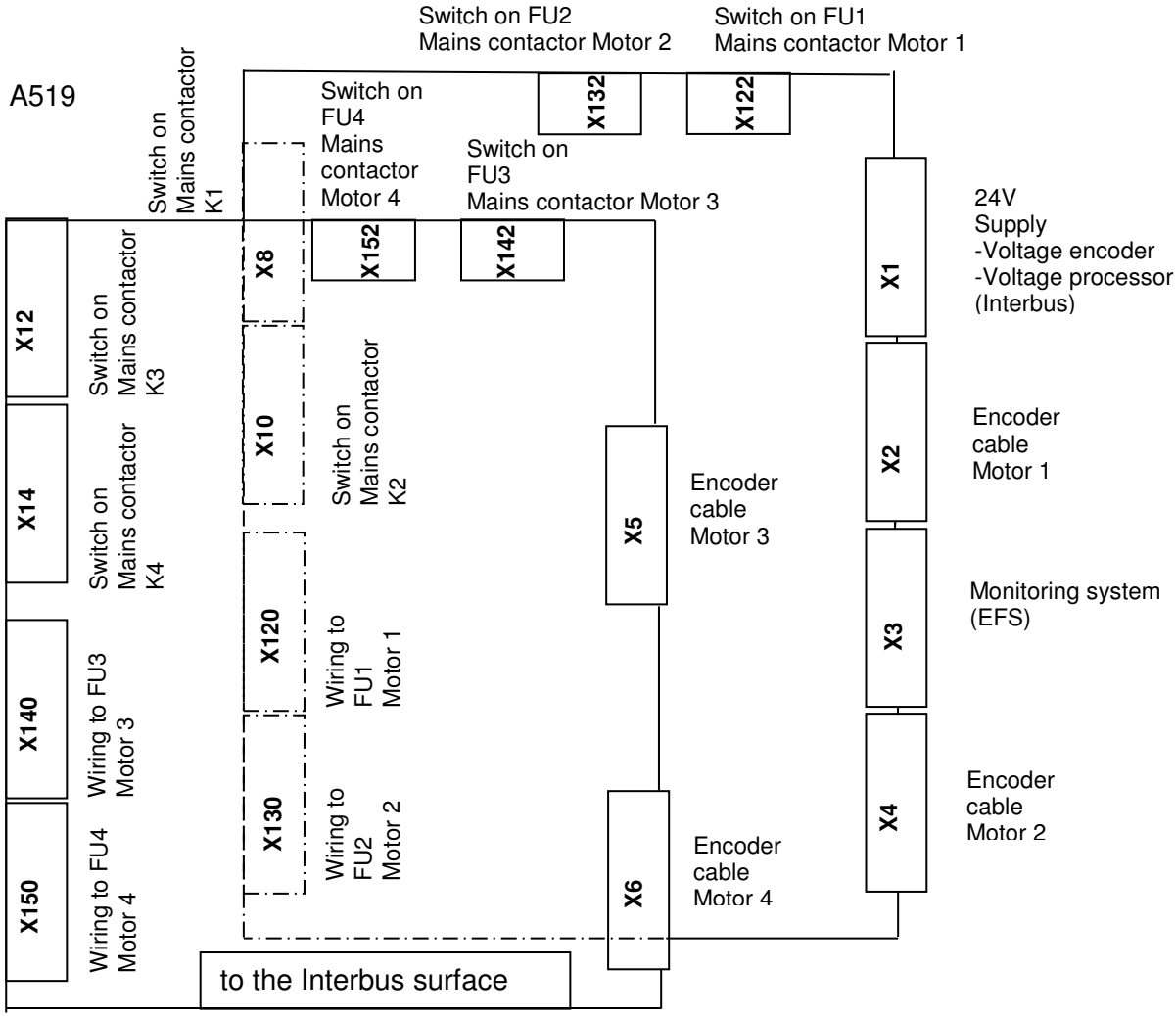
5V (GN) =	SUPI operating voltage display after elapsed reset time.
RC (GN) =	„Remote bus check„ active when Bus out of order and no reset.
BA (GN) =	„Bus active„ signalizes an INTERBUS-S transmission
RD (RD) =	„Remote bus disable„ means that the forwarding Interbus-S interface is switched off.

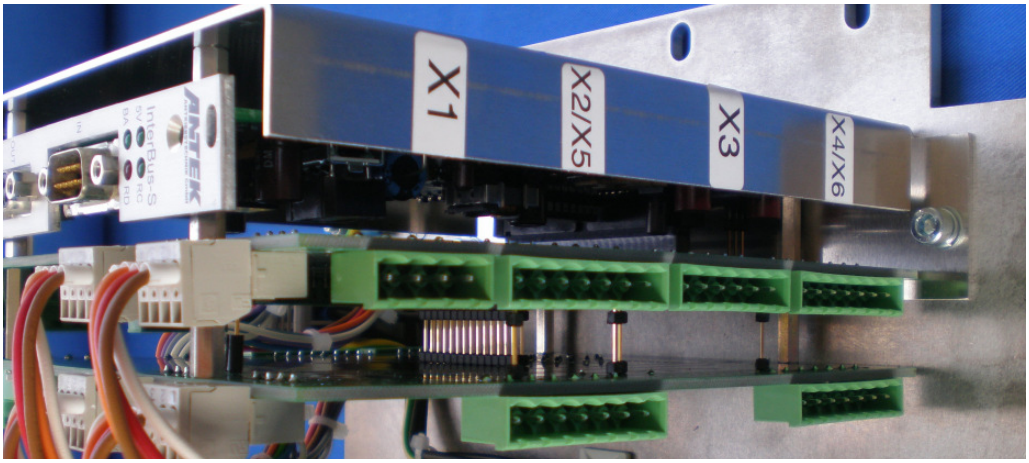
View of front plate:



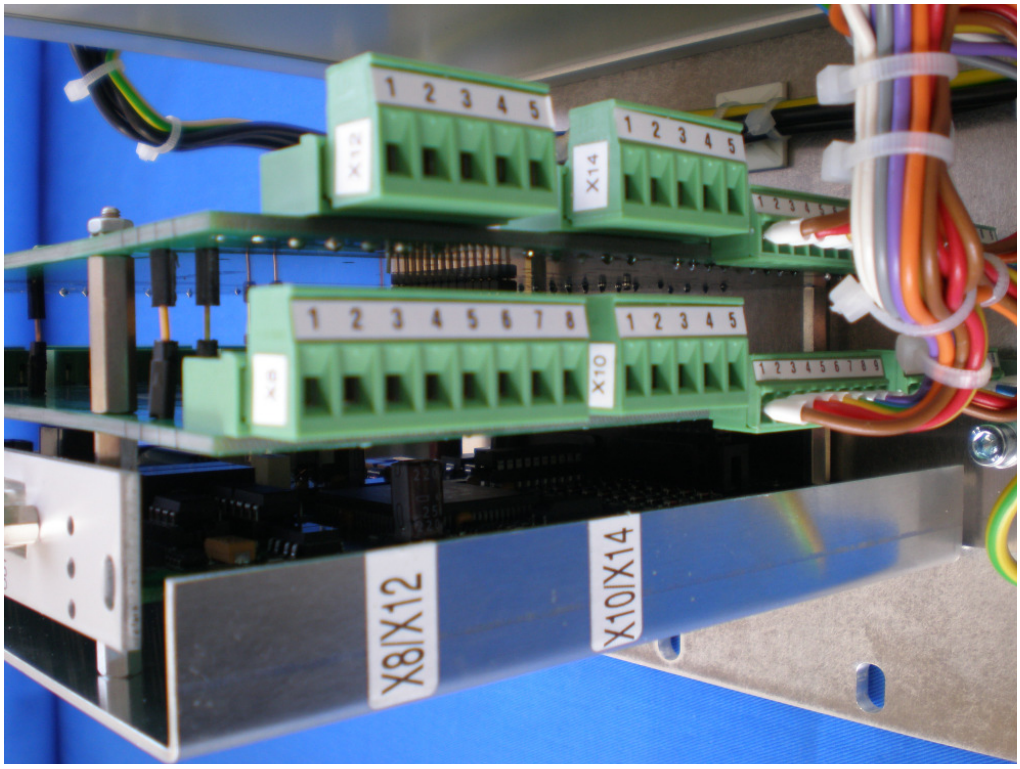


5.2 Adapter board A519





The module IB1000-02 with the adapter boards A519 is used for contacting the control signals and power supply externally.
The control of the FU's done over the InterBus module A422 with the A519 adapter boards to the frequency inverter M300.



The control of the switching is done via the connector X8, X10, X12, X14 on the Adapter IB1000 unit for frequency inverter M300. The feedback and the fan voltage is here available as connectors as well. The fan voltage is no longer used, the clamping is still available.