

OPERATING MANUAL FREQUENCY INVERTER GOLIATH-90



FUNCTIONS START-UP INSTRUCTIONS

EN81-20/50
Konform

UK
CA



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1. System Description

1.1 GUARANTEE

By this consumer guarantee KW Aufzugstechnik GmbH guarantees the product to be free from defects in material and workmanship for a one year from the time of its original purchase.

Conditions

This guarantee will not reimburse nor cover damage resulting from adaptations or adjustments which may be made to the product, without the prior written consent of KW Aufzugstechnik GmbH, in order to conform to the national or local technical or safety standards in force in any country other than the ones for which the product was originally designed and manufactured. This guarantee will not apply if the type or serial number on the product has been altered, deleted or made illegible.

This guarantee covers none of the following:

- Periodic maintenance and repair or replacement of parts due to normal wear and tear;
- Any adaptation or changes to modify the product from its normal purpose as described in the instruction manual, without the prior written consent of KW Aufzugstechnik GmbH;
- Transport costs, home service transport costs and all risks of transport relating directly or indirectly to the guarantee of the product;
- Damage resulting from:
 - o Misuse, including but not limited to (a) failure to use the product for its normal purpose or in accordance with KW Aufzugstechnik GmbH's instructions on the proper use and maintenance, and (b) installation or use of the product in a manner inconsistent with the technical or safety standards in force in the country where it is used and (c) improper or incorrect installation of software.
 - o Repair done by non authorized service stations or dealers, or the customer himself;
 - o Accidents, lighting, water, fire, improper ventilation or any cause beyond the control of KW Aufzugstechnik GmbH;
 - o Defects of the system into which this product incorporated.

This guarantee does not affect the consumer's statutory rights under applicable national laws in force, nor the consumer's rights against the dealer arising from their sales / purchase contract.

1.2 SAFETY NOTICE

IN GENERAL

Running the frequency inverter without casing is forbidden, because of the high voltage in there. If you do runing without casing, there could be personal damage.

Only skilled workers can do working at the frequency inverter system GOLIATH-60.

It must be consider the following national and local safety conditions and laws:

DIN VDE0100 , DIN VDE 0110 , IEC 364, IEC 664.

USE OF THE FREQUENCY INVERTER GOLIATH-60

The frequency inverters Goliath-60 are devices for the use in elevators. Other using is forbidden without the prior written consent of KW Aufzugstechnik GmbH.

The following laws must be considered, when you are build in the inverter:

- EG- Guideline 89/392/EWG (Machine-Guideline) .
- EN 60204.
- Lowpower Guideline 73/23/EWG
- EMV- Guideline (89/336/EWG)
- prEN 50178/DIN VDE 0160.
- EN 60439-1/DIN VDE 0660 Part 500
- EN 60146/DIN VDE 0558.

Transport and Installation

Frequence Inverter GOLIATH-90 is to protect for excessive strain on transport and handling. Electronic components and contacts must be avoided. Frequence Inverter GOLIATH-90 includes electrostatically sensitive components which can be easily damaged by improper handling. Electrical components must not be mechanically damaged or destroyed. Only for external GOLIATH-90 it is necessary to remove the bottom cover to devices connecting purposes. Terminal operations at the terminal blocks may be performend only in de-energized equipment. All conductive connections also lead to switching of the mains voltage or power, until capacitors have discharged (approx. 5 minutes).

Frequency Inverter GOLIATH-90 has the IP20 safety standard and can therefore be installed only in closed electrical operating areas. IP20 indicates essentially “protection against contact and protection against solid foreign body, no water protection.

The place must be chosen that the drive for cooling and dry cooling air is available. Larger amount of dust, high concentrations of chemically active pollutants, risk of mildew or pest invasion endanger the safe operation of complete system.

1.3 SERVICE

Major sources of pollution and heat sink lead to the less of head can not be dissipated and the power semiconductor prematurely aging. This means that the life cycle of frequency inverter is reduced.

	<p>Vacuumping of debris on the fans</p> <p>Basically at every service, i.e. at least twice a year to suck air outlet. Preferable it is to use compressed air. The suction or blowing is only 5 minutes after device is turned off. For larger stains are very difficult to remove, are probably heat sink fins dirty. Please remove device and cleaning head sink, if it is not possible so send device for basic cleaning to factory.</p>
	<p>Vacuumping of foreign bodies at air intake below</p> <p>Basically at every service, i.e. at least twice a year to suck air intake below. Preferable it is to use compressed air. The suction or blowing is only 5 minutes after device is turned off. For larger stains are very difficult to remove, are probably heat sink fins dirty. Please remove device and cleaning head sink, if it is not possible so send device for basic cleaning to factory.</p>
	<p>Vacuumping of foreign bodies at the air intake above</p> <p>Basically at every service, i.e. at least twice a year to suck air intake above. Preferable it is to use compressed air. The suction or blowing is only 5 minutes after device is turned off. For larger stains are very difficult to remove, are probably heat sink fins dirty. Please remove device and cleaning head sink, if it is not possible so send device for basic cleaning to factory.</p>
	<p>Vacuumping of debris inside the machine</p> <p>Basically at every service, i.e. at least once a year to suck the device. Preferable it is to use compressed air. The suction or blowing is only 5 minutes after device is turned off. Keep your distance from the circuit boards and mounting hardware occurring due to electrostatic discharge. Contamination on PCBs can cause short circuits and thus lead to equipment failures.</p>

1.4 SERVICE CONDITIONS

ELECTRICAL TERMINALS

Working at the frequency inverter with power voltage is forbidden.

After switching of the inverter from the power voltage, there is enough dangerous voltage, because of the capacitors. Please do not touch them!

The minimal time after switching off the inverter and opening the casing is 5 minutes.

The electrical mounting can do only by skilled workers, which know national laws, like

The „VDE-Vorschriften“.

Notices are in the operating manual for the right EMV-mounting. To make a good EMV-mounting, you must use Inputfilter of the GOLIATH-90.

Please take a look on the dimension of the power wires and fuses.

POWER VOLTAGE CONDITIONS

The frequency inverter Goliath-60 needs no neutral wire and is used for the 4-phase Running. The type of the power voltage is a TT net, or a TT net with earth connect of the neutral wire.

RUNNING CONDITIONS

All elevators with frequency inverters must have safety devices to be enough the national and local law, like the european Law EN81.

The casing of the frequency inverter must be closed. The input-filter must be used and correctly fixed.

After switching of the inverter from the power voltage, there is enough dangerous voltage, because of the capacitors. Please do not touch them!

The minimal time after switching off the inverter and opening the casing is 5 minutes.

- 1) The concept of the frequency inverter GOLIATH-90 allows, that there is a fault in the inverter, all relays, like READY, BRAKE and DRIVE are deactive, Then the mechanical brake can close.
- 2) If there is a controler fault, or there is no direction input, the DC-Power of the IGBT-modules is switched off and the output relay brake is deactive.
- 3) If there is a fault of the digital encoder input, or there is difference in the speed above 10%, the car is stopped.
- 4) If the temperature is too high, the frequency inverter is switch off.
- 5) The start current of the frequency inverter is the 1.7 of the nominal current.
- 6) You can do 240 drives per hour. The temperature border is 45 °C in the casing.
- 7) There must be a place of 100mm above and under the casing of the frequency inverter.
- 8) If you have an old machine, you have to look on two points:
 - a) The isolation class of old machine.
 - b) Old machines need more current to start it. The 1.7 nominal current could be not enough for the old motor. So you must choose a bigger frequency inverter.

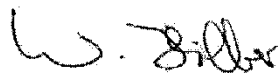
1.5 EMC DECLARATION OF CONFORMITY**EMV Prüfbericht****SERVICEFORCE.COM**
SERVICES FOR COMMUNICATIONS AND AUTOMATION ENGINEERING**Service Center**
ServiceForce.Com GmbH
Kleyerstr. 92
60326 Frankfurt am Main**Prüfbericht-Nr.:** 042_11E
Datum: 02.03.2011
Projekt-Nr.: 505000300

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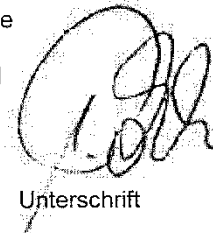
Prüfort:
(falls nicht mit der Adresse
des Labors identisch)

Prüfling:	Frequenzumrichter Goliath 90
Seriennummer:	2011-5526
Beschreibung:	Bei dem Prüfling handelt es sich um einen Frequenzumrichter mit vorgeschaltetem Filter

Aufgabenstellung:	Durchführung der Prüfung nach EN12015:2005 und EN12016:2008
Ergebnis:	Der o. g. Prüfling hat die durchgeführten Tests bestanden.

Bearbeiter: Wolfgang Hilber**Freigabe:** Ulrich Pohle**Datum:** 13.04.2011**Datum:** 13.04.2011

Unterschrift



Unterschrift



Alle Ergebnisse dieses Prüfberichtes beziehen sich auf den Prüfgegenstand. Jegliche Abwandlung des Prüfgegenstands führt zur Ungültigkeit des Testberichts. Die hier dargestellte Information ist Eigentum der ServiceForce.Com GmbH und es besteht keine Haftung über Irrtümer und Auslassungen.

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<p>EMV Prüfbericht</p> <p>Service Center ServiceForce.Com GmbH Kleyerstr. 92 60326 Frankfurt am Main</p>	<p>SERVICEFORCE.COM <small>SERVICES FOR COMMUNICATIONS AND AUTOMATION ENGINEERING</small></p> <p>Prüfbericht-Nr.: 042_11E Datum: 02.03.2011 Projekt-Nr.: 505000300</p>
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Norm	Ausgabe
<input type="checkbox"/> EN 61000-3-2	2006-10
<input type="checkbox"/> EN 61000-3-3	2009-06
<input type="checkbox"/> EN 61000-3-12	2005-09
<input checked="" type="checkbox"/> EN 61000-4-2	2009-12
<input checked="" type="checkbox"/> EN 61000-4-3	2008-06
<input checked="" type="checkbox"/> EN 61000-4-4	2005-07
<input checked="" type="checkbox"/> EN 61000-4-5	2007-06
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<input type="checkbox"/> EN 61000-4-8	
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<input type="checkbox"/> EN 61010-1	
<input type="checkbox"/> EN 61326-1	2006-10
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<input type="checkbox"/> EN 61800-5-1:	
<input type="checkbox"/> EN 60730-1	
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<input type="checkbox"/> EN 55014-1	
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<input type="checkbox"/> EN 50155	
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<input type="checkbox"/> ISO 11452-4	
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Alle Ergebnisse dieses Prüfberichtes beziehen sich auf den Prüfgegenstand. Jegliche Abwandlung des Prüfgegenstands führt zur Ungültigkeit des Testberichts. Die hier dargestellte Information ist Eigentum der ServiceForce.Com GmbH und es besteht keine Haftung über Irrtümer und Auslassungen.

	<p>GOLIATH-90 INTERN 12 – 32A</p> <p>Field oriented four-quadrant inverter for synchronous and asynchronous drives with a range of 12A to 32A nominal current. The frequency inverter is designed for controller casing mounting. The inverter is operated without main contactors and motor contactors.</p> <p>The monitoring inputs for monitoring the brake elements are to be certified by EN81-1/2-A3.</p> <p>The metal housing meets the EN 55011 Level B (immunity and emission).</p>
	<p>GOLIATH-90 INTERN 42 – 52A</p> <p>Field oriented four-quadrant inverter for synchronous and asynchronous drives with a bandwidth of 42A to 52A nominal current, 1.7 - fold overload factor.</p> <p>For the catch-rescue you have the 2,0- overload-factor for a few minutes to bring the car in motion.</p> <p>The inverter is operated without main contactors and motor contactors.</p> <p>The monitoring inputs for monitoring the brake elements are to be certified by EN81-1/2-A3.</p> <p>The metal housing meets the EN 55011 Level B (immunity and emission). The clock frequency is in the motor, as noiseless in regenerative mode 16 kHz.</p>
	<p>GOLIATH-90 INTERN 62 – 82A</p> <p>Field oriented four-quadrant inverter for synchronous and asynchronous drives with a bandwidth of 62A to 82A nominal current, 1.7 - fold overload factor.</p> <p>For the catch-rescue you have the 2,0- overload-factor for a few minutes to bring the car in motion.</p> <p>The inverter is operated without main contactors and motor contactors.</p> <p>The monitoring inputs for monitoring the brake elements are to be certified by EN81-1/2-A3.</p> <p>The metal housing meets the EN 55011 Level B (immunity and emission). The inverter involves the connection for a feedback unit.</p>
	<p>GOLIATH-90 INTERN 102 – 142A</p> <p>Field oriented four-quadrant inverter for synchronous and asynchronous drives with a bandwidth of 102A to 142A nominal current, 1.7 - fold overload factor.</p> <p>For the catch-rescue you have the 2,0- overload-factor for a few minutes to bring the car in motion.</p> <p>The inverter is operated without main contactors and motor contactors.</p> <p>The monitoring inputs for monitoring the brake elements are to be certified by EN81-1/2-A3.</p> <p>The metal housing meets the EN 55011 Level B (immunity and emission). The inverter involves the connection for a feedback unit. Equipment with rated current up to 152A are available on request.</p>



GOLIATH-90 EXTERNAL 12 – 32A

Field oriented four-quadrant inverter for synchronous and asynchronous drives with a bandwidth of **12A to 32A** nominal current, 1.7 - fold overload factor.
 All electrical data correspond to those of the internal series.
 The inverter is used without contactors. The brake control is done with a "silent" brake unit.
 All cables, such as power supply, motor and brake chopper cables, setpoint and drive line are now assembled included.



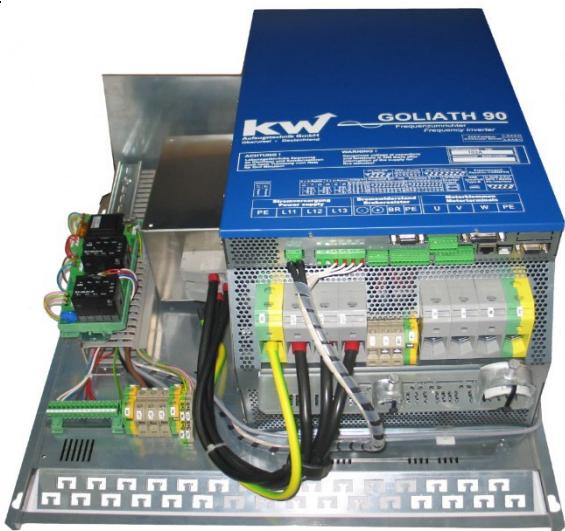
GOLIATH-90 EXTERNAL 42 – 52A

Field oriented four-quadrant inverter for synchronous and asynchronous drives with a bandwidth of **42A to 52A nominal current**, 1.7 - fold overload factor.
 All electrical data correspond to those of the internal series.
 The inverter is used without contactors. The brake control is done with a "silent" brake unit.
 All cables, such as power supply, motor and brake chopper cables, setpoint and drive line are now assembled included.



GOLIATH-90 EXTERNAL 62 – 82A




Field oriented four-quadrant inverter for synchronous and asynchronous drives with a bandwidth of **62A to 82A nominal current**, 1.7 - fold overload factor.
 All electrical data correspond to those of the internal series.
 The inverter is used without contactors. The brake control is done with a "silent" brake unit.
 All cables, such as power supply, motor and brake chopper cables, setpoint and drive line are now assembled included.



GOLIATH-90 EXTERNAL 102 – 142A

Field oriented four-quadrant inverter for synchronous and asynchronous drives with a bandwidth of **102A to 142A nominal current**, 1.7 - fold overload factor.
 All electrical data correspond to those of the internal series.
 The inverter is used without contactors. The brake control is done with a "silent" brake unit.
 All cables, such as power supply, motor and brake chopper cables, setpoint and drive line are now assembled included.

1.8 SUPPORTED MACHINES AND MOTORS

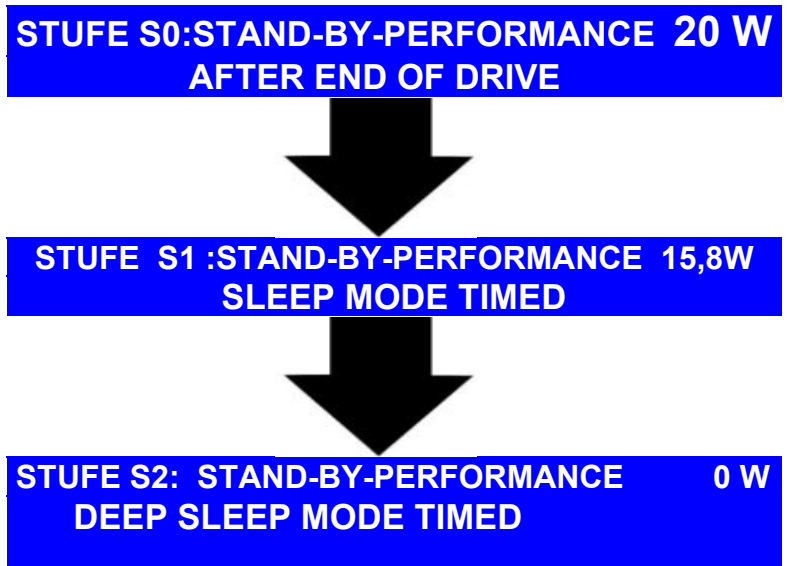
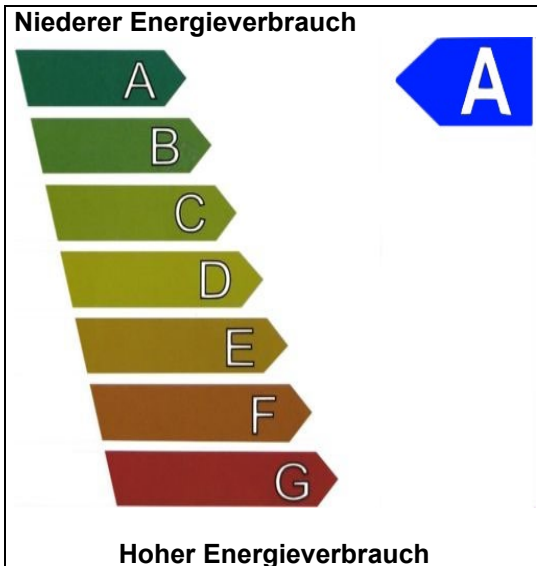
<p>Asynchrone Normal- or Planet Gear Machines, Asynchrone High-Pole-Gearless</p> 	<p>Alberto Sassi ThyssenKrupp</p> <p>ZIEHL-ABEGG Cobianci Montanari Akar SICOR Wittur Kasper SLC</p>	<p>Geko, Leo, Toro, ... Alle TW 45, 63, 130, 160, 191, 263 DAF 330 ZZ, ZAF xxx All M xxx All All All All All</p>
<p>Synchrone Planet Gears with RESOLVER</p> 	<p>ALPHA Wittenstein</p> <p>ZF Getriebe Friedrichshafen Klose</p>	<p>ECD 100 / 200 / 300 / 300a EPM 100 / 300 / 500 EPD 100 / 300 / 500</p>
<p>Synchrone Gearless with Absolutevalue Encoders</p> 	<p>Alberto Sassi CEGI</p> <p>MP</p> <p>ThyssenKrupp</p> <p>SAD</p> <p>WITTUR Prisma Dynatech Blocher SwissTraction Montanari</p> <p>Xinda Schindler KONE</p> <p>Loher SICOR ZIEHL-ABEGG</p>	<p>G100, G180, G200, G300, G400, G500 MiniACT 70-100-130-170-200-240 MicroACT 210 maGO-75-100-125-150-175-200 maGO-225-250-275 DAF 210 / 270 / PCM 125-145-170 PMS 400 / SB150M SC 300 / SC 400 / SC 500 WSG 06-07-08-18-19, S1..S3.x, W1..W3 - W8 WSG-LF-MF-RF-SF-S3-TR-TO Serie C, Serie F Tornado D60, D80,... D360 GA 41 / GA 42 / GA 52 Z244 / Z246 / Z3xx / ... MCG 150 MDG 150 / MG 250-340 MGV25ML / MCB200 (MDD Diana –SAE, II..IV, WYJ-250-SAA SGL 930 NMX07 NMX11 MX05-06-10-18-20 GMX1 SVM 250.04 / SG07.3 SG22145BF ZETASYN SM-700 / 850 / 860 ZETATOP SM 250-225-200-180-160-132 ZAtopx BD132 ZETAdisc SL506- 510</p>
<p>Pole Switchable Asynchron-motors, which used without regulation or voltage- regulated</p> 	<p>Astor Bruncken MAN Stahl Haushahn Schindler OTIS Bauer Hammelsbeck Kasper Loher Kaiser</p>	

1.9 DESCRIPTION ENERGY EFFICIENCY VDI 4707

The frequency inverters of type of GOLIATH-90, also the older type of GOLIATH-90, have no motor contactors, but net-contactors. This means, that in the standby-mode, the frequency inverter is separate from the main supply and only an economy connection supply the electronic parts.

ENERGY CLASS A

STEPPING OF THE ENERGY-MANAGEMENT

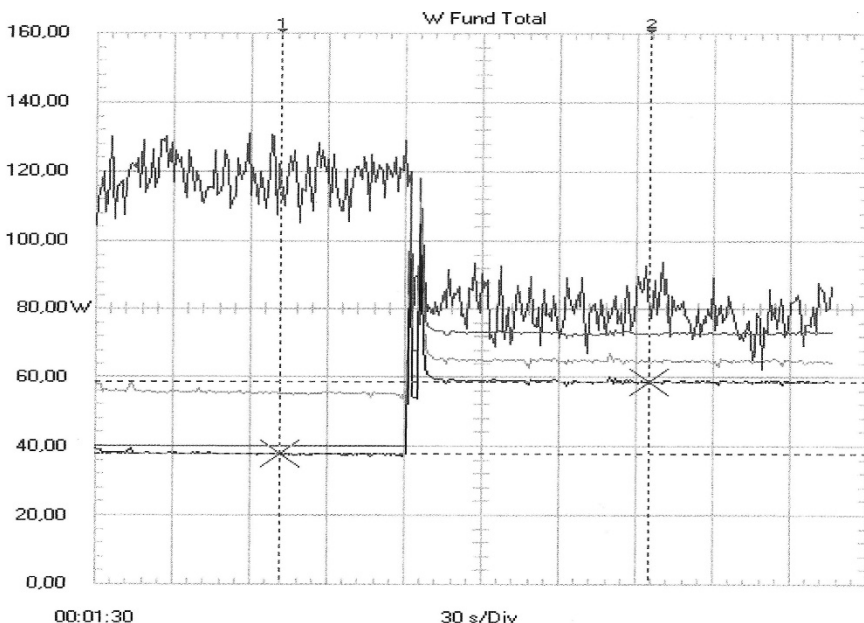


Nutzungskategorie	1	2	3	4	5
Gewichtung S0	1 %	2 %	5 %	7 %	10 %
Gewichtung S1	24 %	33 %	60 %	73 %	85 %
Gewichtung S2	75 %	65 %	35 %	20 %	5 %

Based on category of use it obtained for stationary power following sample calculations:

$$P_{\text{Stillstand (Kategorie 1)}} = 0,01 * 21 \text{ W} + 0,24 * 15 \text{ W} + 0,75 * 0 \text{ W} = 3,81 \text{ W}$$

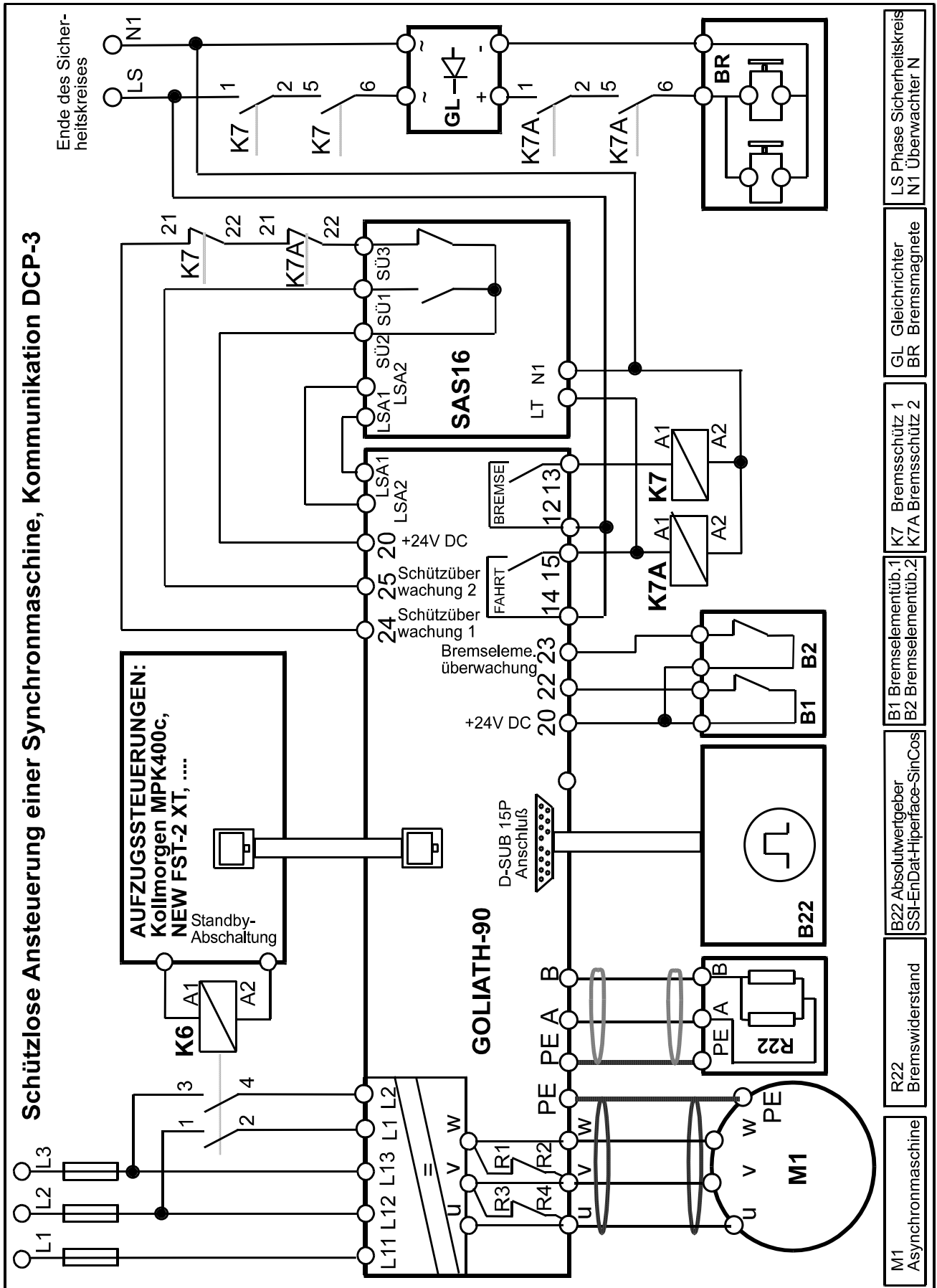
$$P_{\text{Stillstand (Kategorie 5)}} = 0,10 * 21 \text{ W} + 0,85 * 15 \text{ W} + 0,05 * 0 \text{ W} = 14,85 \text{ W}$$



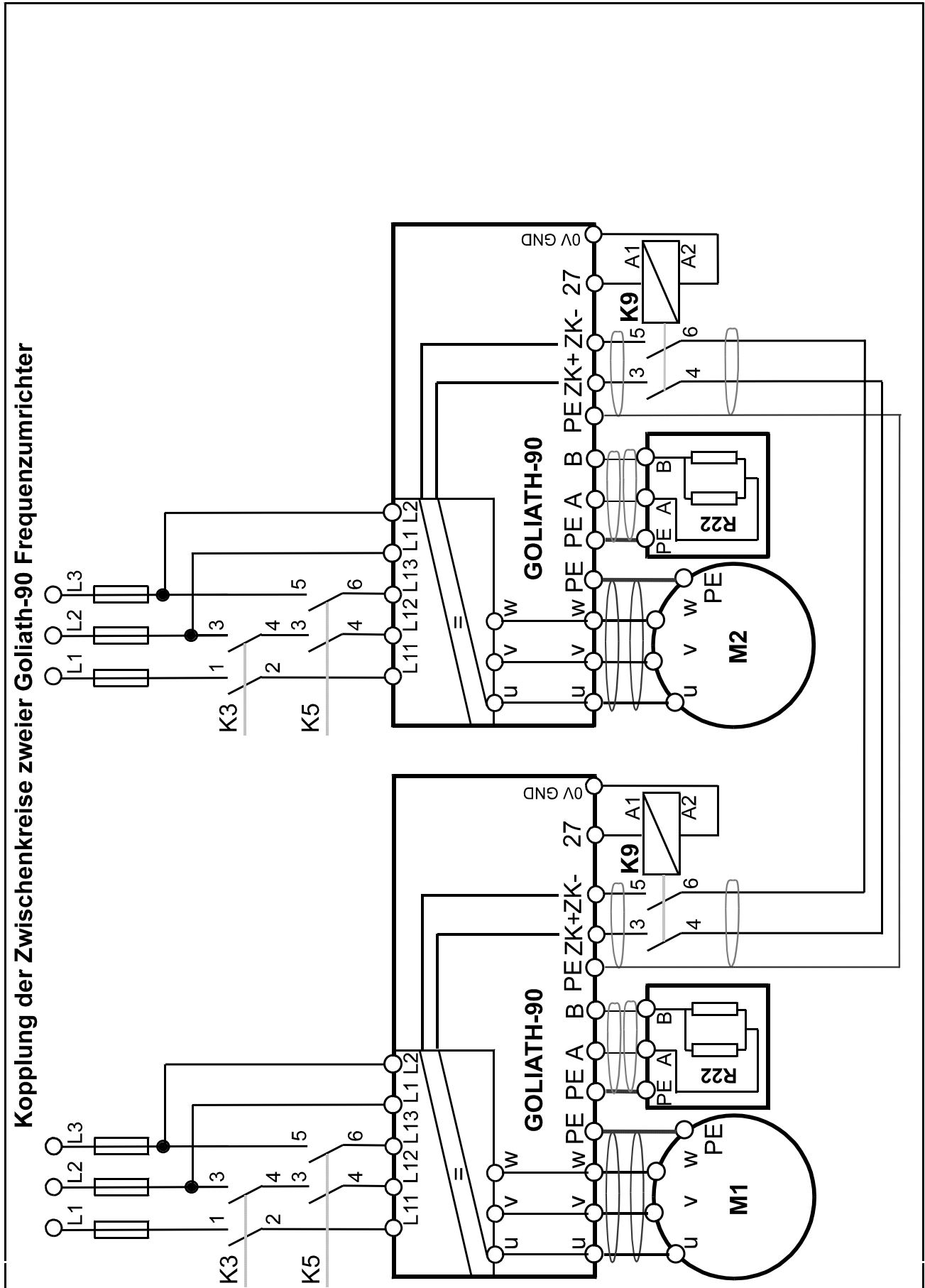
Datenblock		
Name	= W Fund A/L1	W Fund B/L2
Datum	= 23.03.2009	23.03.2009
Uhrzeit	= 16:49:17	16:49:17
Y-Skala	= 2 mW/Div	10 W/Div
Y bei 50%	= -4,00 mW	20,00 W
X-Skala	= 30 s/Div	30 s/Div
X bei 0%	= 00:01:30	00:01:30
X-Größe	= 286 (377)	286 (377)
Maximum	= 1,13 mW	39,14 W
Minimum	= -9,57 mW	0,00 W
Cursorwerte		
X 1:	OT 00:02:42 (23.03.2009 16:51:59)	
X 2:	OT 00:05:05 (23.03.2009 16:54:22)	
dX:	OT 00:02:23	
Y 1:	37,55 W	
Y 2:	58,68 W	
dY:	21,13 W	

The effective electrical power diagram shows the effective current of a lift controller type DAVID-606 and a frequency inverter GOLIATH-90. The effective power of the complete system in the standby-mode has only 59 W. After switch off the frequency inverter, the effective power has only a value of **39 W!**

Circuit Diagramm – Energy Management

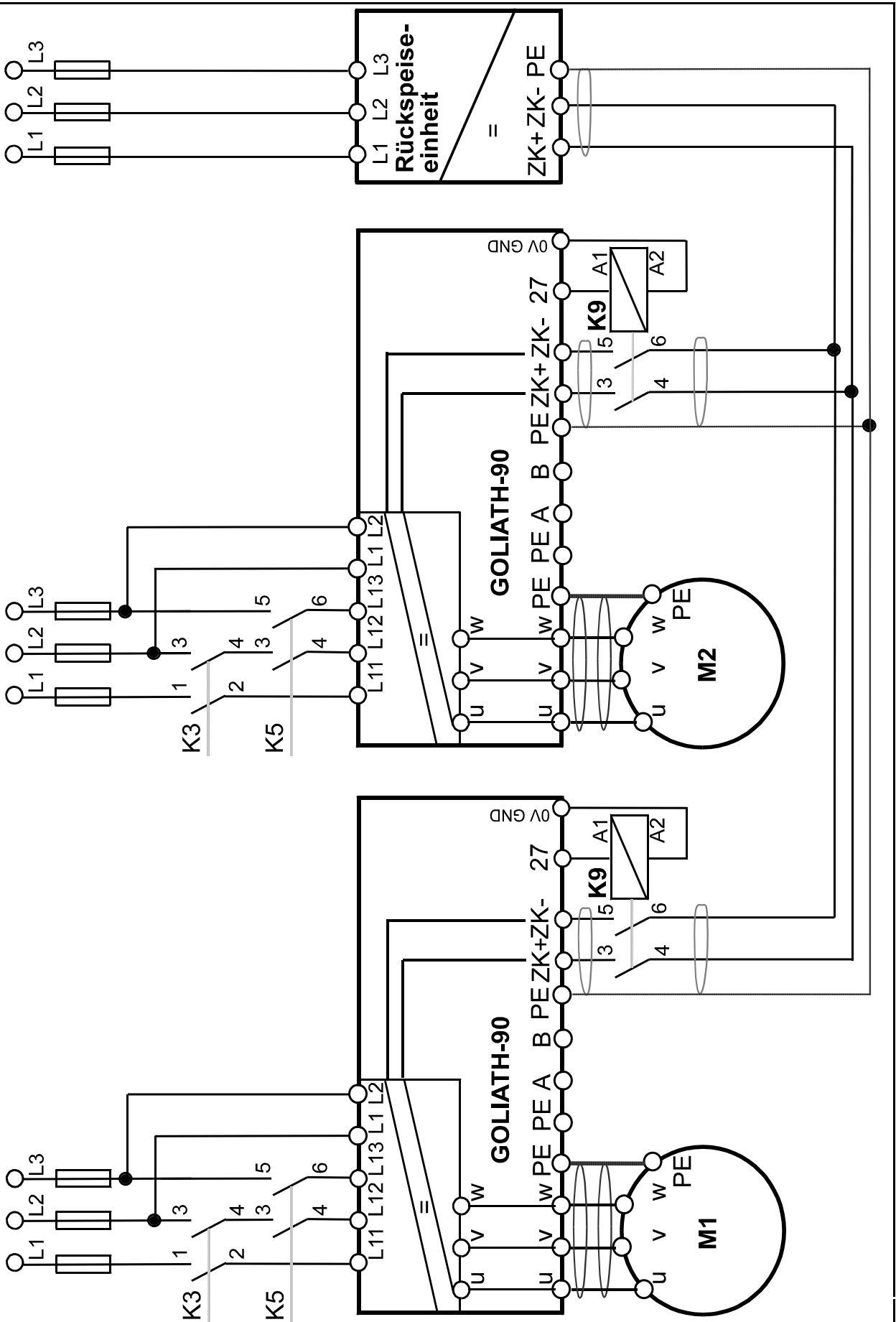


If you have an elevator group, you can couple the DC-Circuits of the frequency inverters. At an elevator double-group, one lift works with the landing calls in down direction, the other lift handle the up landing calls. The elevator, which travels in up direction, is in the generator mode, it seems that this lift needs no energy, it generates a lot of electrical power, which can be delivered above the DC-circuit connection to the other elevator.



For the electrical balance, it is an advantage to use a directly connection of the DC-circuits. If you have a bigger groupe of elevators, you have an advantage to connect on energy save unit with the CD-circuit of the inverters.

Kopplung der Zwischenkreise zweier Goliath-90 Frequenzumrichter mit Rückspeiseeinheit



1.10 OPERATING WITHOUT CONTACTORS WITH GOLIATH-90 (SAS)

1.10.1 EU DECLARATION OF CONFORMITY FOR SAFETY COMPONENTS FOR LIFTS

Manufacturer:	KW Aufzugstechnik GmbH Zimmersmühlenweg 69 61440 Oberursel
Authorized Person:	Dipl.-Ing. (TU) Hans-Werner Walbert - CEO
Type:	Safety component GOLIATH-90
Description safety:	Function „Safe-Exit-Lock – SAS“ for frequency inverter GOLIATH 90 from KW-Aufzugstechnik with extern component „SAS16-102“ for usage as elevator drive without driving contactors
Production / Serial-number	2024-25400 bis 2024-26600
Year of manufacturing:	2024
Application scope:	Lifts Directive 2014/33/EU
Standard(s) used :	DIN EN 81-1: 1998+A3:2009 DIN EN 81-2: 1998+A3:2009 DIN EN 81-20: 2014-11 DIN EN 81-50: 2015-02 Safety rules for the construction and installation of lifts.
Notified body for the EU type examination (Annex V.A)	Liftinstituut B.V. Buikslotermeerplein 381 1025 XE Amsterdam, Netherlands NB no.: 0400
EU type examination certificate no.:	NL16-400-1002-170-03 rev.1
Notified body for the random checks (Annex XI)	Liftinstituut B.V. Buikslotermeerplein 381 1025 XE Amsterdam, Netherlands NB no.: 0400

Hereby we explain the component assembly GOLIATH-90 due to conceiving and construction mentioned above which to general protection requirements corresponds to the EU Lift Directive 2014/33/EU. The manual is attached to the devices. The safety references are to be exactly read before employment of the equipment. Through with us this explanation their validity loses not coordinated changes.

Oberursel, den 02.01.2024



Hans-Werner Walbert
CEO

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EU-TYPE EXAMINATION CERTIFICATE

Issued by Liftinstituut B.V.
identification number Notified Body 0400,
commissioned by Decree no. 2018-0000125182

Certificate no.	: NL16-400-1002-170-03	Revision no.:	1
Description of the product	: Frequency inverters for elevator drives without contactors		
Trademark	: KW Aufzugstechnik		
Type no.	: SAS16 + GOLIATH-90		
Name and address of the manufacturer	: KW-Aufzugstechnik GmbH Zimmersmühlenweg 69 61440 Oberursel, Germany		
Name and address of the certificate holder	: KW-Aufzugstechnik GmbH Zimmersmühlenweg 69 61440 Oberursel, Germany		
Certificate issued on the following requirements	: Lifts Directive 2014/33/EU		
Certificate based on the following standard	: EN 81-20:2020, clause 5.9.2.5.4 c), 5.11.2.3 and EN 81-50:2020, clause 5.6 and 5.15 (EN 81-1:1998+A3:2009 clause 12.7, 14.1.2.3, annex H and F.6) (EN 81-2:1998+A3:2010, clause 12.4.1, 14.1.2.3, annex H and F.6)		
Test laboratory	: Sebert Trillingstechniek B.V., Weg en Land 18, 2661 DB, Bergschenhoek, The Netherlands		
Date and number of the laboratory report	: 29-09-2016; Report M16.001-P16.001 Liftinstituut		
Date of EU-type examination	: Original; June – October 2016 Rev.1; October 2021		
Additional document with this certificate	: Report belonging to the EU-type examination certificate no.: NL16-400-1002-170-03 rev.1		
Additional remarks	: EN 81-50, clause 5.6 and 5.15 resp. EN 81-1/2+A3 Annex H, F.6 examination and testing were included in the examination		
Conclusion	: The safety component meets the requirements of the Lifts Directive 2014/33/EU taking into account any additional remarks mentioned above.		

Amsterdam

Date : 25-10-2021
Valid until : 25-10-2026ing A.J. van Ommen
International Business
Manager

Certification decision by



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SINCE 1933



Report EU-type examination

Report belonging to EU-type examination certificate number	: NL16-400-1002-170-03
Date of issue of original certificate	: October 25, 2016
Certificate applies to	: Safety component
Revision number / date	: 1 / 25-10-2021
Requirements	: Lifts Directive 2014/33/EU Standards: EN 81-20:2020 clause 5.9.2.5.4 c), 5.11.2.3 and EN 81-50:2020 clause 5.6 and 5.15; EN 81-1+A3 clause 12.7, 14.1.2.3, annex H and F.6; EN 81-2+A3 clause 12.4.1, 14.1.2.3, annex H and F.6.
Project number	: P210425

1. General specifications

Description of the product	: Frequency inverters for elevator drives without contactors
Trademark	: KW Aufzugstechnik
Type no.	: SAS16 + GOLIATH-90
Name and address of the manufacturer	: KW-Aufzugstechnik GmbH Zimmersmühlenweg 69 61440 Oberursel, Germany
Laboratory	: Sebert Trillingstechniek B.V, Netherlands
Address of examined lift	: KW-Aufzugstechnik GmbH premises Weg en land 18, Bergschenhoek
Date of examination	: Original; June – October 2016 Rev.1; October 2021
Examination performed by	: P.J. Schaareman

2. Description safety component

To provide state of the art stopping accuracy for lifts, inverters are more and more used. Today drive manufacturers provide inverters with safe torque off (STO) functionality. This means basically that the safety circuit of the lift is directly controlling the information to the drive if torque to the motor is allowed. Motor power contactors are not necessary anymore.

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To be able to do this the drive manufacturer have to follow a process to prove that the safety and the reliability of this function is in accordance with the current state of the art.

With the SAS function (safe off output) the GOLIATH-90 inverter series can be used in lift applications without the need of main contactors. The device can drive synchronous and asynchronous motors with nominal current from 12 Ampere to 162 Ampere. The SAS function provides the power to the semi-conductors controlling the frequency generator for the AC supply to the motor. The energy for powering the IGBT's is provided by the safety circuit of the lift. This allows an inherent safe circuit; when the safety circuit of the lift is opened the IGBT's cannot be powered anymore.

The safety circuit SAS16-102 replaces the main contactors at the end of the safety circuit. The safety circuit powers the primary winding of the transformer TR4 (J1a, J1b). The secondary winding of the transformer (J3a, J3b) provides with 400 VAC the control power of the IGBT's of the inverter.

Since the galvanic isolated drive stage of the inverter needs a voltage of 400VAC at the terminals LSAS1 and LSAS2 to control the drive stages of the IGBTs, it is ensured that the voltage supply for gate control of the IGBTs T1 / T2 / T3 of the inverter is switched off and T1 / T2 / T3 cannot be controlled if the safety circuit is interrupted. In that case no torque can be generated for the motor.

The inputs of the drive are monitored to check if the power is removed at standstill of the lift. From SAS16 a monitoring output is provided for the controller.

See Annex 1b for a schematic of the SAS16 and GOLIATH-90 STO control.

Technical details	: KW Aufzugstechnik, SAS16 + GOLIATH-90
Printed circuit boards	
Safety circuit	: SAS16-102 (72x76mm)
GOLIATH90 12/22/32A	: GOLIATH90_ANS32M_SAS_02c (146x300mm)
GOLIATH90 42/52A	: GOLIATH90_ANS52M_SAS_01a (255x248mm)
GOLIATH90 62/102/162A	: GOLIATH90_ANS400M_SAS_01b (100x298mm)
Temperature	: +0... +45 °C
Altitude	: Up to 2000m above sea level
Degree of protection	: IP20
For further specifications see manual GOLIATH-90	

See annex 1 for a general overview of the product



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3. Examinations and tests

The end of the safety circuit is connected to the SAS16 safety board. On the SAS16 board a relay is present to monitor the safety circuit status.

Safety circuit of the lift is connected to connector J1a and J1b of the SAS16 board.

Maximum voltage is 230VAC.

Safety circuit (secondary output) of the lift is connected to connector J3a and J3b of the SAS16 board. Maximum voltage is 400VAC.

Safety circuit (secondary output) of the lift is connected to connector LSAS1 and LSAS2 of the power board of the GOLIATH-90. Maximum voltage is 400VAC.

Other control circuits on the power board related to the STO functionality are on the power board with a maximum voltage of 15VDC.

According to EN 81-50 clause 5.15 resp. Annex H of the EN 81-1+A3 (par 3.1 and 3.6) the creepage and clearance distances shall fulfill the requirements of the EN-IEC 60664-1 taking into account:

- pollution degree 3
- material group III
- inhomogeneous electrical field
- over-voltage category III
- printed wiring column not used

For 400 VAC these distances shall be 6.3mm for creepage and 5.5mm for clearance.

For 230 VAC these distances shall be 4.0mm for creepage and 3.0mm for clearance.

For 15 VDC these distances shall be 1.1mm for creepage and 0.8mm for clearance.

The examination covered a check whether compliance with the Lift Directive 2014/33/EU is met, based on the harmonized product standards EN 81-20:2020 and EN 81-50:2020. Additionally, for existing lifts applications, standards EN 81-1/2+A3 were also checked. Issues not covered by or not complying these Standards are directly related to the above mentioned essential requirements based on the risk assessment.

The examination included:

- Examination of the technical file (See annex 2):
- Examination of the representative model in order to establish conformity with the technical file.
- Inspections and tests to check compliance with the requirements.
- An assessment of the relevant information of the component to check, register and report the relevant key interface parameter(s) of the component to be used for UCM protection.
- Temperature, vibration and bumping tests according requirements of the standard EN 81-1 F.6 and EN 81-50 clause 5.6.



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4. Results

The creepage distances and clearances between terminals, connected to the safety circuit and tracks behind these terminals to each other and to another voltage do fulfill to the above (chapter 3) mentioned distances or alternative failure exclusion.

The energy flow to the motor is interrupted safely to guarantee that no torque to the motor is generated when the safety circuit of the lift is not available.

After the final examination the product and the technical file were found in accordance with the requirements. The functional tests passed without remarks.

In relation to UCMP we measured a maximum response time of removing torque from the motor after opening the safety circuit of 220ms.

5. Conditions

Additional to or in deviation of the applicable demands in the considered requirements / standards (see certificate and/or page 1 of this report), the following conditions shall be taken into account:

- In the final acceptance test it shall be verified that the STO function operates as intended.
- The interruption of the current to the brake shall be separately done by the lift control according the relevant requirements of the standard.
- If for UCMP the motoring torque needs to be taken into consideration, a delay time of 220ms needs to be taken in account for switching off the output of the inverter after opening of the safety circuit of the lift.
- The inverter shall be installed, set, commissioned and maintained according the instructions of the manufacturer.

6. Conclusions

Based upon the results of the EU-type examination, Liftinstituut B.V. issues an EU-type examination certificate.

The EU-type examination certificate is only valid for products which are in conformity with the same specifications as the type-certified product. The certificate is issued based on the requirements that are valid at the date of issue. In case of changes of the product specifications, changes in the requirements or changes in the state of the art the certificate holder shall request Liftinstituut B.V. to reconsider the validity of the certificate.



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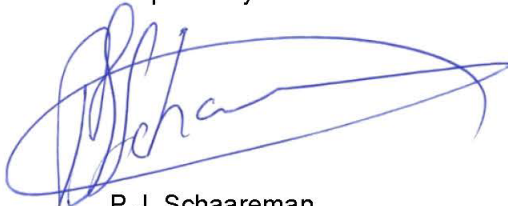


7. CE marking and EU Declaration of conformity

Every safety component that is placed on the market in complete conformity with the examined type must be provided with a CE marking according to article 18 of the Lift directive 2014/33/EU under consideration that conformity with eventually other applicable Directives is proven. Also, every safety component must be accompanied by an EU declaration of conformity according to annex II of the Directive in which the name, address, and Notified Body identification number of Liftinstituut B.V. must be included as well as the number of the EU-type examination certificate.

An EU type-certified safety component shall be random checked e.g., according to annex IX of the Lift directive 2014/33/EU before these safety components may be CE-marked and may be placed on the market. For further information see regulation 2.0.1 'Regulations for product certification' on www.liftinstituut.com.

Prepared by:



P.J. Schaareman
Product Specialist Certification
Liftinstituut B.V.

Certification decision by:



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Annexes

Annex 1. SAS16 and GOLIATH-90

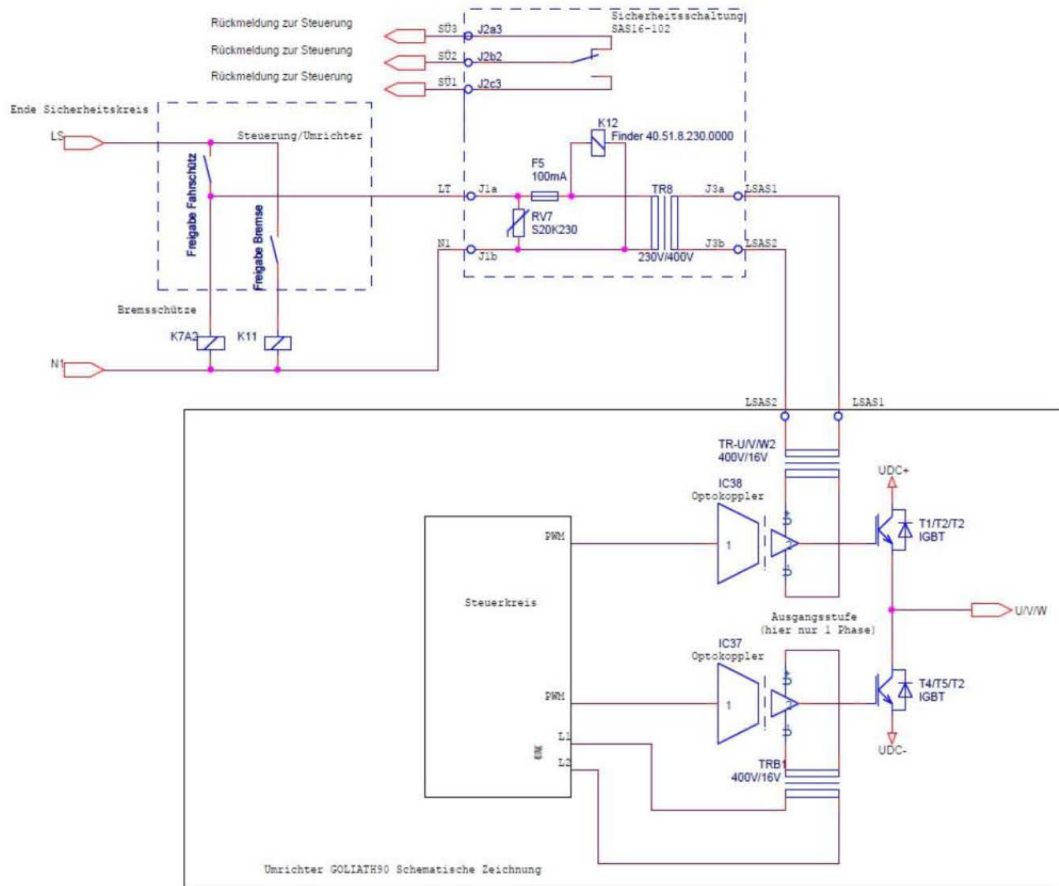




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Annex 1. STO schematic





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Annex 2. Documents of the Technical File which were subject of the examination

Title	Document number	Date
Technical file; Functional, and principal description, risk analyses, PCB layouts, BOM lists and failure exclusions SAS16 and Goliath-90	Beschreibung SAS-Goliath90_r31.pdf	17-06-2016
For information: Certificate TUV Thüringen	B-FT-11-0039-40 20120910.pdf	17-06-2016
For information: Annex certificate TUV Thüringen	Anlage FT-11-0039-40 20120910.pdf	17-06-2016
Schematic and PCB file ANS32M	GOLIATH90_ANS32M_SAS_02c	17-06-2016
Schematic and PCB file ANS52M	GOLIATH90_ANS52M_SAS_01a	17-06-2016
Schematic and PCB file ANS400M	GOLIATH90_ANS400M_SAS_01b	17-06-2016
Manual GOLIATH-90	GOLIATH-90-V122-D.pdf	07-07-2016

Annex 3. Reviewed deviations from the standards

EN 81-20 par.	Requirement	Accepted design
5.9.2.5.4 c)	5.9.2.5 Removing the power which can cause rotation of the motor 5.9.2.5.4 A.C. or D.C. motor supplied and controlled by static elements c) electrical circuit satisfying 5.11.2.3.	SAS16-102 + GOLIATH-90

EN 81-1 par.	Requirement	Accepted design
12.7	Stopping the machine and checking its stopped condition	SAS16-102 + GOLIATH-90

EN 81-2 par.	Requirement	Accepted design
12.4.1	Stopping the machine and checking its stopped condition	SAS16-102 + GOLIATH-90

Annex 4. Revision of the certificate and its report

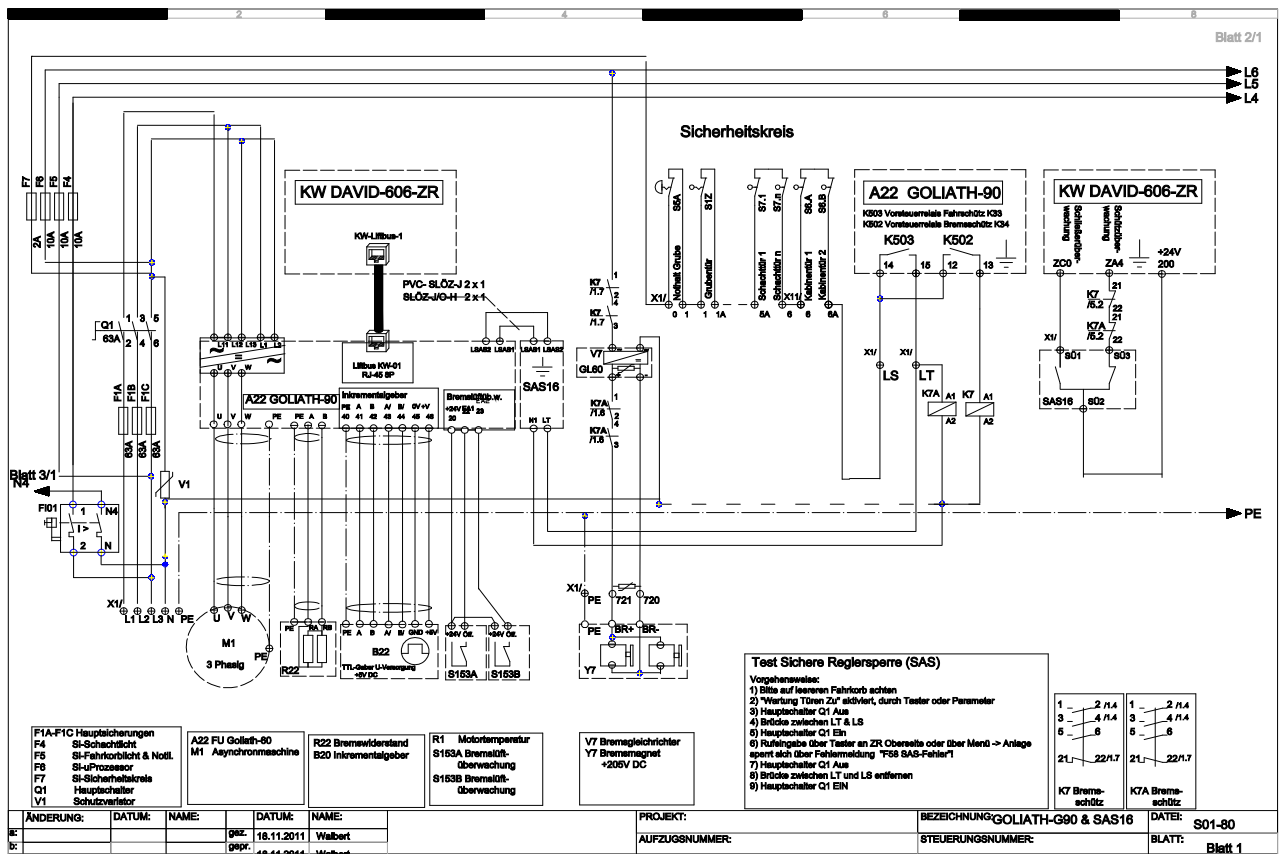
Rev.:	Date	Summary of revision
-	25-10-2016	Original
1	25-10-2021	5-year re-assessment, update to EN 81-20:2020

1.10.3 Transport and storage, assembling instructions

The protection circuit SIS16-102 is to be protected before inadmissible demand in the case of transport and handling. The contact of electronic elements and contacts is to be avoided. Electrical components may not be damaged or destroyed mechanically. Clamping procedures at the strips may be accomplished only with tension-free equipment. All leading connections lead also after switching off still tension until the condensers unloaded themselves (approx. 5 min). Lager dusty condition, penetration of water , high concentration of chemically active pollutants, danger of fungus growth or penetration of parasits endanger safe enterprise of the complete system. Therefore the protection circuit SIS16-102 must be built into a switchgear cabinet. The ambient temperature must be in a range between 0°C and + 65°C.

1.10.4 Connection the assembly instructions

Principle is to prevent external voltages to prevent a drop in the up-and down-contactors and the braking element, despite safety circuit interruption. An example is shown in the drawing below, the safety circuit of a hydraulic elevator system with control of up-and down-contactors, as well as controlling a one-way lock valve.



As previously mentioned, the control of the service section of the static frequency cahnger from the safety circuit is supplied with tension. As soon as the safety circuit is interrupted, the output stage of the static frequency changer is closed. The wiring within switchgear cabinet takes place with H07Z-K and/or H07Z-K with 1mm² Line in the color white or blue according to firm KW Aufzugstechnik GmbH. The cable routing takes place in wireway. The terminals configuration at the controller A22 GOLIATH-90 and the control compute unit DAVID D606-ZR is to be kept accurately. According to the switching contacts of the contactors wiring leads to the terminals of the one-way lock valve. When connecting PVC pipe SLÖZ-J 3 x 1mm² or SLÖZ-J/OH 3 x 1mm² is used. The valve must be grounded on the PE wire.

1.10.5 Function test – Safe controller lock (SAS)

Generally

Frequency inverter GOLOATH90 supervises the terminals LSAS1 and LSAS2 in frequency inverter. Independently of the fact that with opened safety circuit there are no voltage at the terminals LSAS1 and LSAS2.

Frequency inverter close with the message “F58-SAS-fault” if in the stop voltage applied.

(this could be the case, if two clamps were not correct connected with 400VAC) A restart is only possible after a reset.

if it comes to an interruption while driving of the safety circuit leads this to a trip abort by missing release tension at the terminals LSAS1/2 with the message “F57-SAS blocked”.

Process of the external voltage simulation

- 1.) Please pay attention for a empty car!
- 2.) Operate the pushbutton „ Maintenance doors close“ at the top of DAVID-central unit -> Doors close!
- 3.) Frequency inverter Goliath Menü C4- TÜV- SAS test to ON and activate the yellow Pushbutton below
-> If present, push button S51 controller remote control to press
-> Lift is blocked with error message „**F58/F158 SAS-blocked**“ >Please unblock the lift.

Behavior

Frequency inverter GOLIATH-90 closed with message „F58/F158 - SAS-fault“.

Unblocking

Activate the main switch, after the switch off the main switch and remove the jumper.

System is ready to start now.

Process of the safety circuit interrupt simulation

- 1.) Please pay attention to an empty car!
- 2.) Operate the pushbutton „ Maintenance doors close“ at the top of DAVID-central unit -> Doors close!
- 3.) Attempts of the call input over pushbuttons at central processing unit.
- 4.) **Pull the plug LT- N1 in travel -> see picture!**
- 5.) Inverter closed with the message „**F57/F157 SAS blocked**“
- 6.) Main switch Q1 OFF.
- 7.) **Put the plug LT- N1 -> see picture!**
- 8.) Main switch Q1 ON.



Board SAS16-102 with plug LT-N1

Behavior

Frequency inverter GOLIATH-90 closed with message „F57/F157 - SAS-blocked“.

Unblocking

Main switch deactivate, then pull the plug and activate the main switch again.

System is ready to start now.

1.10.6 Fault clearance

In frequency inverter GOLIATH-90 and microprocessor systems DAVID-606 / 2005 / 912 exist error memory with a depth of 100 possible entries.

The error registrations find in the submenu C error memory at GOLIATH-90 controllers and DAVID-606/205/912 control computers.

The closer handling of the microprocessor system is to find in the appropriate technical manual on our internet side. An exact fault tracing can be made on the basis entry in the error memory.

Fault	Error cause	Fault clearance
F57 SAS blocked	Interruption of the safety circuit while driving leads to a trip abort by missing tension.	Examine please the electrical and mechanical installation of the lift.
F58 SAS fault	In a stop is a tension on terminals on LSAS1 and LSAS2. -> This may be the case, if the two terminals wrongly connected.	Control on the base the connection diagram between GOLIATH-90 -> SAS16-102 -> Relay GOLIATH-90.

1.11 SELF-MONITORING OF THE BRAKING ELEMENTS after EN81-20/50:2014

1.11.1 Function description

In General

In gearless drives the service brakes have been used as a protective device for the car moving against overspeed. The braking devices are therefore redundant and are monitored by a micro-switch / proximity switch per circuit. These switches are used to monitor the braking elements for protection against inadvertent movement of the car.

With traction elevator systems to EN81-1 with certified braking devices to the new standard EN 81-1:1998 + A3: 2009, like e.g. the types MAYER, Warner, ..., as a operating brake on the drives of the companies Wittur-SAD, Thyssenkrupp-Liftequipe, Ziehl-Abegg, Tornado, Sassi, ..., or with A3 Certification brake control unit on the driving wheel, like the types of MAYER, Warner, ..., on the drives of Thyssenkrupp-Liftequipe-NBS, Sassi, ..., the monitoring is done by independent input channels of brake control elements monitoring of the regulation unit.

At hydraulic lifts of the company ALGI and the types AZRS and AZFR, according to the new standard EN 81-2:1998 + A3: 2009, the Down Travel is initiated with two series-connected hydraulic valves, which have a monitoring of the open and closed position. The monitoring is done by independent input channels of brake control elements monitoring of the regulation unit. The following description is part of the manual.

Function steps

A) Before Starting - Motor and Controller are in standby state

In the standby state is expected that the brake element is not active and the brake switch elements have the following signal levels:

Brake element monitoring input	Expected status
Configured as Closer (NO)	0V Signal level at the monitoring input
Configured as Opener (NC)	+24V Signal level at the monitoring input

If no expected signal levels at the inverter unit GOLIATH-90 blocks with the error message "F30 brake element 1" to "F33 brake element 4"

Only by selection of the error in the C2 error menu memory or a reset pulse to an input of the programmed input function E31, the inverter device GOLIATH-90 is unlocked.

Solely through the on / off of the controller, the inverter is not unlocked, ie If the error message F30 to F33 is applied and the system shuts off and then switched on again, the control with the appropriate error message locked.

B) Start – Braking elements are opening

With activation of the braking element is "open brake element monitoring" period started. Within this time window, it is expected that the braking element is activated and the signal change is performed on the brake element monitoring switches:

Brake element monitoring input	Expected status
Configured as Closer (NO)	0V Signal level at the monitoring input
Configured as Opener (NC)	+24V Signal level at the monitoring input

If the signal does not change within the time window, or the synchronization of input channels is not guaranteed, the controller GOLIATH-90 blocks with the error message "F30" to "F33". Only by selection of the error in the C2 error menu memory or a reset pulse to an input of the programmed input function E31, the inverter device GOLIATH-90 is unlocked.

Solely through the on / off of the controller, the inverter is not unlocked, ie If the error message F30 to F33 is applied and the system shuts off and then switched on again, the control with the appropriate error message locked.

C) End of Travel - Braking elements are closing

With drop in braking element, the monitoring time "Close monitoring braking element" starts. Within this time window, it is expected that the braking element is deactivated and the signal exchange is performed on the brake element monitoring switches:

Brake element monitoring input	Expected status
Configured as Closer (NO)	0V Signal level at the monitoring input
Configured as Opener (NC)	+24V Signal level at the monitoring input

If the signal does not change within the time window, or the synchronization of input channels is not guaranteed, the controller GOLIATH-90 blocks with the error message "F30" to "F33". Only by selection of the error in the C2 error menu memory or a reset pulse to an input of the programmed input function E31, the inverter device GOLIATH-90 is unlocked.

Solely through the on / off of the controller, the inverter is not unlocked, ie If the error message F30 to F33 is applied and the system shuts off and then switched on again, the control with the appropriate error message locked.

1.11.2 Digital Inputs

All these channels can be Inputs-, but also Output-channels. The channels are potentialfree about optocouplers and designed for +24V DC. The inputs can used with the +24V DC Voltage of the inverter or the +24V DC Voltage of the lift controller (pay attention to the GND connetion to the lift controller !). If you use the channels as outputs, they are limited in the current (200 mA for every output).

The In- and outputs are free programmable. There is a pool of 50 In- and output function. Setting of Output functions is controlled in the **Menu B2 IN/ Outputs / B21 Outputs**. If you wish a input-function you can visit the **Menu B2 IN/ Outputs / B22 Inputs**.

For checking of the function-setting, you can use the menu **C-DIAGNOSIS / C1 In-/ Outputsignals**. The technical hardware connection happend about the 10-pole Terminal.

Programming of the Digital Inputs EA1 to EA4

When the brake release up to 4 independent brake coils can be monitored.The first four channels, EA1 to EA4 are spezial types, because you can switch them to a behaviour of „**0V-switching**“. So you can make a Brakeopen-Monitor directly on a NPN-Base. In the monitoring of the Braking elements the zero volt switching are (NPN), as Thyssen winds TW, DAF, SC ... menu B23 pullup resistors must select the control 0V switching (NPN).

A) Assignment of the inputs menu B22

The inputs EA1 to EA4 on Goliath-90 inverter can be potentially subject to the features below. Assign menu B22 just as many inputs with features as you have brake circuits.

No.	Display-Layout	Function
E17	E17- Brake Monitoring Coil-1	Input function for Brake Monitoring Coil 1
E18	E18- Brake Monitoring Coil -2	Input function for Brake Monitoring Coil 2
E19	E19- Brake Monitoring Coil -3	Input function for Brake Monitoring Coil 3
E20	E20- Brake Monitoring Coil -4	Input function for Brake Monitoring Coil 4

B) Setting the Input menu behavior in the menu B23

The inputs EA1 to EA4 have the possibility, to work with 0V DC switching levels. In this case there will be switched on Pullup-resistors to the inputs. It is possible to choose between „**+24V DC PNP**“ and „**0V DC NPN**“ switching.

Thyssen DAF Gearless with NPN-Signal break release evaluation can be monitored by inverter.

1.11.3 Teach in of the Monitoring Times

In the **Menu B5 monitoring** the brake members shall be activated. In addition, the switch type (NO or NC) are defined. With the help of monitoring times, the behavior of the respective braking element type to be adapted.

Brake Monitoring	
	At the Brake monitoring you can look over four brake coils. After activation you should program the inputs EA1 to Eax with the right input-functions (E17-E20 Menu B22). If you need a brake monitoring, which recognize a null-voltage level (NPN), like situation at Thyssen gearbox and gearless machines TW,DAF, SC... you must choose in the menu B23 PullUp Resistors value 0V-DC (NPN) .
Brake Monitoring Input	
	Here you can put the switch-behaviour. There are two possibilities, like NC-Normally Closed and NO-Normally Open . Standart value is NC.
Brake Monitoring Opening	
	The time needed for the operation of the brake opening a window of up to 2000 ms can be clamped.
Brake Monitoring Closing	
	The time needed for the process of dropping the maximum brake a time window of 2000 ms are clamped.
Brake Monitoring Synchronization	
	The brake elements are monitored for synchronization. The default value for this tolerance time is 500ms.

1.11.4 Fault clearance and Reset

Depending on the number of connected brake circuits may appear in the event of an error of up to 4 errors. In the Menu C2 all error messages are marked present.

ERROR 30	Monitor Brake-1:
	<ul style="list-style-type: none"> - Brake-circuit-1 do not open / close during the travel -> Are the settings OK? Do you have opener or closer-contacts? 0V (NPN-Thyssen) or+24V (z.B. Ziehl-Abegg,..) - Do have connected the brakewires rightly? - Do you have observed, if the brakes open ? -> Brakewires ? - Are the brake-contacts OK ? -> If you have any douts, make a measurement !
	Monitor Brake-2:
	<ul style="list-style-type: none"> - Brake-circuit-2 do not open / close during the travel -> Are the settings OK? Do you have opener or closer-contacts? 0V (NPN-Thyssen) or+24V (z.B. Ziehl-Abegg,..) - Do have connected the brakewires rightly? - Do you have observed, if the brakes open ? -> Brakewires ? - Are the brake-contacts OK ? -> If you have any douts, make a measurement !
ERROR 31	Monitor Brake-3:
	<ul style="list-style-type: none"> - Brake-circuit-3 do not open / close during the travel -> Are the settings OK? Do you have opener or closer-contacts? 0V (NPN-Thyssen) or+24V (z.B. Ziehl-Abegg,..) - Do have connected the brakewires rightly? - Do you have observed, if the brakes open ? -> Brakewires ? - Are the brake-contacts OK ? -> If you have any douts, make a measurement !
ERROR 32	Monitor Brake-4:
	<ul style="list-style-type: none"> - Brake-circuit-4 do not open / close during the travel -> Are the settings OK? Do you have opener or closer-contacts? 0V (NPN-Thyssen) or+24V (z.B. Ziehl-Abegg,..) - Do have connected the brakewires rightly? - Do you have observed, if the brakes open ? -> Brakewires ? - Are the brake-contacts OK ? -> If you have any douts, make a measurement !
ERROR 33	

After remedying the lack of the brake elements / or the external wiring, the drive can be **unlocked by selecting the error menu C2 error memory**.

E31	E31 RESET Braking Element	Possibility of the external reset for brake monitoring elements
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It is also possible to program a free entrance to the input function E31. By connecting a bowl button it is possible to unlock the system via a pulse on this input.

Solely through the on / off of the controller, the control is not unlocked, ie If the error message F30 to F33 is applied and the system shuts off and then switched on again, the control with the appropriate error message locked.

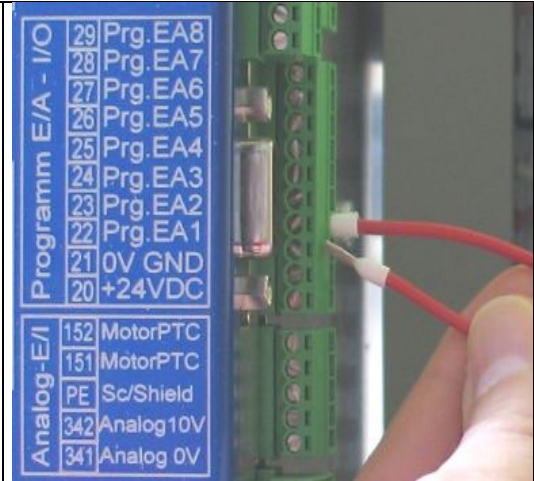
1.11.5 Function test – Self-Monitoring of the Braking Elements after EN81-20/50:2014

Generally

Due to the development of the software, the function of the brake elements in-plant monitoring at KW Aufzugstechnik GmbH in the testing, as well as in the on-site commissioning of the lift system must be examined. The description of the functional test is part of the manual.

Test cable break - Monitoring Input 1

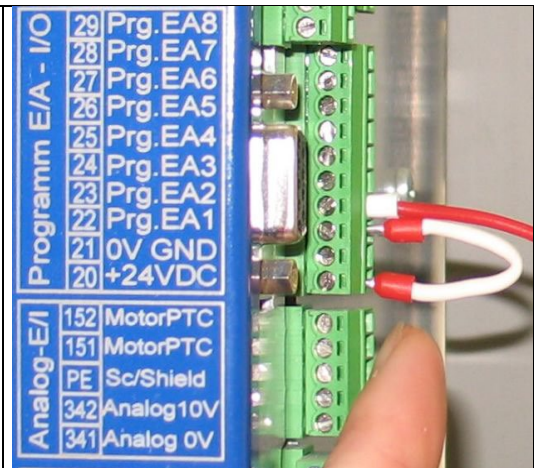
- 1.) Switch off the Signal line at the monitoring input EA1.
- 2.) Return Motion Drive UP or DOWN
- 3.) The GOLIATH-90 gives the error message "F30 - Brake control elements 1" and locks. More trips are not possible!
- 4.) Switch on the Signal line at the monitoring input EA1.
- 5.) With the Return-Drive to try to take a ride. A drive may be not possible!
- 6.) In the menu C2 the GOLIATH-90 can be unlocked in the fault memory by selecting the error. The elevator system is ready to start again.



Removing the monitoring channel EA1

Test cable bridge - Monitoring Input 1

- 1.) Switch off the Signal line at the monitoring input EA1 and put in a jumper between terminal 20 (+24 V DC) and EA1.
- 2.) Return Motion Drive UP or DOWN
- 3.) The GOLIATH-90 gives the error message "F30 - Brake control elements 1" and locks. More trips are not possible!
- 4.) Put off the jumper between the terminal 20 and EA1. Switch on the Signal line at the monitoring input EA1.
- 5.) With the Return-Drive to try to take a ride. A drive may be not possible!
- 6.) In the menu C2 the GOLIATH-90 can be unlocked in the fault memory by selecting the error. The elevator system is ready to start again.



Setting the jumper between 20 and EA1

Repeat the test steps

After the two test steps were carried out for the monitoring braking element 1, then for all other brake circuits have now equivalent to the test steps are carried out!


liftinstituut
SINCE 1933

TYPE EXAMINATION CERTIFICATE FOR LIFTCOMPONENTS

Issued by Liftinstituut B.V.

Certificate no.	: NL12-400-1002-170-02	Revision no.:	2
Description of the product	: Self-Monitoring of the braking elements as part of the protection against unintended car movement and/or ascending car overspeed means		
Trademark	: KW Aufzugstechnik		
Type no.	: GOLIATH-90/921		
Name and address of the manufacturer	: KW Aufzugstechnik GmbH Zimmersmühlenweg 69 D-61440 Oberursel, Germany		
Name and address of the certificate holder	: KW Aufzugstechnik GmbH Zimmersmühlenweg 69 D-61440 Oberursel, Germany		
Certificate issued on the following requirements	: Lifts Directive 2014/33/EU		
Certificate based on the following standard	: EN 81-20:2020 clauses 5.6.6.2 and 5.6.7.3		
Test laboratory	: None		
Date and number of the laboratory report	: None		
Date of type examination	: September 2022		
Additional document with this certificate	: Report belonging to the type examination certificate no.: NL12-400-1002-170-02 rev.2		
Additional remarks	: This revision replaces certificate NL12-400-1002-170-02 rev. 1 of 05-07-2017		
Conclusion	: The product meets the requirements referred to in this certificate taking into account any additional remarks mentioned above.		

Amsterdam

Date : 19-09-2022
Valid until : 19-09-2027
ing A.J. van Ommen
International Business
Manager
Certification decision by

1.11.7 UK-Declaration of Conformity

Discretionary Certificate



Certificate No.	UK12-400-1002-170-02	Revision No.	2
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Description of the product	Self-Monitoring of the braking elements as part of the protection against unintended car movement and/or ascending car overspeed means		
Trademark	KW Aufzugstechnik		
Type No.	GOLIATH-90/921		
Name and Address of the Manufacturer	KW Aufzugstechnik GmbH Zimmersmühlenweg 69 D-61440 Oberursel, Germany		
Name and Address of the Certificate Holder	KW Aufzugstechnik GmbH Zimmersmühlenweg 69 D-61440 Oberursel, Germany		
Certificate Issued on the Following Requirements	Lifts Directive 2014/33/EU		
Certificate Based on the Following Standard	EN 81-20:2020 clauses 5.6.6.2 and 5.6.7.3		
Test Laboratory	None		
Date and Number of the Laboratory Report	None		
Date of Examination	September 2022		
Additional Documentation Supporting this Certificate	Report associated to the Examination Certificate No:	NL12-400-1002-170-02 Rev.2	
	Issued by Liftinstituut, Buikslotermeerplein 381, NL-1025XE Amsterdam. This report has originally been issued with the Examination certificate bearing the same certificate number and is declared to apply in full on this Discretionary Certificate, provided that wherever reference is made to the applicable European Directive and CE marking respectively, the applicable UK Regulation and UKCA marking must be read.		
Additional Remarks	This revision replaces certificate NL12-400-1002-170-02 Rev. 1 of 05-07-2017		
Conclusion	The product subject to this certificate meets the cited requirements/standard taking into account any additional remarks mentioned above.		

		Authorised Signature	
Issue Date	10 October 2022	Signatory Name	Alexander Bingham Miles
Valid Until	19 September 2027	Signatory Title	Certification and Approval Director

Registered in England & Wales No: 4566351	Tel: 01789 295300
Registered Office: Lift Cert Limited	Email: headoffice@liftcert.co.uk
40 Tiddington Road, Stratford upon Avon, Warwickshire, CV37 7BA	

1.12 Manufacturer's Declaration VDE 0100 - 410 and VDE 0100-530

On the subject of VDE 0100-410 (protection against indirect contact), or VDE 0100-530 (fire prevention) in relation to our frequency control devices GOLIATH-90 series following facts can be communicated:

Request by the VDE 0100-410:

A protective device must be in the event of a fault of negligible impedance between the outer conductor and a body or the protective conductor of the circuit or a protective conductor of the equipment, the power supply to the outer conductor of a circuit or the equipment in the 411.2.2.2, 411.3.2.3 or 411.3.2.4 required shutdown break automatically.

Declaration of the Manufacturer:

Under the following conditions is to fulfill the above Requirements for frequency of GOLIATH-90 Series no residual current circuit breaker (RCCB) needed:

- 1.) The potential compensation for the frequency GOLIATH-90 and the motor must comply with the applicable standards (VDE 0100 part 50178:1997 and DIN EN 540:2012-06) are performed.
- 2.) The management of the power line and the line fuses must be performed according to the applicable standards (VDE02984-4, DIN EN 60204-1).

The following scenario is considered capable of proof:

- 1.) When a ground fault within the intermediate circuit of the frequency inverter the upstream fuse switches off due to the short circuit current.
- 2.) The circuit at the output of the inverter (motor circuit) is monitored by an electronic short circuit protection. Basically known as a ground fault is performed every time the drive. It is checked whether the motor cable or motor winding is floating. In the event of an earth fault (and thus with an error negligible impedance between the phase conductor and the protective conductor or a body of the equipment), the frequency with an error message blocks. The output current is switched off within a time $<20\mu\text{s}$. After the shutdown is an impedance $>1\text{ M}\Omega$ between DC and the inverter output available and the output voltage is practically zero.

If the function does not work and the IGBT at the output remains conductive, two scenarios are possible:

- A) Due to the short circuit at the output of the frequency converter and the low conduction resistance of the IGBT, a current that brings the fuse to trigger flows. Compliance as required by the VDE 0100-410 Section 411.3.2.2 disconnection is ensured by selecting the correct fuse. The selection is made according to the cable cross-section. Several simulated test series with the drive GOLIATH90 showed that trigger in this case the upstream fuses within 10ms.
- B) If due to a higher conductivity of the upstream fuse does not blow resistor of the IGBT, the IGBT is destroyed due to the high internal losses. This leads either to the IGBT Durchdiffundierung (and then to trigger the upstream fuse - see A) or the interruption of the IGBT, thereby to interrupt the current flow.

If a residual current circuit breaker required due to special needs or fire prevention, only one AC-DC sensitive residual current circuit breaker RCCB type (type B or B +) should be used. This GFCI has a rated residual current of 30mA for touch protection (recommended according to VDE 0100-530) and a rated residual current of 300mA for fire protection in accordance with Directive VdS 3,501th.

The location of the GFCI breaker is the electrical distribution of the building. An installation in the elevator control cabinet is not advisable, since the transmission line sub-distribution house - Elevator control is not otherwise controlled by the RCD!

It is important to remember that when potential shifts in the earth due to lightning, the RCCB residual current circuit breaker can trigger and so the availability of the elevator installation is reduced.

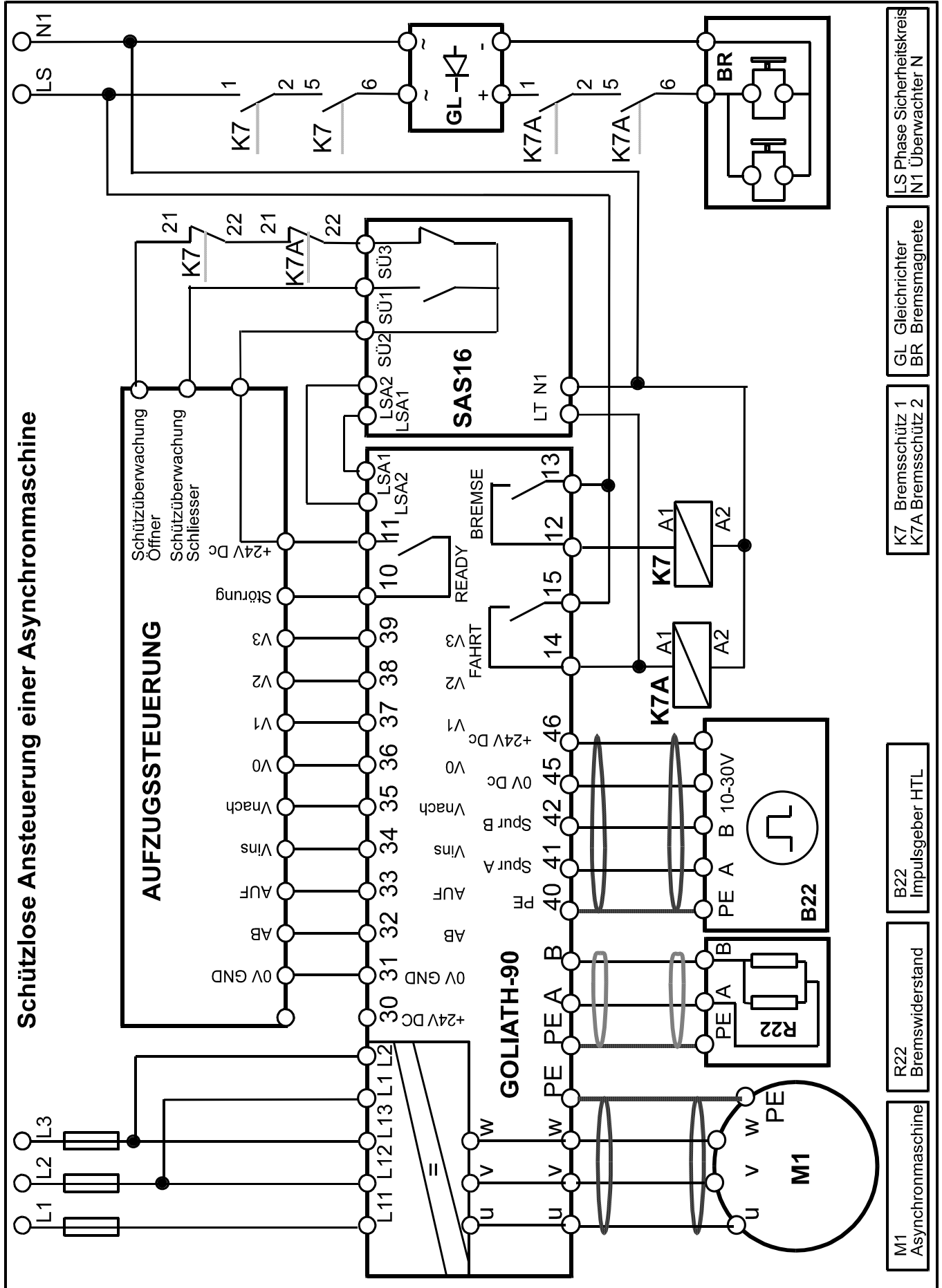


Oberursel, the 04.02.2013

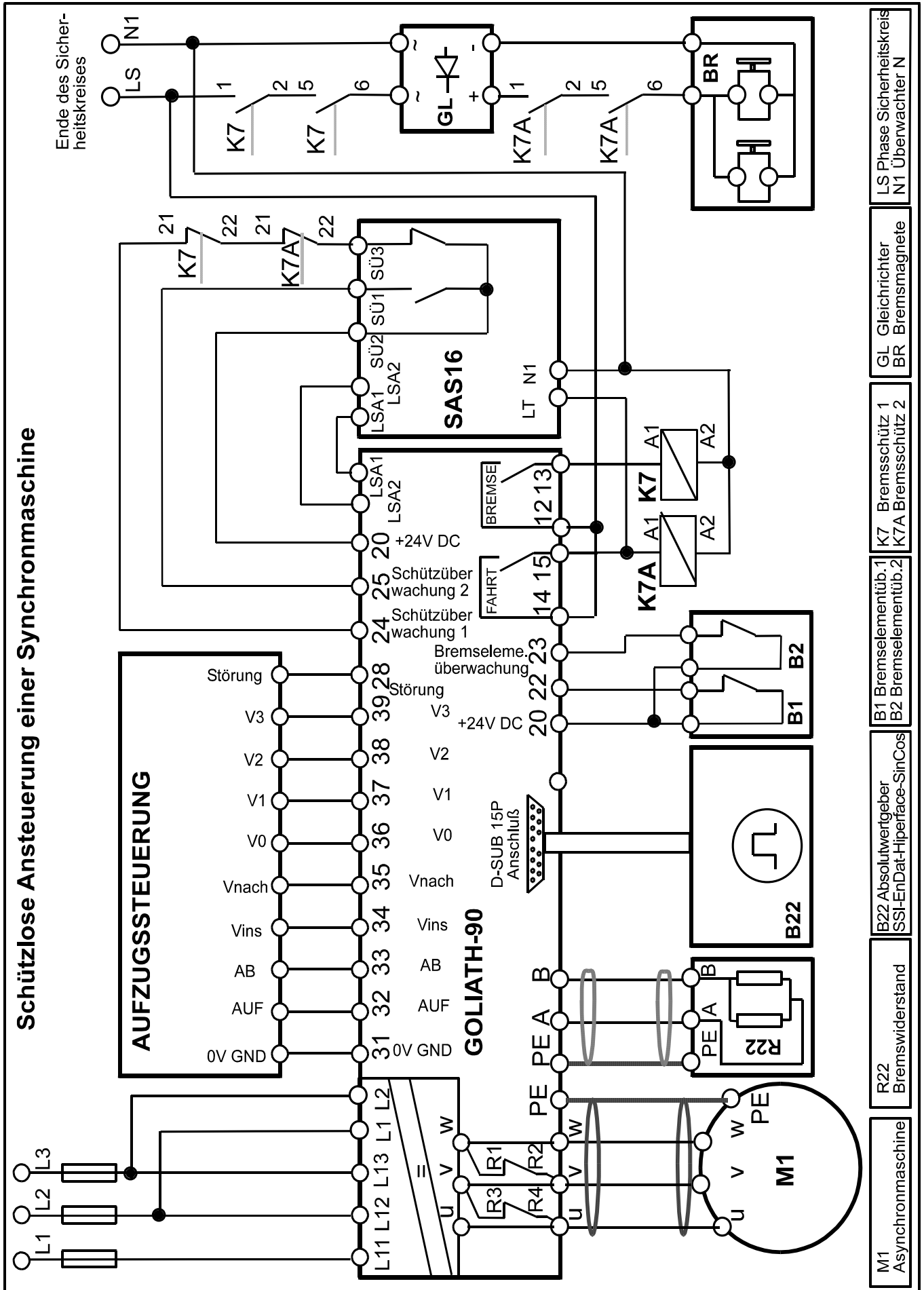
Hans-Werner Walbert
KW Aufzugstechnik GmbH

2. Connection – Interface

2.0 WIRING FOR ASYNCHRONE- & SYNCHRONE-MACHINES WITHOUT CONTACTORS

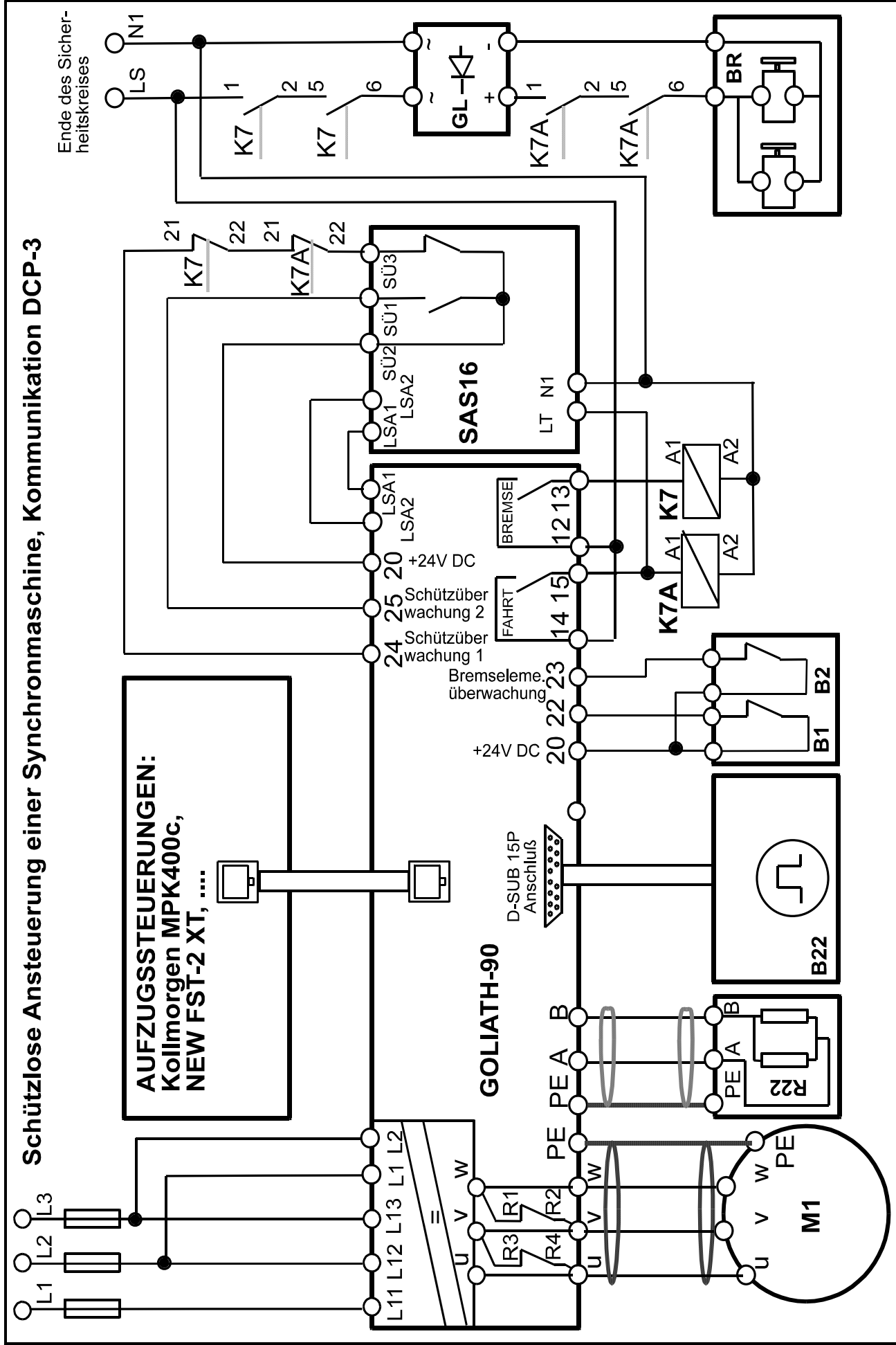


Schützlose Ansteuerung einer Synchronmaschine



2.1 WIRING FOR DCP-3 BUS CONNECTION WITHOUT CONTACTORS

Schützlose Ansteuerung einer Synchronmaschine, Kommunikation DCP-3



**AUFZUGSSTEUERUNGEN:
Kollmorgen MPK400c,
NEW FST-2 XT,**

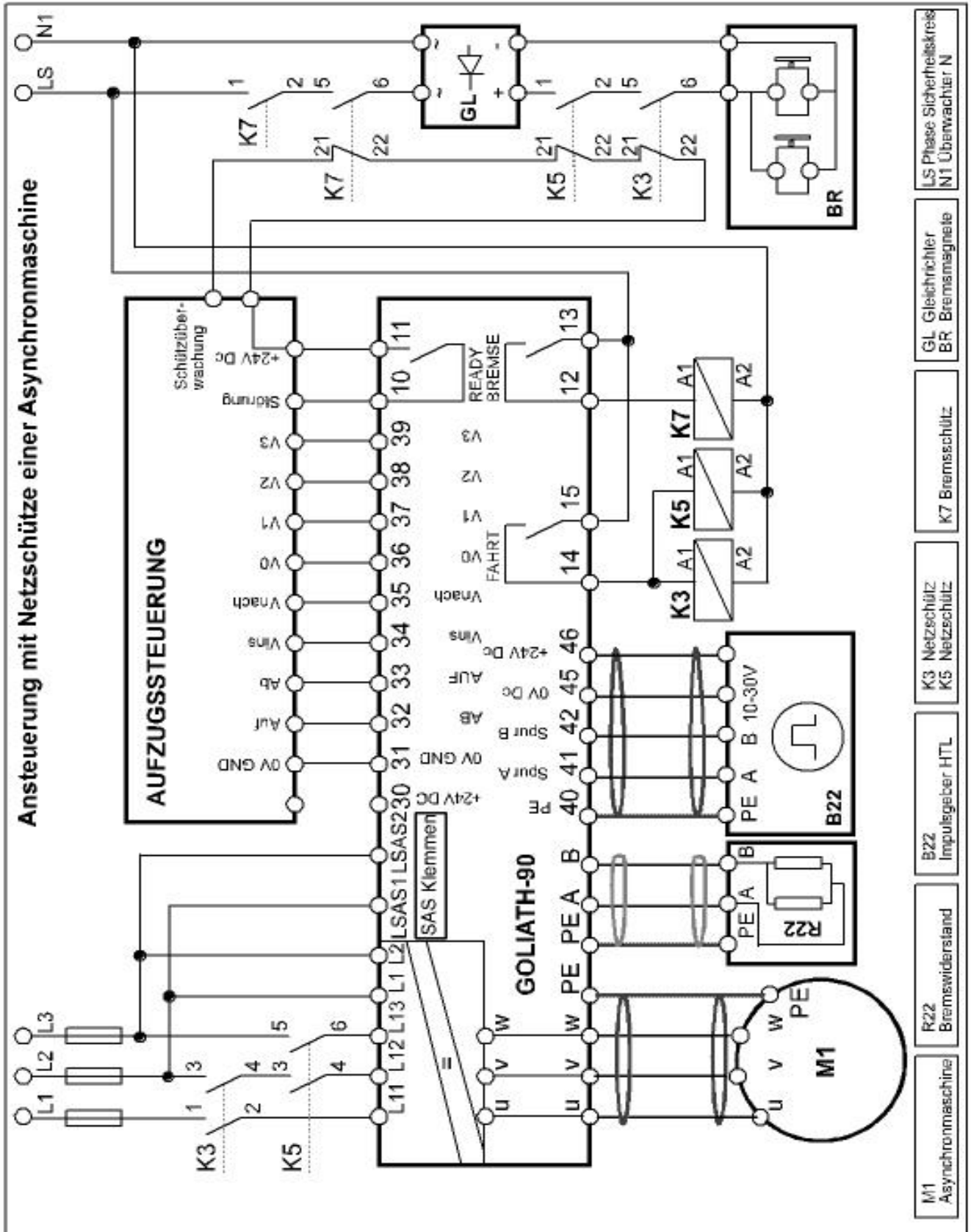
GOLIATH-90

M1	Asynchronmaschine
R22	Bremswiderstand
B22	Absolutwertgeber SSI-EnDat-Interface-SinCos
B1	Bremselementüb.1
B2	Bremselementüb.2
K7	Bremsschütz 1
K7A	Bremsschütz 2
GL	Gleichrichter
BR	Bremsmagnete
LS	Phase Sicherheitskreis
N1	Überwacher N

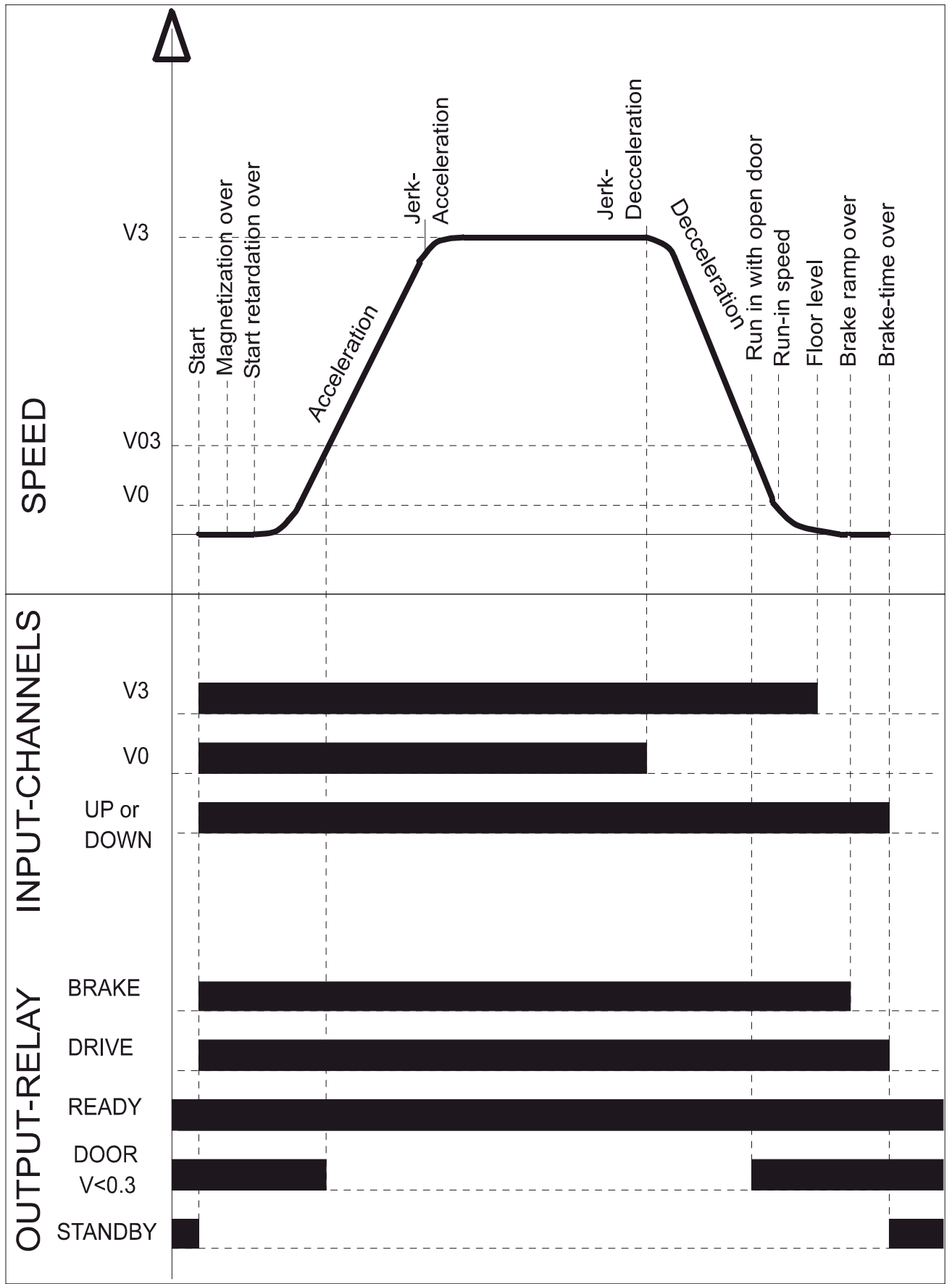
2.2 ELECTRIC WIRING FOR ASYNCHRONE WITH MAIN CONTACTORS

With the introduction of new GOLIATH-90 version without main contactors, note the following when using mains contactors:

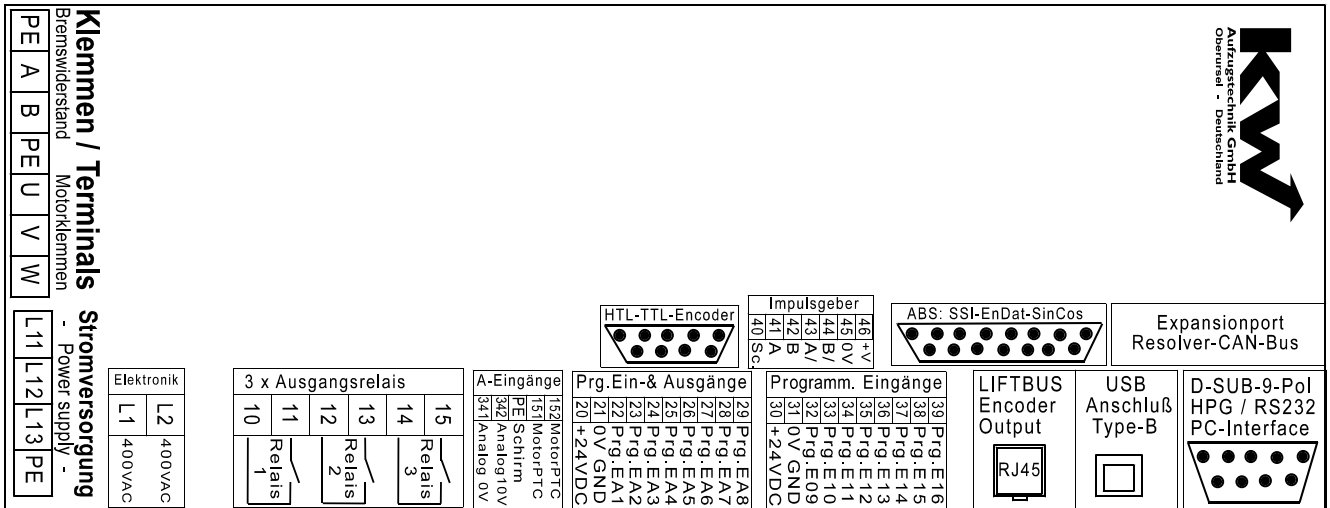
- 1) The SAS inputs LSAS1 and LSAS2 are with the electronics supply L1 or L2 to join.
- 2) The internal menu I1, sub Secure curfew "lock SAS" parameter should be set to NO



2.3 CONTROL SIGNALS AND DRIVE CURVE



2.4 DETAILS ABOUT THE INTERFACES



2.5 MAINS AND MOTOR CONNECTIONS / BRAKE RESISTOR

At the modernization of old elevator units, the old heavy emergency wheel of the motor should be replaced through a new light aluminium- or plastic wheel. The standart version of the Goliath-90 frequency inverter needs an main voltage of 400V AC (Tolerance +10% / -15%).

If you need other main voltages, please connect us. The electronic part of the converter needs a permanent control voltage, in order to avoid time delays at the start operation. Two main conductors are on the line side, which supply the power part of the converter.

The motor must be connected via a 4-core screened line. For reasons of electromagnetic compatibility, the screen must be connected to the mounting plate over a large surface in the control cabinet in the immediate vicinity of the frequency converter.

The motor cable should not exceed a maximum length of 25 meters. The brake resistor cable should be extremely short.

Controller-ampacity (A)	Reading-engine output (mm ²)	Braking resistance Resistor/ Power	Chopper line (mm ²)
12	4 x 2,5	50 Ohm / 1kW	3 x 1,5
22	4 x 4,0	30 Ohm / 3kW	3 x 2,5
32	4 x 6,0	30 Ohm / 3kW	3 x 2,5
42	4 x 10,0	15 Ohm / 6kW	3 x 4,0
52	4 x 10,0	15 Ohm / 6kW	3 x 4,0
62	4 x 16,0	15 Ohm / 6kW	3 x 4,0
82	4 x 25,0	2 x 15 Ohm parallel 6kW	3 x 4,0
102	4 x 35,0	2 x 15 Ohm parallel 6kW	3 x 4,0
122	4 x 35,0	2 x 15 Ohm parallel 6kW	3 x 4,0
142	4 x 50,0	2 x 15 Ohm parallel 6kW	3 x 4,0

2.6 LOADMEASUREMENT / ANALOG-INPUT

The analog inputs 341 and 342 are universal Inputs. At first they are used for connecting a load-measurementsenor, e.g. like a DNS at the roof of the car.

Terminal	Input	Function	Functional description
341	0V-GND	Loadmeasurement	Reference potential
342	0-10V	Loadmeasurement	Load measurement signal
PE	PE/ Shield	Shield	

2.7 MOTOR PTC

The inputs for the Motor-PTC are terminals 151 and 152. The contactlevel for activating the motor-PTC is available in the **menu B2 In- / Outputs B25 Monitoring** between 0,1 Kohm to 10,0 KOHm.

Klemme	Eingang	Bedeutung	Functional description
151	PTC	Eingang –Motor PTC	
151	PTC	Eingang –Motor PTC	
PE	PE/ Schirm		

2.8 RELAYOUTPUTS RELAY-1 to RELAY-3

The inverter offers three Relays with a potentialfree opener-contact, which are free programmable. The nominal voltage is between 24 V DC to 250 V AC at output power of 1000 mA (no inductive load!). There is a pool of 25 output functions. The Setting of the output functions is controlled in the **Menu B2 IN/ Outputs / B21 Outputs**.

For checking of the function-setting, you can use the menu **C-DIAGNOSIS / C1 In-/ Outputsignals** (look at Capture 3.16). The hardware technical connection happend about the 6-pole Terminal.

Terms	Relays	Function	Preselection Matrix-1: Function description
10 – 11	Relay-1	Free program. Output	Outputfunction A01 READY
12 – 13	Relay-2	Free program. Output	Outputfunction A03: Breake Contactor
14 – 15	Relay-3	Free program. Output	Outoutfunction A04: Main Contactor

2.9 Digital IN-/ OUTPUTS EA1 to EA8

All these channels can be Inputs-, but also Output-channels. The channels are potentialfree about cptocouplers and designed for +24V DC. The inputs can used with the +24V DC Voltage of the inverter or the +24V DC Voltage of the lift controller (pay attention to the GND connetion to the lift controller !). If you use the channels as outputs, they are limited in the current (200 mA for every output).

The In- and outputs are free programmable. There is a pool of 50 In- and output function. Setting of Outpu tfunctions is controlled in the **Menu B2 IN/ Outputs / B21 Outputs**. If you wish a input-function you can visit the **Menu B2 IN/ Outputs / B22 Inputs**.

For checking of the function-setting, you can use the menu **C-DIAGNOSIS / C1 In-/ Outputsignals** (look at Capture 3.16). The hardware technicak connection happend about the 10-pole Terminal. The first four channels, EA1 to EA4 are spezial types, because you can switch them to a behaviour of „0V-switching“.

So you can make a Brakeopen-Monitor directly on a NPN-Base.

20	+24V	+24V DC	Supply Voltage +24V DC
21	OV DC	GND 0V DC	GND
22	EA1	Free program. In- / output channel	Input-function E17: Brake open monitor Coil 1
23	EA2	Free program. In- / output channel	Input-function E18: Brake open monitor Coil 2
24	EA3	Free program. In- / output channel	Free
25	EA4	Free program. In- / output channel	Free
26	EA5	Free program. In- / output channel	Input-function E21: Contactor monitor
27	EA6	Free program. In- / output channel	Free
28	EA7	Free program. In- / output channel	Output-function A06: Drive in open Door V < 0,3 m/s
29	EA8	Free program. In- / output channel	Output-function A08: Speedlevel V < Vx
20	+24V	+24V DC	Supply Voltage +24V DC

2.10 DIGITAL INPUTS E09 to E16

The channels are potentialfree about cptocouplers and designed for +24V DC. The inputs can used with the +24V DC Voltage of inverter or the +24V DC Voltage of lift controller (pay attention to the GND connetion to lift controller !).

All the Inputs are free programmable. Setting of the Input-functions is controlled in **Menu B2 IN/ Outputs / B22 Inputs**. For checking of function-setting, you can use menu **C-DIAGNOSIS / C1 In-/ Outputsignals** (look at Capture 3.16). The hardware technical connection happend about 10-pole terminal.

Terms	Name	Function	Preselection Matrix-1 : Function description
30	+24V	+24V DC	Supply Voltage +24V DC
31	OV	GND 0V DC	GND 0V DC
32	E09	Free program. Input channel	Input-function E10: Direction Down
33	E10	Free program. Input channel	Input-function E09: Direction Up
34	E11	Free program. Input channel	Input-function E01: Inspectionsspeed Vi1
35	E12	Free program. Input channel	Input-function E04: Adjustmentspeed Vn
36	E13	Free program. Input channel	Input-function E05: Run-in speed V0
37	E14	Free program. Input channel	Input-function E06: Interim speed V1
38	E15	Free program. Input channel	Input-function E07: Interim speed V2
39	E16	Free program. Input channel	Input-function E08: Final speed V3

2.11 LIFTBUS INTERFACE AND SHAFT ENCODER OUTPUT

The interface for the Liftbus, and the pulse encoder simulation for shaft information via the RJ-45 jack. The lift bus connection happens on the physical topology 485. The protocols for the KW-Liftbus 1 & 2, the Thyssen Liftbus LS2, and DCP-3 can be selected by parameter setting. In addition, the interface is a driving force for shaft information includes reproduction, which is opto galvanically separated from the actual pulse. It will spend four lanes with a voltage level of +5 V DC. The 0V GND line serves as a potential connection to the controller. For the connection of the encoder simulation is an RJ-45 adapter is available.

RJ-45Anschluß-G90	Pin	Description	RJ-45 Adaptcard KW-Nr. 1000730
	Pin 1	RS-485 Channel B	
	Pin 2	RS-485 Channel A	
	Pin 3	GND – 0V DC	
	Pin 4	N.C	
	Pin 5	Encoder output Channel A	
	Pin 6	Encoder output Channel A/	
	Pin 7	Encoder output Channel B	
	Pin 8	Encoder output Channel B/	

2.12 USB-INTERFACE

	<p>About the USB Interface, Type B, in future it is possibility to connect this device with the frequency inverter. We are devellopping a PC-software, which allows you to change parameters like the hand-programm-device HPG60. The PC software offers a lot of technical features.</p>
--	---

2.13 SERIAL INTERFACE RS232

With serial interface (RS 232, Sub-D-terminal) you can change the parameters and look at the actual values of the motor. There are two different possibilities to choose:

You can use the serial interface to connect the **hand-program-device HPG60**. This device has a keyboard and four rows LCD display and allows you to change all parameters. It shows the actual valuas of the motor and has a fault memory with an deep of 20 messages. Above the **hand-program-device HPG60** is a lot of interested informations in the following chapters.

2.14 ENCODER INPUT 9-pole D-SUB

For the speed measurement you need a digital incremental encoder. For reason of electromagnetic compatibility, the screen is placed on the plug casing over a large surface both on the device side and on the encoder side. The maximum length should be 25 meters.

The digital encoder must be mounted directly at the motor to get the best results. You can use digital incremental encoder with HTL-supply (supply voltage 5 to 24V DC), Encoder with 1Vss-Sin/Cos output, also encoders with RS422-interface (supply voltage 5V DC). The software parameter allows the right value for Voltage.

Incremental encoder D-Sub-9	Pin	Description
	Pin 1	Pulse Input Channel A/ (sin-)
	Pin 2	Pulse Input Channel A (sin+)
	Pin 3	Pulse Input Channel B (cos+)
	Pin 4	Pulse Input Channel B/ (cos-)
	Pin 5	N.C.
	Pin 6	N.C.
	Pin 7	GND – 0V DC
	Pin 8	N.C.
	Pin 9	Supply Voltage +V

2.15 ENCODER INPUT 7-pole TERMINAL

If the encoder has not the right pinning for the D-Sub-terminal, you can use the 7-pole. You can use digital incremental encoder with HTL-supply (supply voltage 5 to 24V DC), Encoder with 1Vss-Sin/Cos output, also encoders with RS422-interface (supply voltage 5V DC). The software parameter allows the right value for Voltage. Maximum current should be 160mA. Frequency inverter handle signals between 300 and 20000 pulses.

Terminal 7-pole	Term	Description
	Pin 40	Shield / Eart
	Pin 41	Pulse Input Channel A (sin+)
	Pin 42	Pulse Input Channel B (cos+)
	Pin 43	Pulse Input Channel A/ (sin-)
	Pin 44	Pulse Input Channel B/ (cos-)
	Pin 45	GND – 0V DC
	Pin 46	Supply Voltage +V

2.16 SINUS-ENCODER AND ABSOLUTVALUE-INPUTS



If you want to use synchrons-motors of the companies like Sassi, Xinda, Loher, Ziehl-Abegg, Montanari, Thyssen, or all the others ...you need an absolutevalueencoder, which handles speed and angle of motor. There is a 15 pole female Sub-D Interface which supports all main absolutevalue systems. The Sinus / Cosinus-Encoder for asynchrone-maschinen will be also supported.

Absolutevalue encoder with SSI-Interface and 1 Vss-Sin/Cos-Incremental channels:

PinTerm	PinTerm	PinTerm	PinTerm
1	DATA + (Data channel)	9	CLK - (Clock channel)
2	DATA - (Data channel)	10	CLK + (Clock channel)
3	N.c. or +5V Sensor	11	N.c. or 0V Sensor
4	+5V DC	12	A + (Sin-Incremental channel)
5	OV GND	13	A - (Sin-Incremental channel)
6	N.c.	14	B - (Cos-Incremental channel)
7	B + (Cos-Incremental channel)	15	n.c.
8	N.c.	Shield / 16	Earth

Absolutevalue encoder with EnDat-Interface and 1 Vss-Sin/Cos-Incremental channels:

PinTerm	PinTerm	PinTerm	PinTerm
1	DATA + (Data channel)	9	CLK - (Clock channel)
2	DATA - (Data channel)	10	CLK + (Clock channel)
3	N.c. or +5V Sensor	11	N.c. or 0V Sensor
4	+5V DC	12	A + (Sin-Incremental channel)
5	OV GND	13	A - (Sin-Incremental channel)
6	N.c.	14	B - (Cos-Incremental channel)
7	B + (Cos-Incremental channel)	15	n.c.
8	N.c.	Shield / 16	Earth

Absolutevalue encoder with BiSS-C-Interface and 1 Vss-Sin/Cos-Incremental channels:

PinTerm	PinTerm	PinTerm	PinTerm
1	DATA + (Data channel)	9	CLK - (Clock channel)
2	DATA - (Data channel)	10	CLK + (Clock channel)
3	N.c. or +5V Sensor	11	N.c. or 0V Sensor
4	+5V DC	12	A + (Sin-Incremental channel)
5	OV GND	13	A - (Sin-Incremental channel)
6	N.c.	14	B - (Cos-Incremental channel)
7	B + (Cos-Incremental channel)	15	n.c.
8	N.c.	Shield / 16	Earth

Absolutevalue encoder with Hiperface-Interface and 1 Vss-Sin/Cos-Incremental channels:

PinTerm	Connecting	Pin/Term	Connecting
1	DATA + (Data channel)	9	N.c.
2	DATA - (Data channel)	10	N.c.
3	N.c.	11	N.c.
4	+8V DC	12	A + (Sin-Incremental channel)
5	OV GND	13	A - (Sin-Incremental channel)
6	N.c.	14	B - (Cos-Incremental channel)
7	B + (Cos-Incremental channel)	15	n.c.
8	N.c.	Shield / 16	Earth

Absolutevalue encoder with Sin / Cos-Interface and 1 Vss-Sin/Cos-Incremental channels:

PinTerm	Connecting	Pin/Term	Connecting
1	D+ (Cos-Commuting)	9	C- (Sin-Commuting)
2	D- (Cos-Commuting)	10	C+ (Sin-Commuting)
3	N.c. oder +5V Sensor	11	N.c. oder 0V Sensor
4	+5V DC	12	A + (Sin-Inkrementalspur)
5	OV GND	13	A - (Sin-Incremental channel)
6	N.c.	14	B - (Cos-Incremental channel)
7	B+ (Cos-Incremental channel)	15	n.c.
8	n.c.	Schirm/ 16	Earth



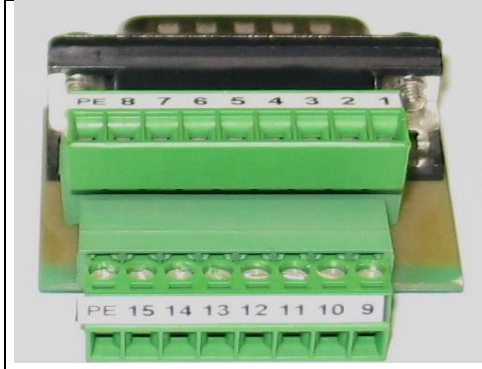
Absolutevalueencoder Adapters for Gearless-Machines:

1000601	Absolutevalueencoder Adapter- EnDat for Thyssen (HD ECN 1313) DAF & SC
1000602	Absolutevalueencoder Adapter - EnDat for SAD (KEB F5-ECN1313) WSG08 & 16
1000603	Absolutevalueencoder Adapter - Sin/ Cos for Xinda
1000604	Absolutevalueencoder Adapter - EnDat for Xinda (HD ECN 413)
1000605	Absolutevalueencoder Adapter - Sin/ Cos for Monitor (ECN 1385)
1000606	Absolutevalueencoder Adapter - SSI für Blocher / SwissTraction (Dietz) GA41 / 42
1000607	Absolutevalueencoder Adapter - EnDat for Xinda (ERN487)



Expansions -Absolutevalueencoder Cables:

1000610	Absolutevalueencoder Cable, - 15P D-Sub Extension, 5m Length
1000611	Absolutevalueencoder Cable, - 15P D-Sub Extension, 10m Length
1000612	Absolutevalueencoder Cable, - 15P D-Sub Extension, 15m Length
1000613	Absolutevalueencoder Cable, - 15P D- Extension, 20m Length
1000614	Absolutevalueencoder Cable, - 15P D- Extension, 25m Length
1000615	Absolutevalueencoder Adapter - SSI für Blocher / SwissTraction (Dietz) GA41 / 42



G90-Terminal Adapter-ABS-Encoder

This adapter allows to connect absolute encoder cable with open end(there is no connector present, but only cable ends) via screw with absolute value encoder input of inverter.

The shield cable must be screwed on the shortest path in PE screw terminal. Terminal markings comply with pinout of 15-pin D-sub connector.

Function of the terminal is dependent on absolute encoder type.

Please note that four different systems at the absolute encoder preceding page!

2.17 Expansionport Expansioncard Resolverinterface

At synchronous machines from Alpha Gear GmbH a resolver is used for recording one-speed. This resolver is a analog module which build sin and cosinus graphs. By analog –digital conversion can be attain speed and angular. For connection resolver one needs the G90-Resolver-Card-01. In case of drive is located on serial interface is an pre-cut case for outbreak of expansion port. This pre-cut housing outbreak must be removed. After removal of cover the resolver can be mounted right on front of two threaded bolts. If resolver-slot used then two pulse inputs A and B can be hardwired on standard incremental encoder to prevent interference. The easiest way is 7-pole speedometer plug.

BRÜCKE VON SPUR A ZU 0V DC

BRÜCKE VON SPUR B ZUR +V DC

Terminal-41 (A) connect with terminal 45 (0V)
Terminal-42 (B) connect with terminal 46 (+V)

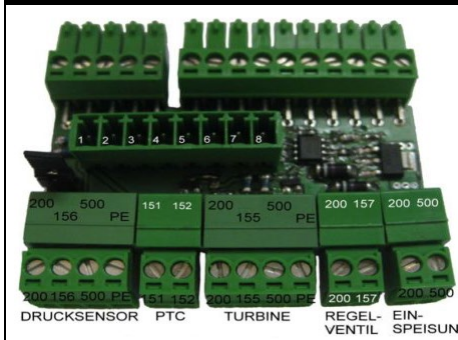
G90-Resolver has a 15-pin Sub-HD connector. Pin assignment is as follows:

Pin	Connection	Pin	Connection
1	n.c.	9	COS +
2	n.c.	10	REF +
3	SIN -	11	n.c.
4	COS -	12	n.c.
5	REF -	13	n.c.
6	n.c.	14	n.c.
7	n.c.	15	n.c.
8	SIN +	Shield	Earth

2.18 Additional card CANopen interface on the expansion port

The additional card for CANOpen is connected to the expansion port. In the housing of the frequency converter there is a pre-cut housing cutout for the expansion port above the serial interface. This pre-cut housing cutout must be removed.

2.19 EXPANSIONCARD ALGI AZFR FOR HYDRAULIC WITH FREQUENCY INVERTER



For frequency regulated hydraulic elevators of the company ALGI you need an expansion card, called ALGI AZFR to recognize data of the pressure sensor, the speed of turbine and to switch on the regulate valve.

Expansion card will be connected on terminals of five pole analog-pflug and 10 pole pflug of inputs EA1-EA8.

The cables of sensors can be connected in front of card.

Pressure sensor Type 4–20mA Pflug 4-poles	Terminal	FUNCTION (Jumper on the Topside of the PCB!)	Colour
	Pin 200	Power supply voltage +24V DC	Brown
	Pin 156	Pressure input	Blue
	Pin 500		Orange
	Pin PE	Shield	PE
MotorPTC Pflug 2-poles	Terminal	Function	Colour
	Pin 151	Motor PTC	
	Pin 152	Motor PTC	
Turbine Pflug 4-poles	Terminal	Function	Colour
	Pin 200	Power supply voltage +24V DC	Brown
	Pin 155	Signal	Blue
	Pin 500	GND 0V	Black
	Pin PE	Shield	PE
Regulate value Pflug 2-poles	Terminal	Function	Colour
	Pin 200	Poer supply voltage +24V DC	Black
	Pin 157	Valve input	Black
DC-Supply Stecker 2-polig	Terminal	Function	Colour
	Pin 200	Power supply voltage +24V DC	Intern
	Pin 500	GND 0V	Intern

Siko incremental encoder engine type, engine oil for the sub, with 4 TTL execution traces, and 1024 pulses. The pin assignment is according to the following table:

Pflug 7-polig	TERMS	FUNCTION	COLOUR
	Pin 40	Shield / Earth	PE
	Pin 41	Channel A	Red
	Pin 42	Channel B	Orange
	Pin 43	Channel A/	Yellow
	Pin 44	Channel B/	Green
	Pin 45	GND – 0V DC	Black
	Pin 46	Power supply voltage +24V DC	Brown

TERMS	NAME	FUNCTION	Default for frequency regulated hydraulic
1	200	+24V DC	Power supply voltage +24V DC
2	500	GND 0V DC	GND 0V
3	EA2	Free programmable in- & output	free
4	EA3	Free programmable in- & output	free
5	EA5	Free programmable in- & output	free
6	EA6	Free programmable in- & output	free
7	EA7	Free programmable in- & output	free
8	EA8	Free programmable in- & output	Hydraulic pressure limit - 1

2.20 ACCU-EVACUATION-UNIT EVA-60 LIGHT FOR A EVACUATION TO THE NEXT FLOOR



The EVA-60-Light Unit is a very strong USV-Unit, which allows the evacuation drive to the next floor.

Cab light, processor unit and controlled door operator will be supplied.

2.21 AUTOMATIC RESCUE DEVICE TYPE EVA-90 FOR A EVACUATION TO THE MAIN FLOOR

Compact automatic rescue device for frequency-controlled cable elevator systems, especially roomless lifts. The power range extends from **4 kW to 42 kW**.

The device generates a three-phase sinusoidal three-phase network 400V AC 50 Hz, which enables an evacuation trip against the load with reduced driving speed to the lowest level.

An acceleration current of 120% of the nominal current is available for 10 seconds. When the journey is finished, the doors are opened. The device includes an LCD display for error diagnosis.

A battery voltage of 48V DC is provided to supply the small and medium-sized Eva unit. The large unit works with 96V DC.

Technical Details Maße und Gewichte

Types-Sizes	Max. Power (kVA)	With (mm)	Height (mm)	Depth (mm)	Weight (kg)
EVA-90-12	2,50	382	420	180	23*
EVA-90-21	4,00	382	420	180	26*
EVA-90-42	8,00	382	565	250	44*

* Additional battery unit



2.22 Conversion Guide GOLIATH-60to GOLIATH-90 with MK96 and Phasenbridge

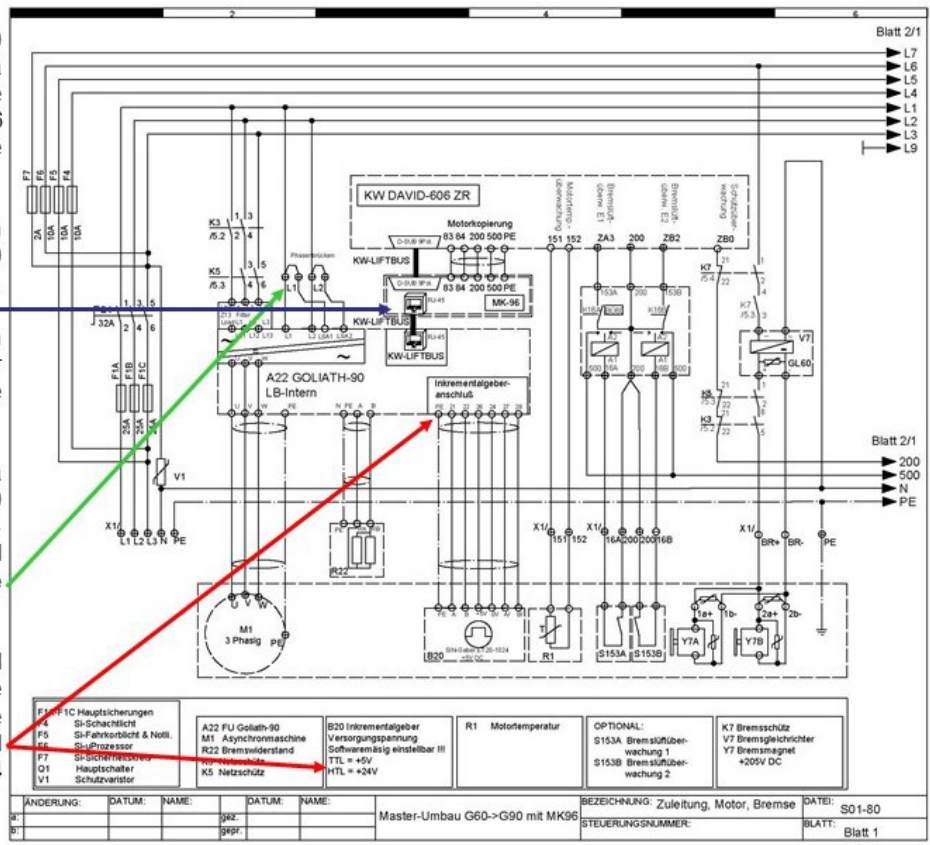
If a old and famous Goliath-60 frequency converter is replaced by a new frequency converter of the GOLIATH-90 series in a DAVID-D606 or - D2005 control system, the following must be observed:

1.) Since the GOLIATH-60 had a 9-pin D-Sub bus line, but the GOLIATH-90 has an RJ-45 bus cable connection, the **MK96 adapter** is required.

For the motor copying, the lines from the MK96 to the pulse encoder connector on the DAVID must be established.

2.) Since the GOLIATH-90 is a contactorless converter, but the G60 still has contactors, the input LSA1 - LSA2 on the G90 must be supplied with voltage. A so-called **phase bridge** is used for this.

3.) The encoder must be relaunched on the GOLIATH-90. In contrast to the G60, the G90 has an adjustable voltage supply. The **encoder type** and thus the voltage are set in the **A4 engine / gear menu**.

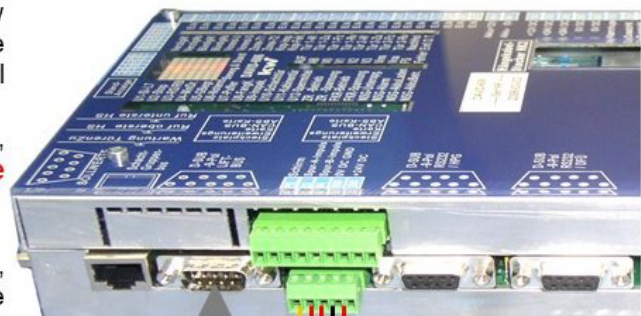


The MK96 adapter is required when a old and famous Goliath-60 frequency converter is replaced by a new frequency converter of the GOLIATH-90 series, as the frequency converter communicates with the control (DAVID-606 or -2005) via BUS.

Since the GOLIATH-60 had a **9-pin D-Sub bus cable**, but the GOLIATH-90 has an **RJ-45 bus cable** connection, you of course need an adapter!

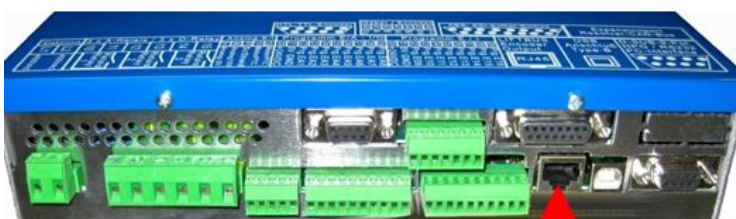
Many of the older controls operate with a **motor copy**, i.e. the impulses of the motor encoder are used for the digital copying of the control. That is why the MK96 must also provide the impulses for shaft copying. The five lines are to be established between the controller (D606, D2005) and the MK96.

DAVID-D606



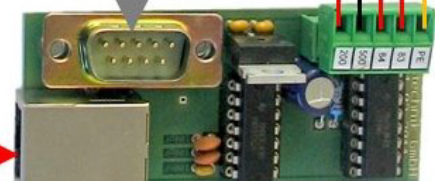
D-Sub 9 pol. Liftbuscable

Motor-copy



Frequencyinverter GOLIATH90

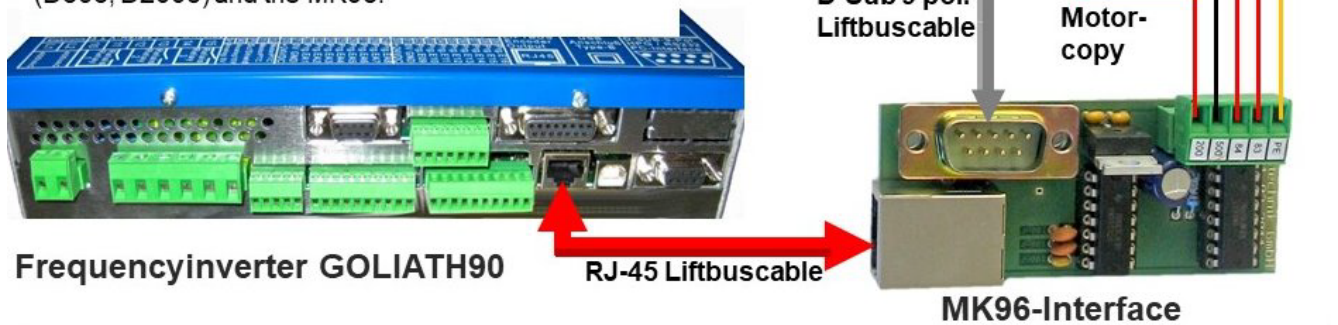
RJ-45 Liftbuscable



MK96-Interface

The **MK96 adapter** is required when a old and famous Goliath-60 frequency converter is replaced by a new frequency converter of the GOLIATH-90 series, as the frequency converter communicates with the control (DAVID-606 or -2005) via BUS. Since the GOLIATH-60 had a **9-pin D-Sub bus cable**, but the GOLIATH-90 has an **RJ-45 bus cable** connection, you of course need an adapter!

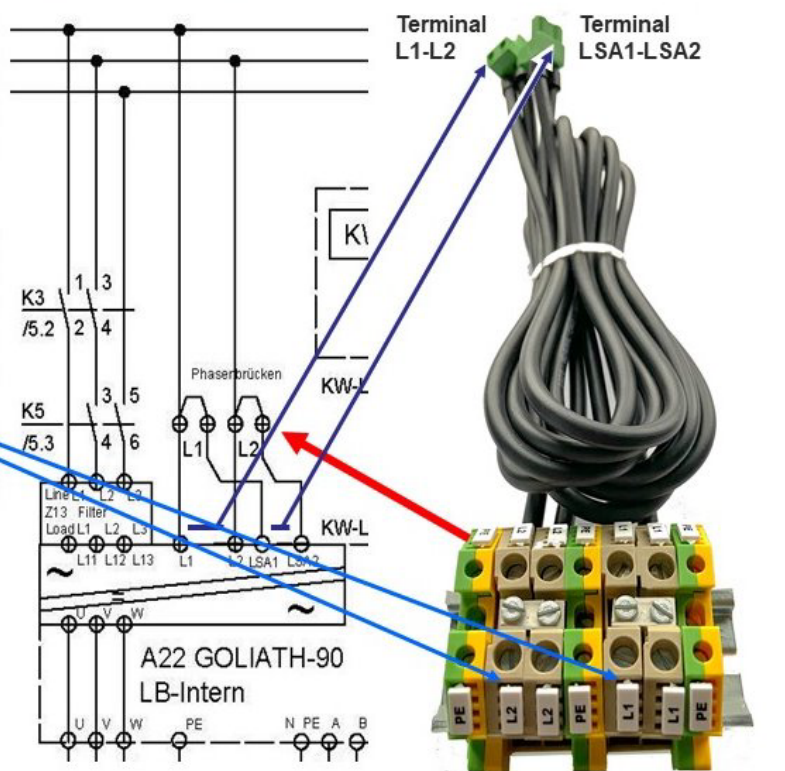
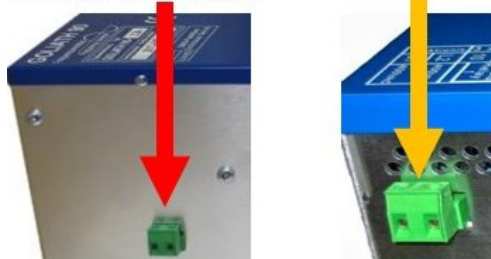
Many of the older controls operate with a **motor copy**, i.e. the impulses of the motor encoder are used for the digital copying of the control. That is why the MK96 must also provide the impulses for shaft copying. The five lines are to be established between the controller (D606, D2005) and the MK96.



Since the GOLIATH-90 is a contactorless converter, but the GOLIATH-60 still has contactors, the input LSA1– LSA2 on the G90 must be supplied with voltage in addition to the 400V supply input L1- L2. A so-called **phase bridge** is used for this.

With the existing short-circuit-proof rubber cables, the existing green plug is disconnected and the cables are placed on one side of the terminals at L1 or L2. On the other side there are already two rubber cables with green plugs.

A green plug is connected to the previous supply input L1- L2, the other on the side of the housing, Position LSA1- LSA2!



3. PARAMETERDESCRIPTION

A-TRAVEL				
A1 SPEED			DEFAULT-Value	NEW-VALUE
Adjustment Speed	Vn	0,5 UpM to 20,0 UpM	1,0 UpM	
Inspection	Vi1	10,0 UpM to 20,0 UpM	15,0 UpM	
Inspection	Vi2	15,0 UpM to 100,0 UpM	20,0 UpM	
Manual Speed	VR	10,0 UpM to 100,0 UpM	20,0 UpM	
Evacuation Speed	VE	10,0 UpM to 100,0 UpM	30,0 UpM	
Run-In Speed	V0	1,0 UpM to 20,0 UpM	10,0 UpM	
Interim Speed	V1	10,0 UpM to 70,0 UpM	50,0 UpM	
Interim Speed	V2	50,0 UpM to 100,0 UpM	70,0 UpM	
Final Speed	V3	70,0 UpM to 100,0 UpM	100,0 UpM	
Maximum Speed		0,1 UpM to 100,0 UpM	100,0 UpM	
A2 SPEED CURVE				
Acceleration		010% 0,10m/s2 to 200% 2,00m/s2	050% 0,50m/s2	
Jerk Acceleration		010% 0,10m/s3 to 200% 2,00m/s3	050% 0,50m/s3	
Deceleration		010% 0,10m/s2 to 200% 2,00m/s2	080% 0,80m/s2	
Jerk Deceleration		010% 0,10m/s2 to 200% 2,00m/s2	080% 0,80m/s3	
Breaking Distance V1		Off / Learning Drive	OFF	
Breaking Distance V2		Off / Learning Drive	OFF	
Breaking Distance V3		Off / Learning Drive	OFF	
A3 START / STOP Rope Elevator				
Start Delay Forced Ending		Brake/ Time	Time	
Start Delay Time		0 msek to 10000msek	700 msek	
Expert-Start Ramp		0,001m/s2 to 0,100m/s2	0,020 m/s2	
Expert-Start Speed		Aus/ 0,0001UpM to 50,0 UpM	1,0UpM	
Expert-Start Speed Time		0 ms to 2000ms	100ms	
Quick Start		Aus/ Vormagnet.+ Bremse/ nur Vormag.	OFF	
Direct Run-In		Off / ON	OFF	
Run-In Ramp V0>0 Deceleration		0,001m/s2 to 1,000 m/s2	0,050m/s2	
Post Braking Froced Ending		Time / Brake	TIME	
Post Braking		10mSek to 3000 mSek	1500 mSek	
Clutch Rescue		OFF / ON	OFF	
Position Controller		OFF / ON	ON	
Expert-Trigger Position Controller Start		Bremse / 1 to x Impulse	1 Impuls	
Expert- Trigger Position Controller Delay		000-500 mSek	100 mSek	
Expert Position Controller -Brake P-Part		10 to 32000	8000	
Expert-Position Controller -Brake I-Part		10 to 3000	80	
Expert- Position Controller -Brake Time		0 to 1000	450 mSek	
Expert-Position Controller -Speed P-Part		10 to 32000	8000	
Expert Position Controller -Speed I-Part		10 to 3000	80	
Expert- Position Controller -Speed Time		Immer aktiv / 0000-1000mSek	400 mSek	
Expert-Speed-Controller-Speed-0 P-Part		100 to 32000	12000	
Expert- Speed-Controller-Speed-0 I-Part		10 to 03000	100	
Expert- Speed-Controller-Speed-0 Time		0 mSek to 1000mSek	400 mSek	
Expert- Speed-Controller-S-Ramp P-Part		100 to 32000	12000	
Expert- Speed-Controller-S-Ramp I-Part		10 to 3000	100	
Expert- Speed-Controller-S-Ramp Time		0 msek to 1000	400 mSek	
Expert- Speed-Controller-Filter PT1-Filter		OFF / 1 ms to 60ms	OFF	
A3 START / STOP Hydraulic ALGI AZFR				
Pressure Set Up - Start Speed			100 U/Min	
Pressure Set Up Ramp			0,005 m/s2	
Pressure Set Up - Max. Speed			500 U/Min	
Pressure Set Up - Threshold			0,5 Bar	
Start Ramp Up - Acceleration			0,008m/s2	
Start Ramp Up - Time			800 ms	
Start Ramp Down - Time Valve			200 ms	
Start Ramp Down - Acceleration			0,06m/s2	
Start Ramp Down - Time			1000 ms	
Quick Start		OFF/ Vormagnet.	OFF	
Direct Run-In		Off / ON	OFF	
Run-In Ramp V0>0 Deceleration		0,001m/s2 to 1,000 m/s2	0,050m/s2	
Post Braking Froced Ending		Time / Brake	TIME	
Expert- Speed-Controller-S-Ramp P-Part		100 to 32000	12000	
Expert- Speed-Controller-S-Ramp I-Part		10 to 3000	100	
Expert- Speed-Controller-S-Ramp Time		0 msek to 1000	400 mSek	
Expert- Speed-Controller-Filter PT1-Filter		OFF / 1 ms to 60ms	OFF	

A4 Motor/ Getriebe - Asynchron-Seil			
drive	Asynchron- / Synchron- / Hydraulik	Asynchron-Maschine	
Motor Typenschild Nenndrehzahl	0300UpM bis 3000UpM	1420UpM	
Motor Typenschild Nennfrequenz	01,0Hz bis 99,9 Hz	50,0Hz	
Motor Typenschild Nennstrom	002,0A bis 999,9A	3,8A	
Motor Typenschild Cosinus PHI	0,65 bis 0,95	0,85	
Motor Rotation	Rechts/ Links	Rechts	
Encoder System	Aus; TTI +5V ; sin/cos-1Vss+5V; HTL +15V; HTL +24V	TTL +5V	
Encoder System Resolution	65 lmP/U bis 99999lmP/U	02500lmP/U	
Encoder System	A-B/ B-A	A-B	
Winch Transmission	1: 001,0 bis 1: 100,0	1: 040,0	
Winch Drive Wheel	100mm bis 2000mm	500mm	
Winch Suspension	1:1 bis 8:1	1:1	
A4 Motor / Gearbox SYNCHROME ROPE			
Motor	Asynchron- / Synchron- Motor	Synchron-Motor	
Synchron Motor	Standart operation / No-Load running	Standart Operation	
Synchronmotor type	Universal /ALPHA ECD100/ ALPHA ECD300/ ALPHA ECD300a/ ALPHA EPM100/ ALPHA EPM300/ ALPHA EPM500/ ZA ZETASYN SM700/ ZA ZETASYN SM850/ ZA ZETASYN SM860/ ZA ZETATOP SM200/ ZA ZETATOP SM225/ ZA ZETATOP SM250	universal	
Synchronmotor Number of Poles	2-60 Pols	16 Pole	
Synchronmotor maximum Speed	0001UpM to 1000UpM	100 UpM	
Motor Typeshield Nominal Current	002,0A bis 999,9A	5,0 A	
Motor Rotation	Right / Left	Right	
Encoder System	Resolver; SSI +5V; EnDAT +5V; sin/cos-1Vss+5V; Hiperface +8V/TTL+5V	EnDAT +5V	
Encoder System Resolution	512lmP/U to 4096lmP/U/100-64000	2048 pls / r	
Encoder System Offset-Angle	1:360,0°	1:000,0°	
Encoder System	Right / Left	Right	
Encoder System Offset-Measure	OFF / w/o rope / w/o move	OFF	
Winch Transmission	1:001,0 to 1:100,0	1 : 001,0	
Winch Drive Wheel	100mm to 2000mm	400 mm	
Winch Suspension	1:1 to 8:1	1:1	
A4 Motor/Gearbox - Hydraulic Asynchrone			
drive	Asynchron- / Synchron- / Hydraulic	Hydraulic Asynchrone	
Starting up modus	On/Off	Off	
Test Overpressure valve	On/Off	Off	
Hydraulic motor	Universal or ALGI-Motoren		
ALGI – Motortypes or	From 7,7 KW to 77 KW		
Motor Typeshield Nominal Speed	0300UpM to 3000UpM	1420UpM	
Motor Typeshield Nominal Frequency	01,0Hz to 99,9 Hz	50,0Hz	
Motor Typeshield Nominal Current	002,0A to 999,9A	3,8A	
Motor Typeshield Cosinus PHI	0,65 to 0,95	0,85	
Motor Rotation	Right / Left	Right	
Encoder System	OFF; TTI +5V ; sin/cos-1Vss+5V; HTL +15V; HTL +24V	TTL +5V	
Encoder System Resolution	65 lmP/U bis 99999lmP/U	1024 lmP/U	
Encoder System	A-B/ B-A	A-B	
Hydraulic Piston - Nummer	1 or 2	1	
Hydraulic Piston - Diameter	30mm to 600mm	300mm	
Hydraulic Piston - Transmission	1:1 to 1:2	1:1	
Hydraulic-Pump	Supply at Minute	300 l/min	
Turbine	K-Factor l/min –1 KHz	230L/min – 1 KHz	
Leveling Down	Regulated with Pump / with Valve	With Pump	
Inspection Down	Regulated with Pump / with Valve	With Pump	
Regulate Value Down	Setting 5,0 V	5,0 V	
Pressure Sensor	4-20mA / 0-10V max.100 Bar	4-20 mA 100Bar	
Encoder System	A-B/ B-A	A-B	
A5 CONTROLLER PARAMETER			
Attenuation Start	00% to 100%	50%	
Attenuation Acceleration-1	00% to 100%	50%	
Attenuation Acceleration-2	00% to 100%	50%	
Attenuation Travel	00% to 100%	50%	
Attenuation Deceleration-1	00% to 100%	50%	
Attenuation Deceleration-2	00% to 100%	50%	
Attenuation Run-In	00% to 100%	50%	
Attenuation Stop	00% to 100%	50%	
Dynamic Current Regulation	00% to 100%	50%	
A5 Regulation -Hydraulic Asynchrone			
Controller Turbine P -Part		4000	

Controller Turbine I - Part		20	
Controller R- Valve P- Part		7000	
Controller R- Valve I- Part		7	
B INTERFACE			
B1 DRIVE COMMANDS		Default:	Anlageneinstellung
Liftbus-Selection	No Bus/ KW1-Bus/ KW2-Bus/ DCP3/ Thyssen Liftbus / Rekoba Liftbus/	KW1-Bus	
Command Inputs	1 aus N / Binär	1 of N	
Release Inputs	Direction UP+DOWN/ Release UP/DOWN	Direction UP+DOWN	
Release at STOP	Standart w. UP/DOWN/ Long without UP/DOWN	Standart with UP/DOWN	
B2 INPUTS / OUTPUTS			
B21 ALLOCATION OUTPUTS		Default: Rahmen-1	
Relay-1	A00 to A2x	A01 - No Error	
Relay-2	A00 to A2x	A03 - Brake	
Relay-3	A00 to A2x	A04 - Main Contactor	
Output: 22 - EA 1	A00 to A2x	A00 – No Function	
Output: 23 - EA 2	A00 to A2x	A00 – No Function	
Output: 24 - EA 3	A00 to A2x	A00 – No Function	
Output: 25 - EA 4	A00 to A2x	A00 – No Function	
Output: 26 - EA 5	A00 to A2x	A00 – No Function	
Output: 27 - EA 6	A00 to A2x	A00 – No Function	
Output: 28 - EA 7	A00 to A2x	A00 – No Function	
Output: 29 - EA 8	A00 to A2x	A00 – No Function	
B22 ALLOCATION INPUTS		Default: Rahmen-1	
Input: 22 - EA 1	E00 to E2x	E21 Monitor Maincontactor	
Input	24V PNP / 0V-NPN Switching	24V PNP schaltend	
Input: 23 - EA 2	E00 to E2x	E00 - No Function	
Input	24V PNP / 0V-NPN Switching	24V PNP schaltend	
Input: 24 - EA 3	E00 to E2x	E00 - No Function	
Input	24V PNP / 0V-NPN Switching	24V PNP schaltend	
Input: 25 - EA 4	E00 to E2x	E00 - No Function	
Input	24V PNP / 0V-NPN Switching	24V PNP schaltend	
Input: 26 - EA 5	E00 to E2x	E00 - No Function	
Input: 27 - EA 6	E00 to E2x	E00 - No Function	
Input: 28 - EA 7	E00 to E2x	E00 - No Function	
Input: 29 - EA 8	E00 to E2x	E00 - No Function	
Input: 32 - A 09	E00 to E2x	E09 - Direction UP	
Input: 33 - A 10	E00 to E2x	E10 - Direction DOWN	
Input: 34 - A 11	E00 to E2x	E01 - Command Vi1	
Input: 35 - A 12	E00 to E2x	E04 - Command Vn	
Input: 36 - A 13	E00 to E2x	E05 - Command V0	
Input: 37 - A 14	E00 to E2x	E06 - Command V1	
Input: 38 - A 15	E00 to E2x	E07 - Command V2	
Input: 39 - A 16	E00 to E2x	E08 - Command V3	
All possible output functions:	All possible input functions:		
A00 No Function	E00 No Function	E18 Monitoring Brake 2	
A01 No Error	E01 Command Vi1	E19 Monitoring Brake 3	
A02 Ready to Drive	E02 Command Vi2	E20 Monitoring Brake 4	
A03 Brake	E03 Command VR	E21 Monitoring Main Contactor	
A04 Main Contactor	E04 Command Vn	E22 Parameterset-0	
A05 Short Circuit Contactor	E05 Command V0	E23 Parameterset-1	
A06 $V < 0,3m/s$	E06 Command V1	E24 Monitoring Brake Wear 1	
A07 $V < 0,8 \times V_{max}$	E07 Command V2	E25 Monitoring Brake Wear 2	
A08 $V < V_x$	E08 Command V3	E26 Monitoring Brake Wear 3	
A09 Warning Motortemperature	E09 Direction UP	E27 Monitoring Brake Wear 4	
A10 Motortemperature	E10 Direction DOWN	E28 Command VE	
A11 Warning Dissipator-Temperature	E11 Release	E29 Command binär-3	
A12 Dissipator –Temperatur	E12 Direction UP / DOWN	E30 Enable Standby	
A13 HYD Valve Down	E13 Command binär-0	E31	
A14 Pressureswitch-1	E14 Command binär-1	E32 Cardoor open	
A15 Pressureswitch-2	E15 Command binär-2	E33 Monitoring Contactor 2(closer)	
A16 Pressureswitch-3	E16 Akku evacuation		
A17 Standby active	E17 Monitoring Brake 1		
A18 $V < V_y$			
B23 Input Pull UP			
Terminal 22: EA 1	24V PNP / 0V-NPN Switching		
Terminal 23: EA 2	24V PNP / 0V-NPN Switching		
Terminal 24: EA 3	24V PNP / 0V-NPN Switching		
Terminal 25: EA 4	24V PNP / 0V-NPN Switching		
B24 I/O-Preallocation	No Preallocation / Frame-1: standart in / Frame-2: Liftbus in / Frame-3: standart ex / Frame-4: Liftbus ex	No Preallocation	

B3 Functions			
Comparator V03	Threshold: 0,01m/s to 5,00m/s	0,30 m/s	
Comparator V08	Threshold: 0,01m/s to 5,00m/s	0,80 m/s	
Comparator Vx	Threshold: 0,01m/s to 5,00m/s	1,00 m/s	
Comparator Vy	Threshold: 0,01m/s to 5,00m/s	1,00 m/s	
Pressure Switch-1	Threshold: 0,1bar to 100,0 bar	20,0 bar	
Pressure Switch-2	Threshold: 0,1bar to 100,0 bar	40,0 bar	
Pressure Switch-3	Threshold: 0,1bar to 100,0 bar	50,0 bar	
Set of Parameter	Parameterset-1/ Parameterset-2/ Parameterset-3/ Parameterset-4	Parameterset-1	
Parameterset Travel	Parameterset-1/ Parameterset-2/ Parameterset-3/ Parameterset-4	Parameterset-1	
Copy Parameterset	No / PAR1->PAR2/ PAR1->PAR3/ PAR1->PAR4/ PAR2->PAR1/ PAR2->PAR3/ PAR2->PAR4/ PAR3->PAR1/ PAR3->PAR2/ PAR3->PAR4/ PAR4->PAR1/ PAR4->PAR2/ PAR4->PAR3	No	
Reset Parametersatz	No / Par.1/ Par.2/ Par.3/ Par.4	No	
PE-Relay EMC-Filter	Switches / always OFF	Switches	
Encoder Emulation	ON / OFF	ON	
Shortcut Relay	Function Active / OFF	Active	
Standby-MODE Input E30	Active / OFF	Active	
Standby-Timer	OFF / 1 to 60 minutes	OFF	
B4 User Interface			
Time / Date / Weekday	xx:xx:xx Time Day:Month.Jear Mo to Su		
Summer / Winter Time Shift	No / Auto	No	
Language	German / English	English	
Displayline-1	xxxxxxxxxxxxxxxxxxx	KW-Aufzugstechnik	
Displayline-2	xxxxxxxxxxxxxxxxxxx	Oberursel-Germany	
Software CPU	G90-1.00d, or better		
Software IO-PIC	0,01		
Software Encoder-PIC	0,02		
Software LCD-PIC	-,--		
Password Code	OFF / 4 Chars	OFF	
Parameter View	Standart mode / Expert mode	Standart mode	
B5 Monitoring			
Motor PTC	No Monitoring / Monitoring activ	No Monitoring	
<i>Expert- Motor PTC Threshold</i>	<i>0,1-9,9KOHM</i>	<i>3,6KOHM</i>	
<i>Expert- Motor PTC Warning</i>	<i>0,1-9,9KOHM</i>	<i>3,3KOHM</i>	
Brake Monitoring	OFF / Br-1/ E.Br.-1-2/ E.Br.-1-2-3/ Br.-1-2-3-4	OFF	
Brake Monitoring Input	NO Contact / NC Contact	NC Contact	
Main Contactor Monitoring	OFF / Inputs	OFF	
Main Contactor Monitoring Input	NO Contact / NC Contact	NC Contact	
Brake Wear Monitoring	OFF / Br-1/ E.Br.-1-2/ E.Br.-1-2-3/ Br.-1-2-3-4	OFF	
Brake Wear Monitoring Input	NO Contact / NC Contact	NC Contact	
C DIAGNOSIS			
C1-IN- & OUTPUTSIGNALS			
AI In-& Outputs	- = No Signal / * = +24V Signal	Exxx = Inputsignal	Axx= Outputsignal
C2-ERROR-MEMORY			
C20 Erasing Fehler-	Error-memory earse		
C21 Error Memory	Error Number & Text with Time & Date		
C3-ERROR-HANDLING			
Error xx	No Lock/ Lock after X Errors		
C4 TÜV Approval			
C41 Test-Motor PTC			
C42 Test Brake Monitoring			
D-Information			
D1-Status informations			
D2-TRAVEL-COUNTER			
All Travels			
Travel Counter, erasable			
Travel Counter UP, erasable			
Travel Counter DOWN, erasable			
Erase Travel Counter			
D3-Operation Hours			
Hours on Maon			
Hours on Travel			
Hours on Travel, erasable			



Erase Hours on Travel			
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3.1 MENU A1 SPEED

Adjustment Speed Vn	
	Adjustment speed, variable from 0.5 to 100r.p.m. Is set so that the lift stops in level position after adjustment (only command Vn). Is used in the case of considerable rope elongation after which the cabin is no longer level after unloading. Requires an additional level flag that is shorter than that of V1.
Inspection Speed Vi 1	
	Inspection speed 1, variable from 10 to 1500r.p.m. Set as required for inspection runs on the cabin roof and for returning the lift to its starting
Inspection Speed Vi 2	
	Inspection speed 2, variable from 10 to 1500r.p.m. Set as required for inspection runs on the cabin roof and for returning the lift to its starting
Manual Speed VR	
	Manual speed, variable from 10 to 1500 UpM. Set as required for the manual speed.
Evacuation Speed VE	
	Evacuation speed, variable from 10 to 1500 UpM. Set as required for the evacuation speed at Accu- or USV-management
Run-In Speed V0	
	Run-in speed, variable from 1 to 100r.p.m. Set so that the lift stops level: If it stops too soon, V0 must be increased; if the cabin moves too far, V0 must be decreased.
Interim Speed V1	
	Interim speed, variable from 10 to 3000r.p.m. Is only used when there are different braking distances in the well, i.e. when the distances from the floor switch (=deceleration point) to the levelling switch vary. After calibration of the V1 braking distance it is advisable to set V1 as high as possible; caution: BRAKING PATH V1. The inverter can change the speeds between V0, V1, V2 and V3.
Interim Speed V2	
	Interim speed, variable from 10 to 3000r.p.m. Is only used when there are different braking distances in the well, i.e. when the distances from the floor switch (=deceleration point) to the levelling switch vary. After calibration of the V2 braking distance it is advisable to set V2 as high as possible; caution: BRAKING PATH V2. The inverter can change the speeds between V0, V1, V2 and V3.
Final Speed V3	
	Final speed, variable from 10 to 3000r.p.m. The inverter can change the speeds between V0, V1, V2 and V3.
Maximum Speed	
	Maximum Speed, Maximum value which is depending from menu A4. The speed V3 is limited on this value.

3.2 MENU A2 SPEED CURVE

Acceleration	
	Ramp from 0 to Vmax, variable from 10% to 200% or 0.1 to 2.0 m/s ²
Jerk-acceleration	
	Transition from 0 to acceleration phase and transition from acceleration phase to Vmax, adjustable from 10% to 200% or in 0.1 to 2.0m/s ³ . 0.1m/s ³ corresponds to a soft run out and 2.0m/s ³ to a hard run out
Deceleration	
	Ramp from Vmax to V0. Adjustment range: From 10% to 200% or 0.1 to 2.0m/s ² .
Jerk-deceleration	
	Transition from Vmax to the deceleration phase and from the deceleration phase to V0, adjustable from 10% to 200% or in 0.1 to 2.0m/s ³ . First set to 1m/s ³ , then after calibration of the V1/V2/V3 braking distance, adjust according to sensations during a run
Braking distance V1: -off- -on- -learning-	
	Scanning of braking distance for short stops (shorter distance from the floor switch to the levelling switch than on a long run). Is driven at V1 speed. The controller decelerates immediately upon reaching the floor switch and creeps for a relatively long time to the levelling switch. The controller calculates the optimum deceleration on the basis of the braking distance from the floor switch to the levelling switch. If the V1 run is repeated, the lift will pass the deceleration point (floor switch) and continue running up to the calculated deceleration point. The duration of the run-in speed V0 is thus minimised to around 0.3 s.
Braking distance V2: -off- -on- -learning-	
	Braking distance scanning for long stops with speed V2. The same applies here as in the preceding section
Braking distance V3: -off- -on- -learning	
	Braking distance scanning for long stops with speed V3. The same applies here as in the preceding section

3.3a MENU A3 START / STOP - ROPE

Start Delay - Forced Ending: Time / Brake	
	With the Start delay, you can compremize the delay times of the main contactors and the lift controller, in order to get a safety opening of the brake. For the forced ending, you choose between the message of the brake monitoring contacts or you do it by time.
Start Delay Time	
	If you choose the parameter Time, then you can program ist freely. The standart value is 150ms at asynchrone-machines – 700-1000ms at synchrone-machines.
Expert Mode: Startramp Acceleration	
	The Start Ramp is the possibility to overcome the freeze periode of the car very comfortable. The deceleration is programmable between 0,01 to 0,1 m/s ² . The standart value is 0,02 m/s ² .
Expert Mode: Start Speed	
	The Start Ramp is the possibility to overcome the freeze periode of the car very comfortable. The speed is programmable between 1 to 50U/min. The standart value is 1 U/min.
Expert Mode: Start Speed Time	
	The Start Ramp is the possibility to overcome the freeze periode of the car very comfortable. The time is programmable between 0 to 2000 ms. The standart value is 100 ms.
Quick Start	
	The Premagnetizm of the motor during the door close periode makes it possible to reduce the the waiting-time in the floor. There two settings for use: „Only Premagnetizsm“ or „Premagnetizsm and Brake Opening“.
Direct Run-in	
	Direct run-in. On: Deceleration time V0 is reduced to 0sec. The condition for this function is that you have done the learning-drive with the brake-distance.
Run-In Ramp	
	End deceleration from V0 to zero. Ramp over levelling flag. If you feel a small jerk during the end deceleration, reduce the value. Variable from 1% to 100% or 0.01 to 1.00m/s ² . The braking ramp can also be used to adjust the halting accuracy
Post Braking - Forced Ending: Time / Brake	
	The end of the electrical stop of car with „Rotation 0“ can be make by two methods. For the forced ending, you choose between the message of the brake monitoring contacts or you do it by time.
Post Braking Time	
	If you choose the parameter Time, then you can program ist freely. The standart value is 500 ms.
Clutch-Rescue Vi	
	With this option the motorcurrent is increased to twice of the nominal current at startup with Vi. So you can pull out the eleva-tor in between 10 attempts, if the security claw has locked the car.
Position Regulator	
	At synchrone motors, the function is always ON, but at old asynchrone motors, you can switch OFF.
Expert Mode: Trigger Position Controller Impulse	
	The Position Controller lay down the start-behaviour after brake opening. The criterion for the start, the brake release control or the incoming en-coder pulses are used.
Expert Mode: Trigger Position Controller Delay	
	The Position Controller lay down the start-behaviour after brake opening. The standart delay value is 100 ms.
Expert Mode Position Controller Brake P-Part	
	The Position Controller lay down the start-behaviour after brake opening. The P-Part is variable between 10 to 32.000. The Standart value is 8.000.
Expert Mode Position Controller Brake I-Part	
	The Position Controller lay down the start-behaviour after brake opening. The I-Part is variable between 10 to 3.000. The Standart value is 80.
Expert Mode Position Controller Brake Time	
	The Position Controller lay down the start-behaviour after brake opening. The time is variable between 0 to 1.000 ms. The Standart value is 450 ms.
Expert Mode: Position Controller Speed-0 P-Part	
	The Position Controller Speed 0 lay down the stop-behaviour after brake opening. The P-Part is variable between 10 bis 32.000. The Standart value is 8.000.
Expert Mode: Position Controller Speed-0 I-Part	
	The Position Controller Speed 0 lay down the stop-behaviour after brake opening. The I-Part is variable between 10 bis 3.000. The Standart value is 80.
Expert Mode: Position Controller Speed-0 Time	
	The Position Controller Speed 0 lay down the stop-behaviour after brake opening. The time is variable between 0 bis 1.000 ms. The Standart value is 400 ms.
Expert Mode: Speed Controller Speed-0 P-Part	
	The Speed Controller Speed 0 lay down the stop-behaviour after brake opening. The P-Part is variable between 10 bis 32.000. The Standart value is 12.000.
Expert Mode: Speed Controller Speed-0 I-Part	
	The Speed Controller Speed 0 lay down the stop-behaviour after brake opening. The I-Part is variable between 10 bis 3.000. The Standart value is 100.
Expert Mode: Speed Controller Speed-0 Time	
	The Speed Controller Speed 0 lay down the stop-behaviour after brake opening. The time is variable between 0 bis 1.000 ms. The Standart value is 400 ms.
ExpertenMode: Speed Controller S-Ramp P-Part	
	The Speed Controller S-Ramp lay down the drive curve after brake opening. The P-Part is variable between 10 bis 32.000. The Standart value is 12.000.
Expert Mode: Speed Controller S-Ramp I-Part	
	The Speed Controller S-Ramp lay down the drive curve after brake opening. The I-Part is variable between 10 bis 3.000. The Standart value is 100.
Expert Mode: Speed Controller S-Ramp Time	
	The Speed Controller S-Ramp lay down the drive curve after brake opening. The time is variable between 0 bis 1.000 ms. The Standart value is 400 ms.
Expert Mode: Speed Controller Filter PT1-Filter	

LOAD MEASUREMENT

	<p>The frequency converter GOLIATH-90 is able to output a torque by evaluating an analog load measurement signal before the brake is opened, which prevents the drive from turning away when starting. This can be of particular advantage in the case of large gearless drives.</p> <p>The load measuring device must be able to output an analog signal of 0..10V. The line of the load measuring device should be a shielded cable and is connected to the frequency converter at terminals 341 (analog 0V), 342 (analog 10 V) and PE. At the beginning, the load measuring device must be calibrated according to the manufacturer's description so that a signal of approx. 0V is output when the cabin is empty and a signal of approx. 10V is output when the cabin is full. If the load measuring system already provides the full load signal at 5V, the accuracy (resolution) is reduced.</p>
	<p>Calibrier.empty: ON Now the load sensor is taught in on the frequency converter. For this purpose, the parameter "Load measurement: Calibration empty: on" is set in the "A3 Start / Hold" menu. The cabin must now be empty and a return command is issued with the return control until the message "Calibration empty: ok" appears on the display.</p>
	<p>Calibrier.full: ON Now the cabin is loaded with the nominal load and the parameter "Load measurement: calibration full: on" is set. Now a drive command is issued again with the return control until the message "Calibration full: ok" appears on the display. Then set the parameter "Load measurement: - on -", the load measurement is now activated.</p>

LOAD COMPENSATION

	<p>In some cases where there is no load measuring device, it can be advantageous to activate the automatic load compensation. The drive torque is measured when stopping and reapplied the next time the brake is opened. This can be particularly advantageous for large gearless systems.</p> <p>This makes it possible to avoid a noise when the brake is opened, which is caused by the rotation of the motor shaft.</p> <p>The automatic load compensation can be activated in the menu "A3 start / stop" by setting the parameter "Load compensation: on". This function can only be activated if the "Load measurement" parameter is set to "off".</p>
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Hydraulic Frequency Asynchron ALGI	
Pressure Set Up - Start Speed:	70 UpM
Here the starting speed is set at which pressure begins to build. Too low value the start process takes longer, at too high value pressure built up too quickly and a jolt is felt.	
Pressure Set Up Ramp	0,005 m/s²
This parameter is set increases speed at which the pressure is at the start. Too low value the start process takes longer, at too high value pressure built up too quickly and a jolt is felt.	
Pressure Set Up - Max. Speed	500,0 UpM
In this parameter you can change the rotation limit for the pressure. The standart value is 500 U/min.	
Pressure Set Up - Threshold	0,40 Bar
When set pressure increase in the startup process is complete.	
Start Ramp Up - Acceleration	0,010 m/s²
In this parameter you can change the acceleration for the start ramp up.	
Start Ramp Up - Time	500 ms
Launch ramp on upstream ends after a set time and operating curve starts.	
Start Ramp Down - Time Valve	100 ms
In downward direction by pressure build the AB-Valve is opened. After the waiting period begins start ramp down.	
Start Ramp Down - Acceleration	0,020m/s²
In this parameter you can change the acceleration for the start ramp down.	
Start Ramp Down - Time	1000 ms
Launch ramp on upstream ends after a set time and operating curve starts.	
Quick Start	ON/OFF
By magnetization of drive engine during door-closing process it is possible to reduce stop-down time. When using a KW-control can be pressure build-up already when closing door and elevator starts without delay after door closing.	
Direct Run-in	ON/OFF
Direct retract means that slow elevator ride straight into plane and delayed flush holds. This assumes that a stopping distance optimization run was performed with appropriate speed.	
Run-In Ramp	0,080 m/s²
Deceleration of approach speed to standstill. Adjustable from 1% tro 100%, or 0,01 to 1,0 m/ s ² . A low value means ramp-hold flat and soft stopping. A higher value makes stopping ramp steeper.	
Post Braking - Forced Ending: Time / Brake	300 ms
The lowering valve must close when elevator stop on downward direction. If time is too short, so elevator can sag when stopping . Is the time too long, so elevator lifts slightly when stopping.	
ExpertenMode: Speed Controller S-Ramp P-Part	
<i>The Speed Controller S-Ramp lay down the drive curve after brake opening. The P-Part is variable between 10 bis 32.000. The Standart value is 12.000.</i>	
Expert Mode: Speed Controller S-Ramp I-Part	
<i>The Speed Controller S-Ramp lay down the drive curve after brake opening. The I-Part is variable between 10 bis 3.000. The Standart value is 100.</i>	
Expert Mode: Speed Controller S-Ramp Time	
<i>The Speed Controller S-Ramp lay down the drive curve after brake opening. The time is variable between 0 bis 1.000 ms. The Standart value is 400 ms.</i>	
Expert Mode: Speed Controller Filter PT1-Filter	
<i>To get a slower behaviour of the Speed Controller, it is possible to switch on a PT1- for maximum of 6 ms.. The Standart value is 5ms.</i>	

Asynchronmaschine / Synchronmaschine/ Hydraulic asynchronous -> Asynchronmaschine Rope

Motor- Nominal speed	
	See the motor rating plate for the nominal speed value. If the name plate gives a value of 1,000 or 1,500, consult the motor supplier, because the data given are for the synchronous speed instead of the nominal speed!
Motor- label Nennfrequenz	
	Nominal motor frequency. See the motor name plate for the correct value.
Motor- label Nennstrom	
	See the motor name plate for the correct nominal current for the motor.
Motor-label Cosinus ρ	
	See the motor name plate for the cosine ρ value.
Motor- Rotation field	
	If motor runs into wrong direction (e. g. down with signal „UP“), use this function to change the direction of the rotation field. This corresponds to the exchange of the leads U and V
Encoder System	
	Input of the encoder type: - OFF -> Without pulse generator, Openloop - TTL +5V - SIN/COS-1Vss - HTL +15V - HTL +24V
Encoder pulses	
	Enter the number of pulses of the digital tacho-generator per resolution. Possible entries: 300 to 20,000 pulses / resolution
Encoder pulse input	
	In case of message „ DIRECTION WRONG “, change from [A-B] to [B-A]. This function is corresponding to the exchange of the tacho input leads A and B.
Winch transmission	
	Enter the gear ratio. See the gearbox rating plate for the correct value.
Winch drive wheel	
	Enter drive pulley diameter in (mm).
Winch suspension	
	Enter rope suspension (e.g. 1:1, 2:1 ... 8 :1).

Asynchronmaschine / Synchronmaschine -> Synchronmaschine Rope with ABS-Encoder

Operation:	Standard Operation / No Load Running
MOTOR TYPE:	Universal With this setting you can adjust machine with motor poles and dpeed
If a set of preprogrammed motor type , then all required parameters such as motor poles, encoder offset and various control settings are set automatically to this type of engine.	
Ziehl-Abegg ZETASYN SM700 - SM850 – SM860 - ZETATOP SM160 – 200 – 225 – 250	
Thyssen: DAF210 - DAF270 - SC300 – SC400	
Alpha, SWISS TRACTION, SAD, XINDA, LOHER... List is updated constantly	
Motor-Number of Poles:	See the motor rating plate for the correct number of poles (-> only with “universal” setting).
Motor-Maximum Rotation:	See the motor rating plate for the correct maximum rotation
Motor- Nominal current	See the motor rating plate for the correct nominal current for the motor. Set to maximum current during a constant speed with an empty cabin down.
Motor- Rotation field	If motor runs into wrong direction (e. g. down with signal „UP“), use this function to change the direction of the rotation field.

Encoder system

Input of the encoder type: Here the variant with ABS EnDat encoder was chosen	
Input of the encoder type:	Switch to the encoder system submenu with the ENTER key
<ul style="list-style-type: none"> - Resolver - SSI +5V - EnDat +5V - BiSS +5V - SIN/COS 1Vss - Hiperface +8V - BISS-C +5V - Inkremental TTL +5V - Inkremental Sin/Cos +5V - Inkremental HTL +15V 	

Submenu Encoder - system ABS-Encoder:	
Encoder info: Speed: 0000,0UpM	-> actual speed
Encoder info: wire-A: - wire-B: *	-> actual pulses A-B-wire
Encoder info: Angle: xxx,xx°	-> actual Rotor-position-angle
Encoder info: Multiplication: x16	-> Pulse Multiplication always on x16
Encoder info: Encoder Voltage Actual: 5,0V	-> Encoder supply voltage mearsured
Encoder info: Encoder Set Voltage : 5,0V	-> Encoder supply voltage specified
Encoder Attitude Monitoring Start:	1500 ms (Tolerance time Encoder monitoring)
Encoder Attitude Monitoring Travel:	500 ms (Tolerance time Encoder monitoring)
Return to Menu A4 Motor / Gearbox – Synchronmaschine: > Pushbutton QUIT! <	

Encoder pulses

Enter the number of pulses of the digital tacho-generator per resolution. Possible entries: 512 / 1024 / 2048 / 4096 pulses / resolution

Encoder- Offsetangle

The fault-parameter depend on the type of the motor. But you can choose an angle from 0 to 360 degrees

Encoder- Direction

In case of message „DIRECTION WRONG“, or there is no motion, change from [A-B] to [B-A]. This function is corresponding to the exchange of the tacho input leads A and B

Encoder- offset measure

In case of there is no value of encoder-offsetangle you must make a measurement with this function.
 Settings: OFF / w/o rope / **w/o move**

Offset measurement without rope: as before, remove ropes from traction sheave, drive command with return or inspection until offset measurement completed (approx. 5-10 seconds, brake opens, motor turns slowly).

Offset measurement without move: ropes remain on the traction sheave, brake remains closed. Driving command with return or inspection until offset measurement completed (approx. 1 second, briefly audible noise, motor does not turn).

Winch transmission

Enter the gear ratio. See the gearbox rating plate for the correct value.

Winch drive wheel

Enter drive pulley diameter in (mm).

Winch suspension

Enter rope suspension (e.g. 1:1 2 :1 or 8:1).

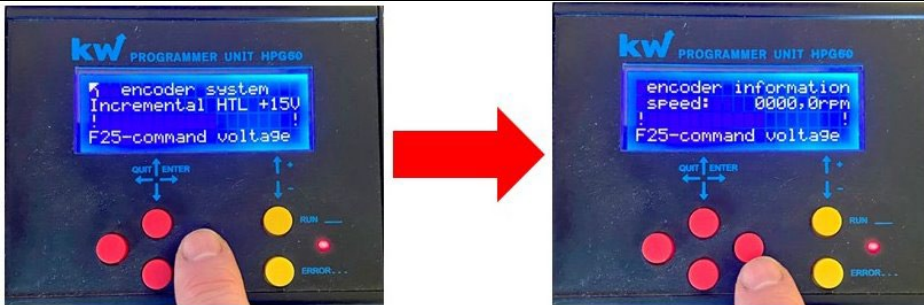
Menu A4 MOTOR / GEARBOX > Synchronemaschine

If a preprogrammed motor type is set, all required parameters such as the number of motor poles, encoder offset and various control settings are automatically preset to this motor type.

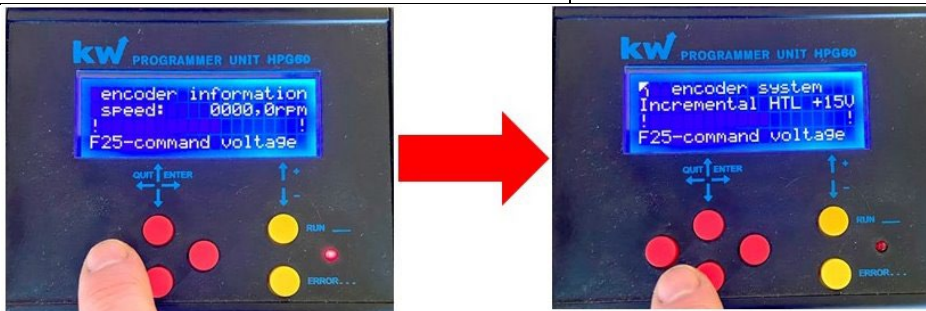
KONE: NMX-07 / NMX-11 / MX-05 / MX-05/10 / **MX-06** / MX-06/10 / MX-10

Motor- Rating plate - Number of Poles:	Posted by type MX06
Motor- Rating plate - Maximum Rotation:	MX06: 95 U/min
Motor- Rating plate - Nominal current	MX06: 11 A
Motor- Rotation field	[RIGHT]
-> If motor runs into wrong direction (e. g. down with signal „UP“), use this function to change the direction of the rotation field.	
Encoder system: Here the variant with Incremental encoder was chosen:	Incremental HTL +15V

Jump to the submenu ENCODER-SYSTEM: > Pushbutton ENTER !



Encoder info: Speed: 0000,0UpM	-> Display of the current engine speed
Encoder info: wire-A: - wire-B:	-> Display of the current pulses A-B channel
Encoder info: Angle: xxx,xx°	-> Display of the current rotor position angle
Encoder info: Encoder Voltage Actual: 15,0V	-> Display of the current Encoder Voltage: 15,0V
Encoder info: Encoder Set Voltage : 15,0V	-> Display of the Encoder Voltage Setting: 15,0V
Encodersetting Incremental encoder Zero-puls:	OFF/ ON MX06: ON
Encodersetting Incremental encoder Friction wheel:	NO/ YES MX06: YES
Yes	Encodersetting Encoder Friction Wheel: 37,02 mm (Rubber wheel diameter)
	Encodersetting Encoder Friction Sheave: 615,0 mm (Traction sheave diameter)
	Encodersetting Monitoring Start: 1500 ms (Tolerance time Encoder monitoring)
	Encodersetting Monitoring Travel: 500 ms (Tolerance time Encoder monitoring)



Return into the Menu A4 Motor / Gearbox – Synchronemaschine: > Pushbutton QUIT !

Encoder pulses (number of pulses of the digital tacho-generator per resolution):	MX06: 4096
Encoder- Direction (Change [RIGHT] <> [LEFT] at "DIRECTION WRONG"):	MX06: LEFT
Encoder- offset measure (First Travel/ Every Tr. / Once a Day/ Every xxxx Ride):	MX06: Every Travel
Winch transmission (See the gearbox rating plate for the correct gear ratio):	MX06: 1 : 001,0
Winch drive wheel (Enter drive pulley diameter in (mm)):	MX06: 400 mm
Winch suspension (Enter rope suspension [From 1:1 to 8:1]):	MX06: 2:1

Asynchronmaschine / Synchronmaschine / Hydraulic-Asynchrone -> Hydraulic Asynchrone ALGI

Hydraulic Start-up mode: on/off

This parameter is required to take an aggregate with no oil pressure at operating. If this parameter is activated, so you can choose between following settings :

- No turbine control
- No minimum pressure evaluation
- No pressure ramp at startup
- Only command Up is only accepted

Hydraulic test pressure relief valve: on/off

This parameter is needed to test pressure relief valve or adjust.. If this parameter is activated, so you can choose between following settings:

- No turbine control
- No minimum pressure evaluation
- No pressure ramp at startup
- Only command Up is only accepted
- Command Vi , the speed is automatically set to 2500UpM

Hydraulic Motor: Universal /ALGI engine types

In this parameter can be chosen differen ELMO engines. At the same time all engine data of selected motor can be preset.

- Motor-label rated speed (only with universal motor)**
- Motor-label rated frequency (only with universal motor)**
- Motor-label ampacity (only with universal motor)**
- Motor-label Cosinus Phi (only with universal motor)**

Existing engine types ALGI-ELMO:

1)	S342Y-77-T690	7,7 KW
2)	V342Y-9-T690	9,0 KW
3)	S442Y-11-T690	11 KW
4)	S462Y-13-T690	13 KW
5)	S442A147-T690	14,7 KW
6)	S462Y-16-T690	16 KW
7)	S462Y-20-T690	20 KW
8)	S462Y-24-T690	24 KW
9)	S462Y-29-T690	29 KW
10)	S762L-33-T690	33 KW
11)	S762K-40-T690	40 KW
12)	S762K-47-T690	47 KW
13)	S762K-60-T690	60 KW
14)	S762K-77-T690	77 KW

Motor- Rotation field

If motor runs into wrong direction (e. g. down with signal „UP“), use this function to change the direction of the rotation field. This corresponds to the exchange of the leads U and V.

Encoder System

Input of the encoder type: [**AUS / TTL +5V / SIN/COS-1Vss / HTL +15V / HTL +24V**]

Encoder pulses

Enter the number of pulses of the digital tacho-generator per resolution. Possible entries: 300 to 20,000 pulses / resolution. The standart value for ALGI AZFR is 1024 pulses.

Encoder pulse input

In case of message „DIRECTION WRONG“, change from [A-B] to [B-A]. This function is corresponding to the exchange of the tacho input leads A and B.

P-constant limitation : off/ ..KW

This parameter can be selected, if the hydraulic elevator shall be operated at a constant speed regardless of load (V constant) or with load-dependent velocity in upward direction with limited power (P constant).
 In downward drive is always achieved maximum speed.
 In menu A2 a braking distance optimization can be performed for receive at P-constant no differend running in.

P constant pressure at full load : xx,xBar (only at P constant active)

The pressure will be set at full load.

P constant pressure at low load: xx,xBar (only at P constant active)

The pressure will be set at low load.

P constant speed at full load: x,xm/s (only at P constant active)

Here the calculate speed be entered (at full load car drive direction up)

P constant speed at low load: x,xm/s (only at P constant active)

Here the calculate speed be entered (at empty load car drive direction up)

Hydraulic Piston – Number of Pistons

Please give in the numbers of pistons (1 or 2).

Hydraulic Piston – Diameter

Please give in the diameter of the piston in **mm**. Diameter goes from 30mm to 600mm.

Hydraulic Piston – Transmission

Please give in transmission of piston (**direct 1:1 odr indirect 1:2**)

Hydraulic-Pump

Please give in the oil-liter flow per minute, e.g. 300 l/min

Turbine

Please give in the k-Factor, e.g. 230 l/min –1 KHz

Releveling Down

Two settings are possible (**regulated with Pumpe or with regulated valve**)

Inspection Down

Two settings are possible (**regulated with Pumpe or with regulated valve**)

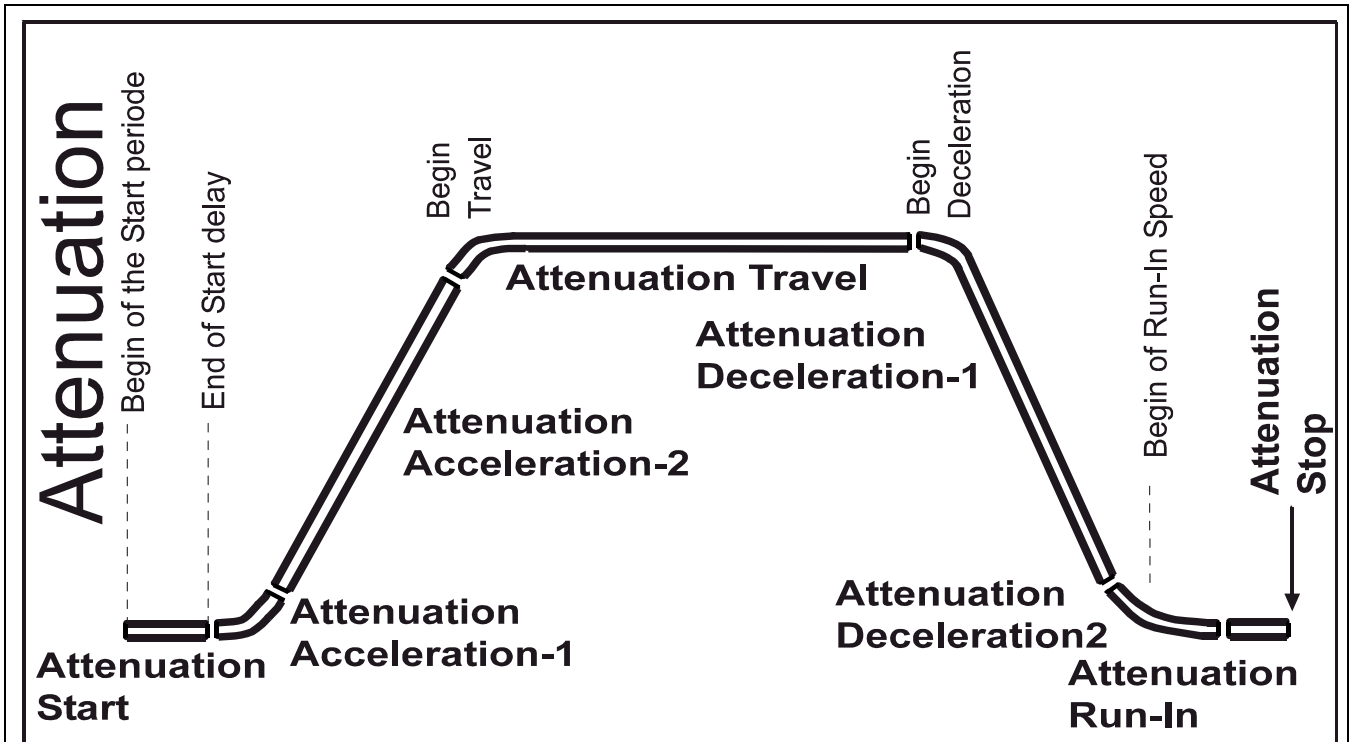
Regelventil Offset

Setting 5,0 V

Pressure sensor

Two settings are possible (**4 – 20mA max.=100 bar** or **0 – 10V max.=100 bar**)

3.5 MENU A5 CONTROL PARAMETER



Attenuation Start	50%
Adjustment range from 0 to 100%. If vibrations occur during starting (motor vibrations, noise from motor), this value can be increased.	
Attenuation acceleration - 1	50%
Adjustment range from 0 to 100%. If vibrations occur during acceleration, this value can be increased.	
Attenuation acceleration - 2	50%
Adjustment range from 0 to 100%. If vibrations occur during acceleration, this value can be increased.	
Attenuation travel	50%
Adjustment range from 0 to 100%. If vibrations occur during travel, this value can be increased.	
Attenuation deceleration - 1	50%
Adjustment range from 0 to 100%. If rope vibrations occur during deceleration, usually during run-in, due to unattenuated bearings, this value can be increased.	
Attenuation deceleration - 2	50%
Adjustment range from 0 to 100%. If rope vibrations occur during deceleration, usually during run-in, due to unattenuated bearings, this value can be increased.	
Attenuation Run-In	50%
Adjustment range from 0 to 100%. If rope vibrations occur during run-in, usually during run-in, due to unattenuated bearings, this value can be increased. Recommendation: 50%	
Attenuation Stop	50%
Adjustment range from 0 to 100%. If rope vibrations occur during Stop, usually during run-in, due to unattenuated bearings, this value can be increased.	
Dynamic Current Regulation	50%
Adjustment range from 0 to 100%.	
-> Settings ALG frequency controlled hydraulic	
Controller Turbine P-Part:	4000
Speed controller for normal operation: Too high value: drive is „rough“ to a low value : elevator swings slowly.	
Controller Turbine I- Part:	20
Speed controller for normal operation: Too high value: Elevator vibrates too low value: under or overshoot during retraction	
Controller R-Valve P- Part:	7000
Speed controller when driving with a control valve (Inspection /catching up down). Too high value: drive is „rough“ to low value: Elevator vibrates slowly	
Controller R-Valve I- Part:	7
Speed controller when driving with a control valve (Inspection /catching up down). Too high value: swings, too low value: undershoot, inaccurate regulation.	

3.6 INTERFACE

B1 MENU DRIVE COMMANDS

Liftbus Selection	
	Here you can choose the liftus type. [No / KW1-Liftbus / KW2-Liftbus / DCP-3 / Thyssen Liftbus LS2 / Rekoba Liftbus].
Command Inputs	
	If frequency inverter is working without liftbus, then you can choose between „1 of N-“, and „Binär“-commanding . If binary is selected, so default value is deposited for KEB-F4. For control Haushahn MC3000 must be encoded 4 inputs in binary.
Binär	
	Has the frequency inverter a „binär“ commanding, so you can from 000b to 111b make a code for every drive command. This makes it possible to simulate a triggering device exchange each existing coding.
Release Inputs	
	If frequency inverter is working without liftbus, so you can choose between two types of release-commands: At first with both directions (UP & DOWN) or with Release and one Direction!
Release At Stop	
	In this point you can choose the handling, if drive direction is switched off. The first setting „ Standart with UP / DOWN Command “ is for e.g. B&B / Kollmorgen to choose, because the mais contactor are active during periode of electrical stop. For lift controller, which lose the direction commandos during electrical stop, like e.g. NEWLIFT EST/KST/FST , you must choose setting „ Long without UP / DOWN “.

B2 MENU IN-/OUTPUTS

3.7 B21 MENU ALLOCATION OUTPUTS

The **outputs** of Goliath-90 frequency inverters can be programmed basicly with the following functions:

No.	Display-Layout	Function
A0	A00-No FUNCTION	The output / relay has no function
A1	A01-No Error	Output function for a message there is no error
A2	A02-Ready	Output function for a message that the inverter is ready.
A3	A03-Brake	Output function for activate the Brake contactor.
A4	A04-Main Contactor	Output function for activate the Main contactors
A5	A05-Short cut contactor	Output function for activate the Short Cut contactor.
A6	A06-Comperator V < 0,3 m/s	Output function for the comperator V < V03 (Run-In with open Door)
A7	A07-Comperator V < 0,8 m/s	Output function for the comperator V < V08.
A8	A08-Comperator V < Vx m/s	Output function for the comperator V < Vx.
A9	A09-Warning Motortemperature	Output function for Warning overtemperature Motors
A10	A10-Motortemperature	Output function for Error message Overtemperature Motor
A11	A11-Warning Dissipator-Temperature	Output function for Warning Overtemperature Dissipator
A12	A12- Dissipator -Temperatur	Output function for Error message Overtemperature Dissipator
A13	A13-HYD Valve Down	Output function for the Hydraulic Down valve for ALGI AZFR
A14	A14-Pressure Switch -1	Output function for the hydraulic limit-switch no.1
A15	A15-Pressure Switch -2	Output function for the hydraulic limit-switch no.1
A16	A16-Pressure Switch -3	Output function for the hydraulic limit-switch no.1
A17	A17-Standby-Mode Aktive	Output function for the standby mode -> Liftcontroller
A18	A18- V < Vy m/s	Output function for the comperator V < Vy

3.8 B22 MENU ALLOCATION INPUTS

The inputs of Goliath-90 frequency inverters can be programmed basically with the following functions:

No.	Display-Layout	Function
E0	E00-NO FUNCTION	The Input channel has no function
E1	E01- Command Vi1	Input function for the Inspection Speed 1
E2	E02- Command Vi2	Input function for the Inspection Speed 2
E3	E03- Command VR	Input function for the Manual Speed VR
E4	E04- Command VN	Input function for the Releveling Speed VN
E5	E05- Command V0	Input function for the Run-In Speed V03
E6	E06- Command V1	Input function for the Speed V1
E7	E07- Command V2	Input function for the Speed V2
E8	E08- Command V3	Input function for the Speed V3
E9	E09- Drive Direction UP	Input function for Drive Direction UP
E10	E10- Drive Direction Down	Input function for Drive Direction DOWN
E11	E11- Release	Input function for Release
E12	E12- Drive UP / DOWN	Input function for Drive Direction UP/Down in connection with Release
E13	E13- Command binär-0	Input function for Binär Command 0 = 2 ⁰
E14	E14- Command binär-1	Input function for Binär Command 1 = 2 ¹
E15	E15- Command binär-2	Input function for Binär Command 2 = 2 ²
E16	E16- Accu Evacuation	Input function for Accu- or USV-Evacuation
E17	E17- Brake Monitoring Coil-1	Input function for Brake Monitoring Coil 1
E18	E18- Brake Monitoring Coil -2	Input function for Brake Monitoring Coil 2
E19	E19- Brake Monitoring Coil -3	Input function for Brake Monitoring Coil 3
E20	E20- Brake Monitoring Coil -4	Input function for Brake Monitoring Coil 4
E21	E21- Main Contactor Monitoring	Input function for activation of the Main Contactor Monitoring
E22	E22- Parameterset-0	Input function for activation of the Parameterset 1
E23	E23- Parameterset-1	Input function for activation of the Parameterset 2
E24	E24- Brake Wear Monitoring Coil-1	Input function for Brake Wear Monitoring Coil 1
E25	E25- Brake Wear Monitoring Coil -2	Input function for Brake Wear Monitoring Coil 2
E26	E26- Brake Wear Monitoring Coil -3	Input function for Brake Wear Monitoring Coil 3
E27	E27- Brake Wear Monitoring Coil -4	Input function for Brake Wear Monitoring Coil 4
E28	E28- Command VE	Input function for the Evacuation speed
E29	E29- Command binär -3	Input function for Binär Command 2 = 2 ³
E30	E30-Enable Standby	At high level at the input channel, the frequency inverter starts the Standby-Mode (B3-Menu)
E31	E31 Reset Brake Monitoring	Input function for a RESET switch for Brake Monitoring
E32	E32-Car Door Open	Message to the inverter, because the car door is open
E33	E33- Main Contactor Monitoring 2	Input function for activation of the Main Contactor Monitoring 2

3.9 B23 MENU INPUTS PULLUPS

The inputs EA1 to EA4 have the possibility, to work with 0V DC switching levels. In this case there will be switched on Pullup-resistors to the inputs. It is possible to choose between „+24V DC PNP“ and „0V DC NPN“ switching.

Thyssen DAF Gearless with NPN-Signal break release evaluation can be monitored by inverter.

3.10 B24 MENU I/O PREALLOCATIONS

	Frame - 1	Frame - 2	Frame - 3	Frame - 4
	Internal 1 of N	Internal Liftbus	External 1 of N	External Liftbus
K501 Relay	A01: No Error	A01: No Error	A01: No Error	A01: No Error
K502 Relay	A03: Brake	A03: Brake	A03: Brake	A03: Brake
K503 Relay	A04: Main Contactor	A04: Main Contactor	A04: Main Contactor	A04: Main Contactor
EA 1 In- / Output	E17: Brake monitoring S1	E17: Brake monitoring S1	E17: Brake monitoring S1	E17: Brake monitoring S1
EA 2 In- / Output	E18: Brake monitoring S2	E18: Brake monitoring S2	E18: Brake monitoring S2	E18: Brake monitoring S2
EA 3 In- / Output				
EA 4 In- / Output				
EA 5 In- / Output			E21: Maincontactor monitoring	E21: Maincontactor monitoring
EA 6 In- / Output				
EA 7 In- / Output	A06: Run-In Open Door		A06: Run-In Open Door	
EA 8 In- / Output	A08: Comparator V<Vx		A08: Comparator V<Vx	
E 09 Input	E10: Direction Down		E10: Direction Down	
E 10 Input	E09: Direction UP		E09: Direction UP	
E 11 Input	E01: Command Vi		E01: Command Vi	
E 12 Input	E04: Command Vn		E04: Command Vn	
E 13 Input	E05: Command V0		E05: Command V0	
E 14 Input	E06: Command V1		E06: Command V1	
E 15 Input	E07: Command V2		E07: Command V2	
E 16 Input	E08: Command V3		E08: Command V3	
Motor PTC	OFF	OFF	Activee	Active

3.11 B3 MENU FUNCTIONS

Comparator V<03	
	Speed threshold V<0.3 m/s. For locking during run-in with open door. Closes when value falls below the adjustable threshold. The status is displayed on output function A6.
Comparator V<08	
	Speed threshold fot entry with reduced shaft head. Output is high active , relay closes on falling below adjustable threshold. Status is displayed to output A7.
Comparator V<Vx	
	Adjustable speed threshold. Output is high active , relay closes on falling below adjustable threshold. Status is displayed to output A8.
Comparator V<Vy	
	Adjustable speed threshold. Output is high active , relay closes on falling below adjustable threshold. Status is displayed to output A18.
Pressure Switch - 1	
	When exceeding the set value , output iss et to A14. Default value is 20,0 Bar
Pressure Switch - 2	
	When exceeding the set value , output iss et to A15. Default value is 40,0 Bar
Pressure Switch - 3	
	When exceeding the set value , output iss et to A16. Default value is 50,0 Bar
Set of Parameters	
	There is possibility of four different sets of parameters to be deposited. Par example four different types of machines are stored. Here you can adjust the parameter set is displayed in display.
Parameterset Travel	
	The choosen parameterset can be rescued in another parameterset.
Copy Parameterset	
	The choosen parameterset can be rescued in another parameterset.
Reset Parameterset	
	Here, you can erase and program a parameterset with default values Note: All previous settings will be reset the parameter set.
PE-Relay / EMV-Filter	
	For operation with construction of RCDs ist possibility that PE.relay off and thereby prevent leakage current.
Pulse simulation at RJ45-jack	
	At RJ45 jack can be used to produce shaft encoder copy signals. The encoder signal output electrically isolated.
Shortcut Relay	
	The integrated shortcut relay can activated with this function. Through this function, you can avoid overspeed with open brake.
Standby-Mode E30 aktive / switched OFF	
	If the input function E30 is activated and the input channel has a high level, then inverter goes into the standby-mode.
Standby-Timer OFF / 1 to 60 Minutes	
	If the standby-timer is active, inverter goes into the standby-mode after time delay.

3.12 B4 MENU USER INTERFACE

Time / Date / Weekday	
	In this parameter you can put in time, date and weekday.
Summer / Winter-Time Shift	
	In this parameter you can choose, if you want an automatically change between summer- and wintertime. Standart time zone is MEZ / Germany.
Language	
	You can choose between several language versions for menu display.
Displayline – 1 & 2	
	Here you have place for 20 chars, in order to give in name of elevator / local building. You have a pool of 95 signs (Chars, Numbers, spezial things) to choose the right one.
Software	
	Display the version number of the software and the controller types.
CPU	: G90-1.00 d or higher
IO-PIC	: 0.01 or higher
GEBER-PIC:	0.02 or higher
LCD-PIC	: -. - or higher
Password Code	
	You can choose your own Code-number with four chars.
Parameter View	
	After switch on the Expert Mode it is possible, to see all parameters like e.g. in the menu START / STOP which are in the standart mod unvisible. The Standart value is standart mode .

3.13 B5 MENU MONITORING

PTC Motor Activ / Passiv	
	Activate the Motor PTC monitoring
Expert PTC Motor Threshold	
	<i>If the Motor PTC Monitoring Function is active, you can put in limit of the PTC-Resistor when the inverter stops the travel. The standart value is 3,60 kOhm.</i>
Expert PTC Motor Warning limit	
	<i>If the Motor PTC Monitoring Function is active, you can put in the warning limit of the PTC-Resistor when the inverter tells pay attention! The standart value is 3,30 kOhm.</i>
Brake Monitoring	
	At the Brake monitoring you can look over four brake coils. After activation you should program the inputs EA1 to Eax with the right input-functions (E17-E20 Menu B22). If you need a brake monitoring, which recognize a null-voltage level (NPN), like situation at Thyssen gearbox and gearless machines TW,DAF, SC... you must choose in the menu B23 PullUp Resistors value 0V-DC (NPN) .
Brake Monitoring Input	
	Here you can put the switch-behaviour. There are two possibilities, like NC-Normally Closed and NO-Normally Open . Standart value is NC.
Less Pressure Monitoring	
	Her ethe reduced pressure value can be set with values ranging from 1.0 to 20.0 bar. Exceeding threshold will cause an error message.
Main Contactor Monitoring	
	In the parameter main contact monitoring you look after the right switching-behaviour of both main contactors and brake contactor. After activation you should program inputs with right input-functions (E21 Menu B22).
Main Contactor Monitoring Input	
	Here you can put switch-behaviour. There are two possibilities, like NC-Normally Closed and NO-Normally Open . Standart value is NC.
Brake Wear Monitoring	
	At the Brake Wear monitoring you can look over four brake coils. After activation you should program inputs with the right input-functions (E24-E27 Menu B22).
Brake Wear Monitoring Input	
	Here you can put switch-behaviour. There are two possibilities, like NC-Normally Closed and NO-Normally Open . Standart value is NC.

3.14 C0 ACTUAL VALUES

For use of diagnosis, there is an information menu in the new types of inverters of GOLIATH-90. After activation the left red push-button, you will go from every menu to the information menu.

Actual Heatsicktemperatur		Fan rotation
Minimum Heatsicktemperatur		Maximum Heatsicktemperatur
PWM-Clockfrequency		Clockfrequency Brake-chopper
	Yellow Push-button to the top	
In-/Outputs EA1 – EA8 activ?		Inputs E9 to E16 activ?
Relay-1 & Relay-2 activ?		Relay-3 activ?
Actual Resistor Motor PTC		Loadmearsure: Car-Load in %
	Yellow Push-button to the top	
Actual Rotation		Actual Travel Speed
Actual Current / Voltage		Voltage of the DC-circuit
Actual Frequency		Schlupf-Frequency
		With Synchronmotor: Actual Encoder-Angle
	Yellow Push-button to the top	
Actual Menu- Page 4:		Frequency of turbine signal
ALGI frequency regular		Current oil pressure
Hydraulic		Modulation of the control valve on downward movement
	Yellow Push-button to the top	

3.15 C1 DIAGNOSIS IN- / OUTPUT SIGNALS

In the menu C1 In-/output signals you have the possibility to look over all signals at the pins of the terminals, and also to regard the programmed Input- and Output-functions on every pin of terminals!

With upper and downer red push-buttons, you can choose previous terminal, e.g. Relay . With both right yellow push-buttons the destination bit can be choose, e.g. like Relay-1 .	In changing display-layout, bit and programmend Input- and Output-function will be shown, e.g. at the pins of relay-1 there is output-function „ A01 No Error Relay “. An Input-function cannot be shown, because a relay has no input!												
<table border="1"> <thead> <tr> <th>Terminal</th> <th>Device</th> <th>Bit 0 to 7</th> </tr> </thead> <tbody> <tr> <td>Relay</td> <td>FU</td> <td>R1, R2, R3, Rvorl, R-PE, R-KS</td> </tr> <tr> <td>EA1..8</td> <td>FU</td> <td>EA1 bis EA8</td> </tr> <tr> <td>E9.. 16</td> <td>FU</td> <td>E9 bis E16</td> </tr> </tbody> </table>	Terminal	Device	Bit 0 to 7	Relay	FU	R1, R2, R3, Rvorl, R-PE, R-KS	EA1..8	FU	EA1 bis EA8	E9.. 16	FU	E9 bis E16	<p>Char discription:</p> <p>„-“ There is no voltage at the pin of the terminal</p> <p>* “ There is voltage of +24V DC at the pin of the terminal</p>
Terminal	Device	Bit 0 to 7											
Relay	FU	R1, R2, R3, Rvorl, R-PE, R-KS											
EA1..8	FU	EA1 bis EA8											
E9.. 16	FU	E9 bis E16											

3.16 C2 ERROR MEMORY

ERROR 01	<p>IPM -Overcurrent</p> <ul style="list-style-type: none"> - Error message caused through wrong motor datas (Nominalspeed – Motor data)! - Error message caused through wrong motor datas (Nominalcurrent – Motor data)! - Old machines: Please switch off the position regulator! Or change the settings ! - Gearless: Is the motorwire correctly installed (U – V – W) ? - Overcurrent because there is a shortcut in the motorwire ? - Is the encoder wire right connected? Perhaps you must change the channels A and B ? - Is the car easily running ? Have the fixing shoes enough oil ? Is the half-load OK ?
ERROR 02	<p>Overcurrent U - Overcurrent because there are wrong motor datas or oscillations of the car</p> <ul style="list-style-type: none"> - Error message caused through wrong motor datas (Nominalspeed – Motor data)! - Error message caused through wrong motor datas (Nominalcurrent – Motor data)! - Old machines: Please switch off the position regulator! Or change the settings ! - Gearless: Is the motorwire correctly installed (U – V – W) ? - Overcurrent because there is a shortcut in the motorwire ? - Is the encoder wire right connected? Perhaps you must change the channels A and B ? - Is the car easily running ? Have the fixing shoes enough oil ? Is the half-load OK ?
ERROR 03	<p>Overcurrent V - Overcurrent because there are wrong motor datas or oscillations of the car –</p> <ul style="list-style-type: none"> - Error message caused through wrong motor datas (Nominalspeed – Motor datas)! - Error message caused through wrong motor datas (Nominalcurrent – Motor datas)! - Old machines: Please switch off the position regulator! Or change the settings ! - Gearless: Is the motorwire correctly installed (U – V – W) ? - Overcurrent because there is a shortcut in the motorwire ? - Is the encoder wire right connected? Perhaps you must change the channels A and B ? - Is the car easily running ? Have the fixing shoes enough oil ? Is the half-load OK ?
FEHLER 04	<p>Overcurrent W - Overcurrent because there are wrong motor datas or oscillations of the car</p> <ul style="list-style-type: none"> - Error message caused through wrong motor datas (Nominalspeed – Motor datas)! - Error message caused through wrong motor datas (Nominalcurrent – Motor datas)! - Old machines: Please switch off the position regulator! Or change the settings ! - Gearless: Is the motorwire correctly installed (U – V – W) ? - Overcurrent because there is a shortcut in the motorwire ? - Is the encoder wire right connected? Perhaps you must change the channels A and B ? - Is the car easily running ? Have the fixing shoes enough oil ? Is the half-load OK ?
ERROR 05	<p>Dissipator Temperature: Temperature Dissipator too high –</p> <ul style="list-style-type: none"> - The Inverter is overloaded or the controller casing is too hot. Is the power class of the inverter in according to the motor ? - Has the controller cabinet an air ventilation? Is above the inverter casing enough air room? - Are the fans of the inverter OK? - Are there any dirt on the pcb-board or in the heatsink ?
ERROR 06	<p>DC-Overvoltage:</p> <ul style="list-style-type: none"> - There is no brake resistor connected or the type is wrong -> Please measure the Ohm-value! - Main supply voltage too high -> Please check it – you must have a voltage of 400V AC! - There are voltage peaks on the main supply ? - Is the frequency inverter connected with the earth ?
ERROR 07	<p>DC-Undervoltage:– The supply voltage is too low or the maincontactor is switched off during the travel:</p> <ul style="list-style-type: none"> - The DC voltage is too low -> Please control the supply voltage ! - The maincontactors are switched off during the travel -> A phase of the supply voltage is missing ! - The power class of the inverter is too low for the motor !
ERROR 08	<p>Main Contactor-Start:</p> <ul style="list-style-type: none"> - At the start, the maincontactors do not switch ON -> The power supply is too low ? - At the start, the maincontactors do not switch ON -> The safety circuit is interrupted (Doorcontacts) - At the start, the maincontactors do not switch ON -> The Fuse is switched OFF ?
ERROR 09	<p>Main-Contactor-Travel:</p> <ul style="list-style-type: none"> - During the travel, the maincontactors switch OFF -> The power supply is too low ? - During the travel, the maincontactors switch OFF -> The safety circuit is interrupted (Doorcontacts) - During the travel, the maincontactors switch OFF -> The Fuse is switched OFF ?
ERROR 10	<p>No Release:</p> <ul style="list-style-type: none"> - Drive direction UP or DOWN is missing at the end of the travel –Contr.: Delay for switch off the direction! - Drive direction UP or DOWN is missing at the end of the travel -Safety circuit, check the door mangement - Drive direction UP or DOWN is missing at the end of the travel -> Delay time contactors to 1500 ms.
ERROR 11	<p>Release UP + DOWN</p> <p>You must have only one drive direction -> In case of certain controller, which works only with one direction, please change the parametersetting in the inverter!</p>
ERROR 12	Wrong Direction

	<ul style="list-style-type: none"> - Please change the encoder channels A/B, because the machine rotates in the wrong direction! - Perhaps it is the wrong type of encoder? -> Menu A4 Motor/Gearbox -> Encodersystem - The number of pulses are wrong? -> Menu A4 Motor/Gearbox -> Encoder Pulses - The encoderwire is out of order or too long (>30m) ! -> Please increase the encoder voltage ! - The encoder-shield is not connected on both sides -> Change it immediately! - The encoderwire is parallel to the motorwire -> Change it immediately! - The encoder coupling or the encoder is not mechanical fixed with the Motorwave -> Please check it!
<p>ERROR 13</p>	<p>Speed Variance</p> <ul style="list-style-type: none"> - The motor works, but the encoder is out of order or wrong connected. -> Control the pining! - Perhaps it is the wrong type of encoder? -> Menu A4 Motor/Gearbox -> Encodersystem - The number of pulses are wrong? -> Menu A4 Motor/Gearbox -> Encoder Pulses - The encoderwire is out of order or too long (>30m) ! -> Please increase the encoder voltage ! - The encoder-shield is not connected on both sides -> Change it immediately! - The encoderwire is parallel to the motorwire -> Change it immediately! - The motor and his metal socket is grounded very bad -> Change it immediately! - The frequency inverter is not connected with the earth -> Change it immediately! - The motorwire-shield is not connected on both sides -> Change it immediately! - The brakeresistorwire-shield is not connected on both sides -> Change it immediately! - The encoder coupling or the encoder is not mechanical fixed with the Motorwave -> Please check it! - The frequency inverter has a current limit (full power) -> Power class too low - Is the car easily running ? Have the fixing shoes enough oil ? Is the half-load OK ?
<p>ERROR 14</p>	<p>No Encoder Pulse</p> <ul style="list-style-type: none"> - The motor works, but the encoder is out of order or wrong connected. -> Control the pining! - Perhaps it is the wrong type of encoder? -> Menu A4 Motor/Gearbox -> Encodersystem - The number of pulses are wrong? -> Menu A4 Motor/Gearbox -> Encoder Pulses - The encoderwire is out of order or too long (>30m) ! -> Please increase the encoder voltage ! - The encoder-shield is not connected on both sides -> Change it immediately! - The encoderwire is parallel to the motorwire -> Change it immediately! - The motor and his metal socket is grounded very bad -> Change it immediately! - The frequency inverter is not connected with the earth -> Change it immediately! - The motorwire-shield is not connected on both sides -> Change it immediately! - The brakeresistorwire-shield is not connected on both sides -> Change it immediately!! - The encoder coupling or the encoder is not mechanical fixed with the Motorwave -> Please check it!
<p>ERROR 15</p>	<p>DC Precharge:</p> <ul style="list-style-type: none"> - After switch ON the inverter, the DC-voltage is too low -> Earth connection of the brake resistor wire - After switch ON the inverter, the DC-voltage is too low -> Earth connection of the brake resistor wire - After switch ON the inverter, the DC-voltage is too low -> The little two fuses into the inverter are out of order !
<p>ERROR 16</p>	<p>Release Change during the travel – Lift controller error</p> <ul style="list-style-type: none"> - Error of the lift controller or wrong settings in the parameter of the controller / inverter!
<p>ERROR 17</p>	<p>Liftbus communication during the travel is out of:</p> <ul style="list-style-type: none"> - Wrong Liftbus parameter ! - Wrong Liftbuscable or the shield not connected!
<p>ERROR 18</p>	<p>SSI-Communication:</p> <ul style="list-style-type: none"> - Is there really SSI-encoder connected? -> Menu A4 Motor/Gearbox -> Encodersystem - The encoder is out of order, e.g. after the test of the safetygear ? - The encoder is wrong connected -> Please check the pining -> Do you use the right adapter ? - The encoderwire is out of order or too long (>30m) ! -> Please increase the encoder voltage ! - The encoderwire is parallel to the motorwire -> Change it immediately! - The encoder coupling or the encoder is not mechanical fixed with the Motorwave -> Please check it!
<p>ERROR 19</p>	<p>EnDat-Communication:</p> <ul style="list-style-type: none"> - Is there really EnDat-encoder connected? -> Menu A4 Motor/Gearbox -> Encodersystem - The encoder is out of order, e.g. after the test of the safetygear ? - The encoder is wrong connected -> Please check the pining -> Do you use the right adapter ? - The encoderwire is out of order or too long (>30m) ! -> Please increase the encoder voltage ! - The encoderwire is parallel to the motorwire -> Change it immediately! - The encoder coupling or the encoder is not mechanical fixed with the Motorwave->Please check it!

<p>ERROR 20</p>	<p>Hiperface Communication:</p> <ul style="list-style-type: none"> - Is there really Hiperface-encoder connected? -> Menu A4 Motor/Gearbox -> Encodersystem - The encoder is out of order, e.g. after the test of the safetygear ? - The encoder is wrong connected -> Please check the pining -> Do you use the right adapter ? - The encoderwire is out of order or too long (>30m) ! -> Please increase the encoder voltage ! - The encoderwire is parallel to the motorwire -> Change it immedatly! - The encoder coupling or the encoder is not mechanical fixed with the Motorwave -> Please check it!
<p>ERROR 21</p>	<p>Sin/Cos Communication:</p> <ul style="list-style-type: none"> - Is there really Sin/Cos-encoder connected? -> Menu A4 Motor/Gearbox -> Encodersystem - The encoder is out of order, e.g. after the test of the safetygear ? - The encoder is wrong connected -> Please check the pining -> Do you use the right adapter ? - The encoderwire is out of order or too long (>30m) ! -> Please increase the encoder voltage ! - The encoderwire is parallel to the motorwire -> Change it immedatly! - The encoder coupling or the encoder is not mechanical fixed with the Motorwave -> Please check it!
<p>ERROR 22</p>	<p>Angle Variance:</p> <ul style="list-style-type: none"> - The number of pulses are wrong -> Please change the setting - The encoder channels are out of order -> Please change the encoder ! ? - The encoder is wrong connected -> Please check the pining -> Do you use the right adapter ?
<p>ERROR 23</p>	<p>Encoder Voltage-too low:</p> <ul style="list-style-type: none"> - Short cut at the encoder terminal -> Please check the pining -> Do you use the right adapter ? - The encoder is out of order, e.g. after the test of the safetygear ? - The encoder is wrong connected -> Please check the pining -> Do you use the right adapter ? - The encoderwire is out of order or too long (>30m) ! -> Please increase the encoder voltage ! - Is the right type of encoder connected? -> Menu A4 Motor/Gearbox -> Encodersystem
<p>ERROR 24</p>	<p>Motor Temperature-too high:</p> <ul style="list-style-type: none"> - The temperature of the area is too high - The motor is overloaded - The motor fan is out of order
<p>ERROR 25</p>	<p>Command Voltage-too low: Short cut at the 24V-Terminal, 24V-Terminal is overloaded:</p> <ul style="list-style-type: none"> - Short cut at the output terminal +24V -> Please check soon as possible ! - The output channel +24V is overloaded -> please use an external power supply !
<p>ERROR 26</p>	<p>24V Output Driver</p> <ul style="list-style-type: none"> - Short cut at the output terminal -> Please check the pining - The output channels EA1 to EA8 are overloaded -> Perhaps the is a short cut or the current is too high -> Please check it, pperhaps you must use external relays!
<p>ERROR 27</p>	<p>Relay Monitor-1:</p> <ul style="list-style-type: none"> - Internal Relay-1 is out of order or the open-contact is clewing -> The switching load is too big (Inductive)! Please use a contactor to switch big loads, like the brake-magnet!
<p>ERROR 28</p>	<p>Relay Monitor -2:</p> <ul style="list-style-type: none"> - Internal Relay-2 is out of order or the open-contact is clewing -> The switching load is too big (Inductive)! Please use a contactor to switch big loads, like the brake-magnet!
<p>ERROR 29</p>	<p>Relay Monitor -3:</p> <ul style="list-style-type: none"> - Internal Relay-3 is out of order or the open-contact is clewing -> The switching load is too big (Inductive)! Please use a contactor to switch big loads, like the brake-magnet!
<p>ERROR 30</p>	<p>Monitor Brake-1:</p> <ul style="list-style-type: none"> - Brake-circuit-1 do not open / close during the travel -> Are the settings OK? Do you have opener or closer-contacts? 0V (NPN-Thyssen) or+24V (z.B. Ziehl-Abegg,..) - Do have connected the brakewires rightly? - Do you have observed, if the brakes open ? -> Brakewires ? - Are the brake-contacts OK ? -> If you have any douts, make a measurement !
<p>ERROR 31</p>	<p>Monitor Brake-2:</p> <ul style="list-style-type: none"> - Brake-circuit-2 do not open / close during the travel -> Are the settings OK? Do you have opener or closer-contacts? 0V (NPN-Thyssen) or+24V (z.B. Ziehl-Abegg,..) - Do have connected the brakewires rightly? - Do you have observed, if the brakes open ? -> Brakewires ? - Are the brake-contacts OK ? -> If you have any douts, make a measurement !

<p>ERROR 32</p>	<p>Monitor Brake-3:</p> <ul style="list-style-type: none"> - Brake-circuit-3 do not open / close during the travel -> Are the settings OK? Do you have opener or closer-contacts? 0V (NPN-Thyssen) or+24V (z.B. Ziehl-Abegg,..) - Do have connected the brakewires rightly? - Do you have observed, if the brakes open ? -> Brakewires ? - Are the brake-contacts OK ? -> If you have any douts, make a measurement !
<p>ERROR 33</p>	<p>Monitor Brake-4:</p> <ul style="list-style-type: none"> - Brake-circuit-4 do not open / close during the travel -> Are the settings OK? Do you have opener or closer-contacts? 0V (NPN-Thyssen) or+24V (z.B. Ziehl-Abegg,..) - Do have connected the brakewires rightly? - Do you have observed, if the brakes open ? -> Brakewires ? - Are the brake-contacts OK ? -> If you have any douts, make a measurement !
<p>ERROR 34</p>	<p>Monitor Main Contactor:</p> <ul style="list-style-type: none"> - One of the main contactor can not be switched ON -> Please control the contactors! - Please check the opener-contacts, clean it or change it! - Are the opener-contacts for 24V DC ? -> Please look at the data sheet!
<p>ERROR 35</p>	<p>ADC1-Zero-Offset:</p> <ul style="list-style-type: none"> - The currentsensor-U is out of order. It is an internal Error. Please contact our Hotline.
<p>ERROR 36</p>	<p>ADC2-Zero-Offset:</p> <ul style="list-style-type: none"> - The currentsensor-V is out of order. It is an internal Error. Please contact our Hotline.
<p>ERROR 37</p>	<p>ADC1-Offset:</p> <ul style="list-style-type: none"> - The AD-Changer-V is out of order. It is an internal Error. Please contact our Hotline.
<p>ERROR 38</p>	<p>ADC2-Offset:</p> <ul style="list-style-type: none"> - The AD-Changer-U is out of order. It is an internal Error. Please contact our Hotline.
<p>ERROR 39</p>	<p>Eart Fault:</p> <ul style="list-style-type: none"> - The motor ist out of order, please measure each coil of the motor and compare it! - Please check, if the motorwire or resistorwire have any connection to earth!
<p>ERROR 40</p>	<p>IPM-Error: or Supply voltage to low:</p> <ul style="list-style-type: none"> - Overtemperature in the IGBT-Chip -> Are there any dirt on the pcb-board or in the heatsink ? - The voltage of board is too low! -> Is the main supply voltage OK ?
<p>ERROR 41</p>	<p>Position Regulation:</p> <ul style="list-style-type: none"> - The difference at the start handling is too high, wrong Parameter (Nominalspeed -> motor-datas,..)! - The motor works, but the encoder is out of order or wrong connected. -> Control the pining! - Perhaps it is the wrong type of encoder? -> Menu A4 Motor/Gearbox -> Encodersystem - The number of pulses are wrong? -> Menu A4 Motor/Gearbox -> Encoder Pulses - The encoderwire is out of order or too long (>30m) ! -> Please increase the encoder voltage ! - The encoderwire is parallel to the motorwire -> Change it immediately! - The encoder-shield is not connected on both sides -> Change it immediately! - Old machines: Please switch off the position regulator! Or change the settings!
<p>ERROR 42</p>	<p>NTC-Dissipator :</p> <ul style="list-style-type: none"> - The Temperature sensor deliever the wrong value: Please check the connection! - The Temperature sensor is out of order. Please contact our Hotline.
<p>ERROR 43</p>	<p>DC Battery Voltage:</p> <p>At the evaquation-travel with battery, the voltage of the battery was too low. Please check the battery</p> <ul style="list-style-type: none"> - voltage!
<p>ERROR 44</p>	<p>Watchdog-Reset</p> <p>There is an internal Reset by the Watchdog. Please contact our Hotline.</p>
<p>ERROR 45</p>	<p>Monitor Brake wear-1:</p> <p>The input channel for the Brake wear monitor is active.You need a new brake shoe or brake is not exactly adjust!</p>
<p>ERROR 46</p>	<p>Monitor Brake wear-2:</p> <p>The input channel for the Brake wear monitor is active.You need a new brake shoe or brake is not exactly adjust!</p>
<p>ERROR 47</p>	<p>Monitor Brake wear-3:</p> <p>The input channel for the Brake wear monitor is active.You need a new brake shoe or brake is not exactly adjust!</p>
<p>ERROR 48</p>	<p>Monitor Brake wear-4:</p> <p>The input channel for the Brake wear monitor is active.You need a new brake shoe or brake is not exactly adjust!</p>
<p>ERROR 49</p>	<p>Offset measure Pole Number:</p> <p>There is a difference between the parameter motor type and the actual type! Reason: Wrong selected synchronous motor.</p>

ERROR 50	Offset measur Brake: During the offset measure, the motor do not rotate – please check the brake, because it is not open!
ERROR 51	Offset measure Invalid : The measured offset angle is not valid – check electric wiring and make the offset measure a second time! Reason: Command ride or release was interrupted before completion of offset measurement.
ERROR 52	Brake Resistor: There is a short cut at the brake resistor! Reason: The braking resistor is defective or incorrect connec- ted.
ERROR 53	Hydraulic – Pressure Sensor: The input channel for Pressure Sensor is low.Please check the wire to the Pressure Sensor.
ERROR 54	Hydraulic – Turbine: The input channel for Turbine is low.Please check the wire to the Turbine.
ERROR 55	Hydraulic – Low Pressure: If the low Pressure-Function is activate, there is an error. The pressure is too low, because there is a prob- lem in the hydraulic system or the limit-setting of the parameter is too high.
ERROR 59	V > 0,2 m/s: If monitoring function „V>0.2 m/s at an open door“ adressed and reported on input function E32 or lift bus that car door is open, then there is a A3 case where elevator car with an open car door leaves floor. The result is a shutdown of frequency inverter.
ERROR 60	BiSS-C-Communication: <ul style="list-style-type: none"> - Is there really BiSS-C-encoder connected? -> Menu A4 Motor/Gearbox -> Encodersystem - The encoder is out of order, e.g. after the test of the safetygear ? - The encoder is wrong connected -> Please check the pining -> Do you use the right adapter ? - The encoderwire is out of order or too long (>30m) ! -> Please increase the encoder voltage ! - The encoderwire is parallel to the motorwire -> Change it immedately! - The encoder coupling or the encoder is not mechanical fixed with the Motorwave -> Please check it!

3.17 C3 ERROR HANDLING

In this menu you can change behaviour in case of errors. For every error, you have eleven possibilities how inverter must act:

[No Lock / Lock after 1 error / Lock after 2 error /... / Lock after 10 error /].

3.18 C4 TÜV APPROVAL

In the **C41 sub motor thermistor test** of frequency inverter GOLIATH-90 it is possible for a trip off motor thermistor software technology in order to generate an error response. If TÜV test menu of motor thermistor is activated, a removal thermistor is simulated and triggered error F24, if motor thermistor monitoring is active in menu B5.

In **submenu C42 test braking elements** of frequency inverter GOLIATH-90 it is possible for a ride monitoring of braking element 1 or 2 or 3 disable using software thus to generate an error response. This is required when subject to monitoring braking elements order to simulate a failure of brake element according **EN 81-1/2 A3 - 9.13.2**.

If TÜV test of brake element is activated a removal line at corresponding input is simulated and the error-F30...F33 triggered if corresponding input of brake element monitoring is active in B5 menu.

If brake control elements responsive (Fault F30...F33) then this error persists even after power off /on. The error can only be started by selecting menu item "C2 error memory" or reset by a rest pulse at entrance to E31 (Reset brake monitor). For this purpose in menu "**C3 error handling –F30...F33 a lock after 1 error**" must be set (default value).

3.19 D1 STATUS INFORMATIONS

This menu **D1** is not realized.

3.20 D2 TRAVEL COUNTER

In menu **D2** there is counter for travels. There are four counters for use:

All travels	Not erasable
Travel counter, erasable	erasable
Travel counter UP, erasable	erasable
Travel counter DOWN, erasable	erasable
Erase Travel Counter	NO / YES

The last parameter point in this menu is for erasing the counters.

3.21 D3 OPERATION HOURS

In menu **D3** there is counter for the operation hours. There are three counters for use:

Hours on main	Counter for hours, at which there is voltage, not erasable
Hours on travel	Counter for hours, at which the inverter makes travels, not erasable
Hours travel erasable	erasable

The last parameter point in this menu is for erasing counters.

4. FIRST ACTIVATION OF THE ELEVATOR INSTALLATION

4.1 CONNECTION OF THE POWERSUPPLY WIRE (TRAVEL with FI-FUSE-Switch)




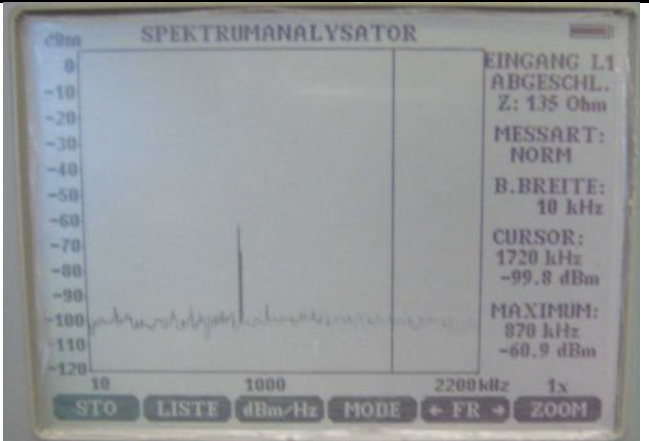
Standart version of the Goliath-90 frequency inverter needs an main voltage of 400V AC (Tolerance +10% / -15%) with PE-Earth. The electronic part of the converter needs a permanent control voltage, in order to avoid time delays at the start operation. Two main conductors are on the line side, which supply power part of converter.

TRAVEL with FI-FUSE-Switch	
Temporärly FI-FUSE-Switch (Construction- FI-FUSE-Switch)	All Goliath-90 Inverters to 32A I_{nenn} have the possibility to switch off the PE-connection in filter by parameter. All other bigger units have possibility to unconnect the filter.
Permanently FI-FUSE-Switch	All Goliath-90 Inverters can permanently work with a Fi-FUSE-Switch with an active current of 300mA. If there is a demand of an active current of 30mA, you should use a Fi-FUSE-Switch with „All Sensitive Charistic“.

4.2 CONNECTION OF THE MOTOR- AND BRAKECHOPPERWIRE (EMV- konform)

For motorwire, also for bakeresistorwire, you need a CU-shielded wire. The motor must be connected via a 4-core screened line. For reasons of electromagnetic compatibility, the shield must be connected to the mounting plate over a large surface in control cabinet in the immediate vicinity of the frequency converter. At synchronemachine, the motorwire must connected in the right serie of the phases (U-V-W). The lenght of the motorwire should be have a maximum of 25 meters.

If you need a longer motorwire, please use a metal connectingbox with metal PG-srewings (Zetatop SM200 -> No Connectingbox, only short wire).The brake resistor cable should be extremely short. Also, the shield should be connected on both ends of wire into the metal PG-screwing.

WRONG !	RIGHT !
<p>The connection of the motorwire without connection of the shield is vorbidden! If you have a plastic connectionbox, you must connect the shield with earth-terminal!</p>	<p>The connection of motorwire in a metal connectionbox. The metal PG-screwing must mounted leading to metal casing (erase all isolated vanish).</p>
	
<p>The Frequencyspectrum is very bad. The Radio- and TV-receiving is disturbed, also the WLAN-travel.</p>	<p>The Frequencyspectrum agrees the EC-Guidelines for die Class B for private living-rooms.</p>
	

4.3 CONNECTING THE COMMANDS – KONVENTIONAL WIRING

As already mentioned in **Section 2.9** all about control voltage inputs are opto-isolated and floating designed for 24V DC. The inputs can be freely assigned with software functions -> Menu B22. However, when shipped already filled the inputs, as shown in Section 2.9.

Basically, the direction and driving commands (note 0V ground connection!) Either via the +24 V DC voltage of the inverter or via the 24V DC control voltage to operate. They are shown below both variants.

Connection with external control voltage	Connection with internal control voltage
<p>When using the +24 V control voltage of the lift controller, you need a GND connection between inverter and control system.</p> <p>If shielded wire is used, the shield must be connected at both ends.</p>	<p>When using the internal +24 V voltage of the inverter no GND connection between inverter and control is required.</p> <p>If shielded wire is used, the shield must be connected at both ends.</p>

Also offers the Goliath-90 frequency the opportunity to work with only one direction, and the enable signal. Binary coded move commands can also be processed.

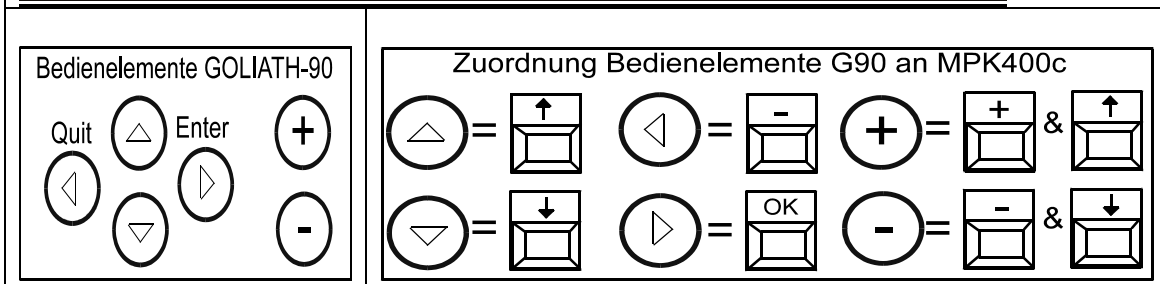
Connection with approval and direction	Connection with binary inputs
<p>When to replace inverters like (Dietz, Struckmaier, ..) that work with enable signal and a direction can be programmed with two instead of directions, an enable input (Function E11).</p>	<p>When to replace inverters (KEB F2-F4, domestic cock MC3000 ..) working with binary input signals, B1 menu command inputs, the setting of "1fromN" be changed "binary" on.</p> <p>To the inputs of the binary input functions must be programmed. In the menu item B1-binary encoding can each speed level binary values are assigned.</p>

4.4 WIRING WITH THE DCP-3 Liftbus

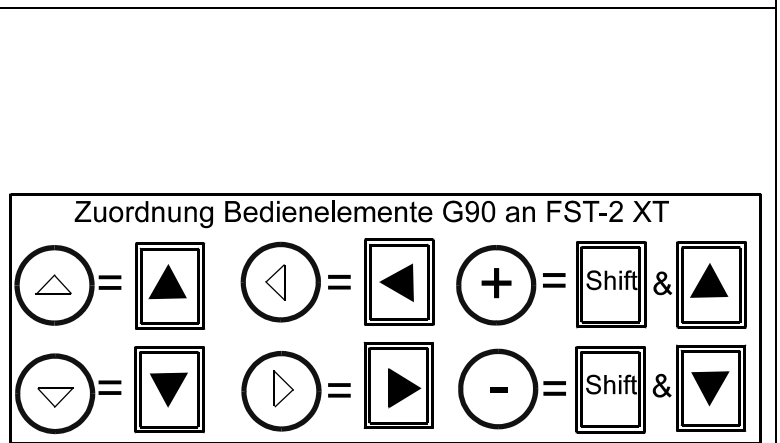
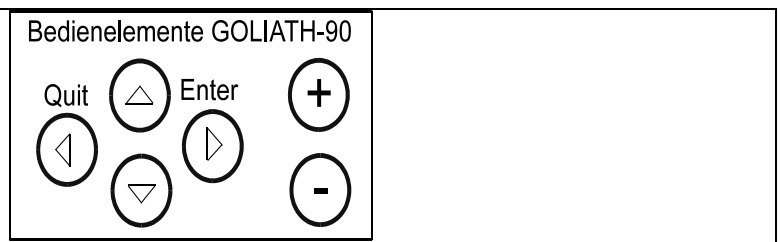
Basically, all elevator controls that have integrated the nomenclature of the DCP-3 protocol operate the GOLIATH 90 in bus DCP-3. The software setting is done in B INTERFACES menu:

B INTERFACE / Menu B1 Commands / Liftbus -> DCP3


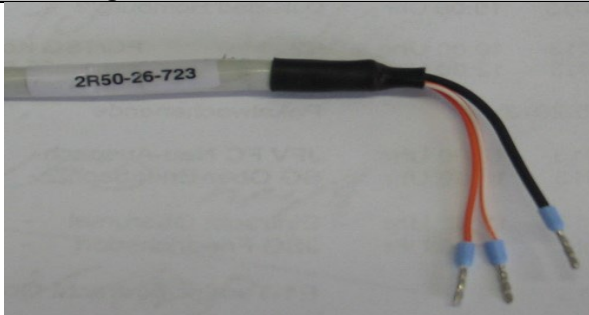
A) MENU AT THE KOLLMORGEN MPK400c



B) MENU AT THE NEW FST-2 XT


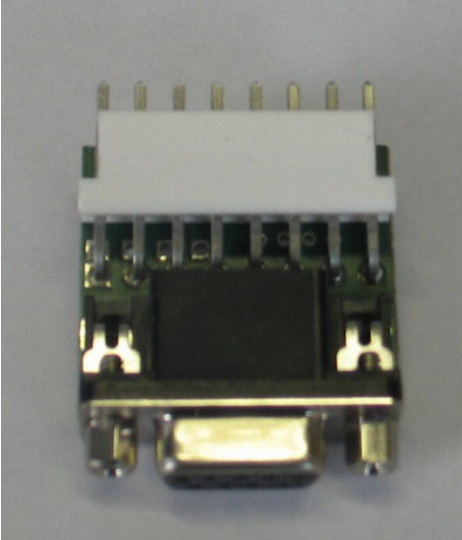


As mentioned in Section 2.10 contains the RJ-45 jack, the Liftbusinterface that is adjustable for many bus protocols. The first three pins represent the bus.

RJ-45 Interface-G90	Pin	Function	Kollmorgen DCP-3 Cable Nr. 2R50-26-723
	Pin 1	RS-485 Channel B	
	Pin 2	RS-485 Channel A	
	Pin 3	GND – 0V DC	
	Pin 4		
	Pin 5		
	Pin 6		
	Pin 7		
	Pin 8		

Thyssen LS-2 Bus

As mentioned in Section 2.11 also provides the Liftbusinterface the Protokoll for the Thyssen elevator building LS-2 is available. Thus the series frequency GOLIATH-90 can be connected to the controllers of the series Thyssen Graz LS-2. To connect the LS-2 is a bus interface card.

RJ-45 Interface-G90	Pin	Function	InterfaceCard Thyssen LS-2 Bus
	Pin 1	RS-485 Channel B	
	Pin 2	RS-485 Channel A	
	Pin 3	GND – 0V DC	
	Pin 4		
	Pin 5		
	Pin 6		
	Pin 7		
	Pin 8		

4.5 MOUNTING THE ENCODER SYSTEM

If you are using a new elevator-winch, normally encoder system is already mounted at motor. A lot of motor companies have their own wire with connector.

For asynchrone machines of company **Thyssen range TW 45 / 63 / 130 / 263 / 191** , we have adapts-cards to connect the 9-pole -D-sub-connectors to GOLIATH-90 incremental encoder input. All other incremental encoder will be connect on 7-pole -D-sub-connectors screw terminal.

For elevator modernization while preserving the old elevator machine is the incremental encoder mounting kit **SOLUTION** with thread thorn for **M8, M10, M12, M16 und M20** waves sink available. It is characterized by preferential rapid installation. Transmitter is locked to the mandrel. A reinforced metal strip with Z-spring to prevent rotation of encoder. The axial play of motor armature can't damage sensor, since it is connected to shaft.

The mountingset of the SOLUTION-Encodersystem has the following components:

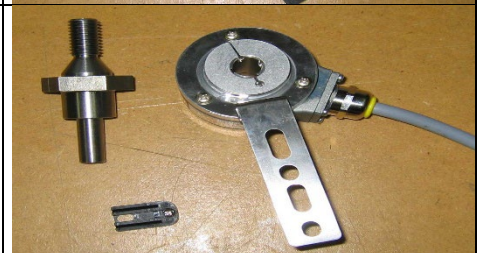
- SOLUTION-Encoder with 10 meter wire and plug for GOLIATH-60 inverters.
- Metal-screwstick with exact Mxx screw.
- Holder, constructed as a Z-spring with 3 pieces of M3 screws.



The encoder is tested inside of the company. Please handle it very carefully!
The holder avoids a motion of the encoder during the motor is running.
The encoder should not mounted very hard with motor-casing. The Z-spring helps to reach a flexible fixing with the motor-casing.



Screw the treaded rod into bore of drive shaft. All mandrels have been tested on synchronization. Avoid knocking shaft journals!
For **Thyssen winds W149** is a special **manrel type W149** available.
For **Kasper external rotor** are **extended mandrels** available.



Pull very carefully the encoder only with your hand, without any tool, on the screwstick and fix the mounting.
After that please fix the metalholder with the casing of the machine. The encoder should not move with the machine, but the fixing must not so hard that vibrations make damages inside of the encoder!



At **synchrone-machines / gearless** is the absolutevalue encoder is finally mounted. At gearless of company **Ziehl-Abegg** with the types **SM 160 / 200 / 225 / 250 / 700 / 850 / 860** .. there is an encoder 15p-D-sub terminal, which you can connect directly with the Goliath-90-Absolutevalue 15p-D-sub-input.

At the gearless of the company **ThyssenKrupp** with the types **DAF 210 / 270 / SC300 / 400** .., there is an encoder 15p-D-sub terminal. **Before connecting the terminal, you need an adapterbox** for connecting! For the gearless of the companies **SwissTraction, Wittur SAD, Montanari, Xinda, Loher...** there is also an **adapter for connection necessary!**



ATTENTION!

Please connect the encoder terminal only without voltage after choosing the right encoder type in the menu A4 MOTOR/ GEARBOX !

4.6 BASIC MENU OPERATION / HAND-HELD-UNIT HPG-60 / INTERNAL DISPLAY

General:

The Hand-held Programming Unit HPG-60 is the universal programming tool for entire control system. It is equipped with 6 keys, a four-lined LCD-display, one red LED, and a 9-pole RS232-Interface. Through the HPG-60, all parameters can be displayed and changed. Current actions of control system are displayed through permanent status indicators. The accumulated fault events can be read out from fault memory. Inquiries can also be initiated through this unit.

Communication:

The serial cable which is supplied with unit, has to be connected with 9-pole interface socket of the HPG-60, and corresponding socket of inverter. If the access authorization of the HPG-60 is accepted by the CPU, the display will show.


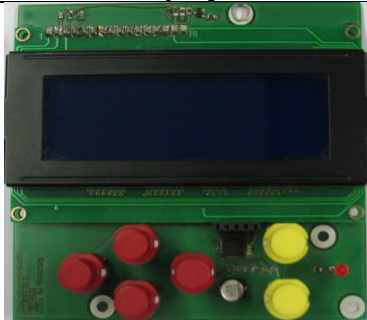
Navigation:

The six keys are separated in two groups. The four red keys are working as a two-axis control, i.e. upper and the lower key are used to scroll through the menu. There are eight main menus, between which you can change by using keys „left arrow“ and „right arrow“. Right and left red buttons will select individual parameters. The values of parameters appear on right side.

The yellow keys are used if parameters are to be changed. The upper yellow key will increase parameter value, through lower yellow key parameter value is reduced. After adjustment, parameter value will flash on the display. The right, red key (ENTER) must be pressed to store the new setting. In case that the new value is to be disregarded, left red key must be pressed (ESCAPE). The current key allocation is displayed on fourth line of display. Parameters can only be changed in standstill condition, and only if no command has been entered. Mistakes are indicated by flashing of display.

The Goliath-90 inverter has possibility to use an internal display. The number of push-buttons and functions are same like the hand-held programming unit HPG-60. Please check our order notice at end of this manual.

Three ways to take communication with the Goliath-90 inverter ...

Hand Programming Unit HPG-60	Internal Display	PC-Software / Liftbus
		If you use an liftbus-connection between Inverter and lift controller, you can change the parameters of the inverter through the display & keypad of your lift controller. With the software of the frequency inverter Goliath-90 it is possible that all parameters are visible at the whole monitor and the data can be saved for every elevator. -> In Preparing

4.7 FIRST STEP – ASYNCHROME MACHINE

In the Menu **A4 MOTOR / GEARBOX** you can with datasheets of encoder, motor and gearbox put in all datas in the parameters. All parameters are described in the Chapter 3.4. Please use exact values of the unitplates, in order to have a good work of software-modell!

Motor/Gearbox	Asynchrone ThyssenKrupp TW	Asynchrone Montanari M xx	Asynchrone Sassi Toro,...
Nominalspeed	1380 - 1460	1400	1400
Nominal current	Motor datas	Motor datas	Motor datas
Cosinus	0,82 - 0,86	0,8	0,8
Motor rotation field	Right or left, depends of the position of the driving wheel.	Right or left, depends of the position of the driving wheel	Right or left, depends of the position of the driving wheel
Encoder system	TTL +5V	TTL +5V	TTL +5V
Encoder pulses	4096 (1024)	1024	1024
Encoder rotation direction	Right or left, depends of the position of the driving wheel.	Right or left, depends of the position of the driving wheel.	Right or left, depends of the position of the driving wheel.
BrakeOpenMonitor	over Goliath-Input channel	over Goliath-Input channel	over Goliath-Input channel

After that the speed values will be adjusted in the menu **A1 SPEED** (Capitel 3.1). Then you can change values for acceleration and deceleration in menu **A2 SPEEDCURVE**. At beginning you should only use lower acceleration and deceleration (50%).

4.8 FIRST STEP – SYNCHRONE MACHINE TYPE Alpha ECD100-300A, EPM100, 300, 500

In the software you can change the type of synchrone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchrone motors, is that you have to connect machine with motor-wire in right way. The phase U must connected with cole U of motor, phase V must connected with cole V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter!

Also for resolver-wire is right connection very important. The resolver direction can be only changed by software parameter.

It is very important to connect shield of wire, because resolver is an analog device. The company alpha getriebebau has a lot of good resolver-wires, which you only have to put into 15-pole HD-Sub terminal of resolver-card.

	ECD 100	ECD 300	ECD 300A
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	ECD 100	ECD 300	ECD 300 A
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left, position of the driving wheel	Right or left, position of the driving wheel	Right or left, position of the driving wheel
Encoder-System	Resolver	Resolver	Resolver
Encoder-Pulses	1024	1024	1024
Offset-angle	30 Degree	Degree	Degree
Encoder-direction	Right	Rechts	Rechts
Offset-measure	You don't have to do it	You don't have to do it	You don't have to do it
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	EPM 100	EPM 300	EPM 500
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	EPM 100	EPM 300	EPM 500
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left, position of the driving wheel	Right or left, position of the driving wheel	Right or left, position of the driving wheel
Encoder-System	Resolver	Resolver	Resolver
Encoder-Pulses	1024	1024	1024
Offset-angle	0 Degree	180 Degree	30 Degree
Encoder-direction	Right	Right	Right
Offset-measure	You don't have to do it	You don't have to do it	You don't have to do it
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

4.9 SYNCHRONE GEARLESS MONTANARI MCB2000, MCG 150, MG 250, MG 340, MDD, MGV

In the software you can change the type of synchron machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change the parameter if it is necessary.

First law for synchron motors, is that you have to connect machine with motor-wire in right way. The phase U must connected with the cole U of the motor, the phase V must connected with the cole V of the motor, a.s.o. . The rotation field of the motor can be only changed by the software parameter!

	MCB 200	MCG 150	MDD
Drive	Synchronmaschine	Synchronmaschine	
Menu	MDG 150	MCG 150	
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left, position of the driving wheel	Right or left, position of the driving wheel	Right or left, position of the driving wheel
Encoder-System	EnDat-Geber	Hiperface	EnDat-Geber
Encoder-Pulses	2048	1024	2048
Offset-angle	Offset-measure	Offset-measure	Offset-measure
Encoder-direction	Right	Right	
Offset-measure	Before mounting the ropes	Before mounting the ropes	Before mounting the ropes
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	MG 250	MG 340	MGV25ML
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	Ja	Ja	Ja
Nominal-Current	Typenschild od. Unterlagen	Typenschild od. Unterlagen	Typenschild od. Unterlagen
Rotation-Field	Rechts oder Links, je nach Lage der Treibscheibe	Rechts oder Links, je nach Lage der Treibscheibe	Rechts oder Links, je nach Lage der Treibscheibe
Encoder-System	EnDat-Geber	EnDat-Geber	EnDat-Geber
Encoder-Pulses	2048	2048	2048
Offset-angle	Offset-measure	Offset-measure	Offset-measure
Encoder-direction	Right	Right	
Offset-measure	Before mounting the ropes	Before mounting the ropes	Before mounting the ropes
Bremslüftüberw.	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

4.10 FIRST STEP – SYNCHRONE MACHINE TYPE SwissTraction GA-32, 42, 52, 62 Z24x, Z32x, Z42x, Z52x, Z62x

In the software you can change type of synchrone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchrone motors, is that you have to connect machine with motor-wire in right way. The phase U must connected with cole U of motor, phase V must connected with cole V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter! You can order right encoder-cabel for Goliath inverters at company SwissTraction.

	GA 32	GA 41/42	GA 51/52	GA 61/62
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	GA 32	GA 42	GA 52	GA 62
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left, position of the driving wheel	Right or left, position of the driving wheel	Right or left, position of the driving wheel	Right or left, position of the driving wheel
Encoder-System	SSI, or EnDat-Encoder	SSI, or EnDat- Encoder	SSI or EnDat- Encoder	SSI or EnDat- Encoder
Offset-Measure	Yes	Yes	Yes	Yes
Encoder-Pulses	2048	2048	2048	2048
Encoder-Direction	Right	Right	Right	Right
Offset-Angle	On the machine!	On the machine!	On the machine!	On the machine!
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input
	GA 32	GA 42	GA 52	GA 62

	Zefir Z 24x	Zefir Z 32x	Zefir Z 42x	Zefir Z 52x
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	Z 24x	Z 32x	Z 42x	Z 52x
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left, position of the driving wheel	Right or left, position of the driving wheel	Right or left, position of the driving wheel	Right or left, position of the driving wheel
Encoder-System	EnDat- Encoder	EnDat- Encoder	EnDat- Encoder	EnDat- Encoder
Offset-Measure	No	No	No	No
Encoder-Pulses	2048	2048	2048	2048
Encoder-Direction	Right	Right	Right	Right
Offset-Angle	On the machine!	On the machine!	On the machine!	On the machine!
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	Zefir Z 62x			
Drive	Synchronmaschine			
Menu	Z 62x			
Nominal-Current	Motor-plate, motorpapers			
Rotation-Field	Right or left, position of the driving wheel			
Encoder-System	EnDat- Encoder			
Offset-Measure	No			
Encoder-Pulses	2048			
Encoder-Direction	Right			
Offset-Angle	On the machine!			
BrakeOpenMonitor	Over Goliath-90 Input			

4.11 FIRST STEP – SYNCHRONE Ziehl Abegg SM-700, 850, 860, 250, 225, 200, 160

In software you can change type of synchrone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary. First law for synchrone motors, is that you have to connect machine with motor-wire in right way. The phase U must connected with coil U of motor, phase V must connected with coil V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter! The pinning of absolute-value-encoder D-Sub is equal like Ziehl-Abegg encoder cable.

	Zetatop SM 132	Zetatop SM 160	Zetatop SM 180
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	Zetatop SM132	Zetatop SM160	Zetatop SM180
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left
Driving Wheel	210, 240, 320mm	160, 210, 240 mm	210, 240, 320mm
Offset-Measure	EnDat- ECN1313	EnDat- ECN1313	EnDat- ECN1313
Adapter	No	No	No
Encoder-Pulses	2048	2048	2048
Offset-Angle	0 Degree	0 Degree	0 Degree
Encoder-Direc.	Left	Left	Left
Offset-Measure	Only after Encoder Change	Only after Encoder Change	Only after Encoder Change
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	Zetatop SM 190	Zetatop SM 200.xx	Zetatop SM 225
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	Zetatop SM190	Zetatop SM200	Zetatop SM225
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left
Driving Wheel	210, 240, 320mm	210 240 270 320 400 450 500	320, 400, 500, 600mm
Offset-Measure	EnDat- ECN1313	EnDat- ECN1313	EnDat- ECN1313
Adapter	No	No	No
Encoder-Pulses	2048	2048	2048
Offset-Angle	0 Degree	0 Degree	0 Degree
Encoder-Direc.	Left	Left	Left
Offset-Measure	Only after Encoder Change	Only after Encoder Change	Only after Encoder Change
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	Zetatop SM 250.xx	Zetadisc SL 506	Zetadisc SL 510
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	Zetatop SM250	Zetatop SI 506	Zetatop SL 510
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left
Driving Wheel	320, 400, 450, 500, 520 600mm	400 mm	480 mm
Offset-Measure	EnDat- ECN1313	EnDat- ECN1313	EnDat- ECN1313
Adapter	No	No	No
Encoder-Pulses	2048	2048	2048
Offset-Angle	0 Degree	0 Degree	0 Degree
Encoder-Direc.	Left	Left	Left
Offset-Measure	Only after Encoder Change	Only after Encoder Change	Only after Encoder Change
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	Zetasyn SM 700	Zetasyn SM 850	Zetasyn SM 860
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	Zetasyn SM700	Zetasyn SM850	Zetasyn SM860
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left
Driving Wheel	400mm	480, 520, 600mm	480, 520, 600, 680mm
Offset-Measure	SSI, oder EnDat-	SSI, oder EnDat-	SSI, oder EnDat-
Adapter	No	No	No
Encoder-Pulses	2048	2048	2048
Offset-Angle	0 Degree	0 Degree	0 Degree
Encoder-Direc.	Left	Left	Left
Offset-Measure	Only after Encoder Change	Only after Encoder Change	Only after Encoder Change
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	Zetatopx BD 132	Zetadisc SL 506	Zetadisc SL 510
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	Zetatopx BD 132	Zetatop SI 506	Zetatop SL 510
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left
Driving Wheel	100mm	400 mm	480 mm
Offset-Measure	EnDat-Geber ECN1313	EnDat-Geber ECN1313	EnDat-Geber ECN1313
Adapter	No	No	No
Encoder-Pulses	2048	2048	2048
Offset-Angle	0 Degree	0 Degree	0 Degree
Encoder-Direc.	Left	Left	Left
Offset-Measure	Only after Encoder Change	Only after Encoder Change	Only after Encoder Change
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

4.12 FIRST STEP – SYNCHRONE MACHINE Thyssen DAF 210 –270, SC 300-400 PMC1xx

In software you can change type of synchrone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary. First law for synchrone motors, is that you have to connect machine with motor-wire in right way. The phase U must connected with coil U of motor, phase V must connected with coil V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter!

For absolutevalue cable of Thyssen Company you need an adapt-wire, like KW-Nr. 1000601, because pinning is not same. For the old asynchrone gearless DAF 330 you need nothing.

	Thyssen DAF 210	Thyssen DAF 270	Thyssen DAF 330
Drive	Synchronmaschine	Synchronmaschine	Asynchronmaschine
Menu	DAF 210	DAF 270	No
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left
Encoder-System	EnDat- Encoder	EnDat- Encoder	TTL Encoder
Adapter	Yes	Yes	No
Encoder-Pulses	2048	2048	16358
Offset-Angle	0 Degree	0 Degree	
Encoder-Direc.	Left	Left	Left
Offset-Measure	Only after Encoder Change	Only after Encoder Change	-----
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	Thyssen SC 300 S / M	Thyssen SC 400 S / M	Thyssen SC 500
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	SC 300	SC 400	PMC 145
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left
Driving Wheel	410, 440 mm	560 mm	600 mm
Encoder-System	EnDat ECN 113/ BISS-Encoder	EnDat ECN 113/ BISS-Encoder	EnDat Geber/ BISS-Encoder
Adapter	Yes	Yes	Yes
Encoder-Pulses	2048	2048	2048
Offset-Angle	0 Degree	0 Degree	0 Degree
Encoder-Direc.	Left	Left	Left
Offset-Measure	Only after Encoder Change	Onlyafter Encoder Change	Only after Encoder Change
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	Thyssen PMC125 S / M	Thyssen PMC145 S/M/L	Thyssen PMC 170 S/M/L
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	PMC 125	PMC 145	PMC 170
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left
Driving Wheel	240 mm	210, 240 mm	320 mm
Encoder-System	EnDat ECN 413/ BISS-C 5873	EnDat ECN 413/ BISS-C 5873	EnDat ECN 413/ BISS-C 5873
Adapter	Yes	Yes	Yes
Encoder-Pulses	2048	2048	2048
Offset-Angle	0 Degree	0 Degree	0 Degree
Encoder-Direc.	Left	Left	Left
Offset-Measure	Only after Encoder Change	Only after Encoder Change	Only after Encoder Change
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	Thyssen SWB 150M		
Drive	Synchronmaschine		
Menu	SWB 150M		
Nominal-Current	Motor-plate, motorpapers		
Rotation-Field	Right or left		
Encoder-System	EnDat- Encoder		
Adapter	Yes		
Encoder-Pulses	2048		
Offset-Angle	0 Degree		
Encoder-Direc.	Left		
Offset-Measure	Only after Encoder Change		
Brake Monitor	Over Goliath-90 Input		

4.13 FIRST STEP – SYNCHRONE MACHINE TYPE Wittur-SAD WSG 06, 07, 08, 18, 19, S1, S2, W1, W2, W3, W8

In the software you can change the type of synchrone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchrone motors, is that you have to connect machine with motor-wire in right way. The phase U must connected with pole U of motor, phase V must connected with pole V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter!

For absolutevalue cable KEB F4 of SAD Company you need an adapt-wire, like KW-Nr. 1000602, because pinning is not same.

	SAD WSG 06	SAD WSG 07	SAD WSG 08 Beamer-2	SAD WSG 18
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	SAD WSG 06	SAD WSG 07	SAD WSG 08	SAD WSG 18
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left	Right or left
Encoder-System	EnDat- Encoder	EnDat- Encoder	EnDat- Encoder	EnDat- Encoder
Adapter	Yes	Yes	Yes	Yes
Encoder-Pulses	2048	2048	2048	2048
Offset-Angle	Offset-measure	Offset-measure	Offset-measure	Offset-measure
Encoder-Direction	Left	Left	Left	Left
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	SAD WSG 19 Beamer-2	SAD WSG S1 WSG-L1	SAD WSG S2 WSG-L2	SAD WSG S3 WSG-L3
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	SAD WSG 19	SAD WSG S1	SAD WSG S2	SAD WSG S3
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left	Right or left
Encoder-System	EnDat- Encoder	EnDat- Encoder	EnDat- Encoder	EnDat- Encoder
Adapter	Yes	Yes	Yes	Yes
Encoder-Pulses	2048	2048	2048	2048
Offset-Angle	Offset-measure	Offset-measure	Offset-measure	Offset-measure
Encoder-Direction	Left	Left	Left	Left
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	SAD WSG-W1 Witty-2	SAD WSG-W2 Witty-2	SAD WSG-W3 Witty-2	SAD WSG-W8
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	SAD WSG W1	SAD WSG W2	SAD WSG W3	SAD WSG W8
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left	Right or left	Right or left	Right or left
Encoder-System	EnDat- Encoder	EnDat- Encoder	EnDat- Encoder	EnDat- Encoder
Adapter	Yes	Yes	Yes	Yes
Encoder-Pulses	2048	2048	2048	2048
Offset-Angle	Offset-measure	Offset-measure	Offset-measure	Offset-measure
Encoder-Direction	Left	Left	Left	Left
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	Wittur WSG-MF 1 / 2 / 3	Wittur WSG-RF 1 / 2 / 3	Wittur WSG-SF 1 / 2 / 3	Wittur WSG S3
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	SAD WSG W1	SAD WSG W1	SAD WSG W1	SAD WSG W1
Nominal-Current	Motor-plate	Motor-plate	Motor-plate	Motor-plate
Rotation-Field	Right or left	Right or left	Right or left	Right or left
Encoder-System	EnDat- Encoder	EnDat- Encoder	EnDat- Encoder	EnDat- Encoder
Adapter	Yes	Yes	Yes	Yes
Encoder-Pulses	2048	2048	2048	2048
Offset-Angle	Offset-measure	Offset-measure	Offset-measure	Offset-measure
Encoder-Direction	Left	Left	Left	Left
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	Wittur WSG TR	Wittur WSG T0		
Drive	Synchronmaschine	Synchronmaschine		
Menu	SAD WSG W1	SAD WSG W1		
Nominal-Current	Motorplate	Motor-plate		
Rotation-Field	Right or left	Right or left		
Encoder-System	EnDat- Encoder	EnDat- Encoder		
Adapter	Yes	Yes		
Encoder-Pulses	2048	2048		
Offset-Angle	Offset-measure	Offset-measure		
Encoder-Direction	Left	Left		
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input		

4.14 FIRST STEP – SYNCHRONE MACHINE TYPE Xinda

In software you can change type of synchrone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchrone motors, is that you have to connect machine with motor-wire in right way. The phase U must connected with cole U of motor, phase V must connected with cole V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter!

The pins of wire must be connected to 15 pole D-Sub-terminal with solder iron. You can see important pins in last row down there. Another possibility is use of absolutvalue-Adaptcard **ABS-Adapt**, which allows to connect pins with screw-driver.

Type	Xinda Diana-SAE	Xinda Diana-II	Xinda Diana-III	Xinda Diana-IV
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	Xinda Diana - SAE	Xinda Diana - II	Xinda Diana - III	Xinda Diana - IV
Nominal-Current	Motor-plate	Motor-plate	Motor-plate	Motor-plate
Rotation-Field	Right or left	Right or left	Right or left	Right or left
Encoder-System	SIN/COS or EnDat	SIN/COS or EnDat	SIN/COS oder EnDat	SIN/COS or EnDat
Adapter	Yes	Yes	Yes	Yes
Encoder-Pulses	2048	2048	2048	2048
Offset-Angle	Offset-measure	Offset-measure	Offset-measure	Offset-measure
Encoder-Direction	Left or Right	Left or Right	Left or Right	Left or Right

Type	Xinda WYJ250-SAA	Xinda WTYF250-SAC	Xinda WWTY-SAB
Drive	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menu	Xinda WYJ250-SAA	Xinda WTYF250-SAC	Xinda WWTY250-SAB
Nominal-Current	Motor-plate	Motor-plate	Motor-plate
Rotation-Field	Right or left	Right or left	Right or left
Encoder-System	SIN/COS or EnDat	SIN/COS or EnDat	SIN/COS or EnDat
Adapter	Yes	Yes	Yes
Encoder-Pulses	2048	2048	2048
Offset-Angle	Offset-measure	Offset-measure	Offset-measure
Encoder-Direction	Left or Right	Left or Right	Left or Right

In software you can change type of synchrone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchrone motors, is that you have to connect machine with motor-wire in right way. The phase U must be connected with coil U of motor, phase V must be connected with coil V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter!

The pins of wire must be connected to 15 pole D-Sub-terminal with solder iron. You can see important pins in last row down there. Another possibility is use of absolute-Adaptcard **ABS-Adapt**, which allows to connect pins with screw-driver.

4.16 FIRST STEP – SYNCHRONE MACHINE TYPE

SICOR SG22145BF

In software you can change type of synchrone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchrone motors, is that you have to connect machine with motor-wire in right way. The phase U must be connected with coil U of motor, phase V must be connected with coil V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter!

The pins of wire must be connected to 15 pole D-Sub-terminal with solder iron. You can see important pins in last row down there. Another possibility is use of absolute-Adaptcard **ABS-Adapt**, which allows to connect pins with screw-driver.

4.17 FIRST STEP – SYNCHRONE MACHINE TYPE

Schindler SGL 930

In software you can change type of synchrone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchrone motors, is that you have to connect machine with motor-wire in right way. The phase U must be connected with coil U of motor, phase V must be connected with coil V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter!

The individual cores of SIN/ COS absolute encoder cable are to solder a 15 pin D-sub connector.

You can see corresponding pins in table below:

Absolutwertgeber mit Sin / Cos-Schnittstelle und 1 Vss-Sin/Cos-Inkrementalspuren:			
Pin/Kl.	Configuration	Pin/Kl.	Configuration
1	D+ (Cos-Incremental channel)	9	C- (Sin-Incremental channel)
2	D- (Cos-Incremental channel)	10	C+ (Sin-Incremental channel)
3	N.c. oder +5V Sensor	11	N.c. oder 0V Sensor
4	+5V DC	12	A+ (Sin-Commutierung)
5	0V GND	13	A - (Sin-Commutierung)
6	N.c.	14	B - (Cos-Commutierung)
7	B+ (Cos-Commutierung)	15	n.c.
8	n.c.	Schirm/ Casing	Earth

4.18 SYNCHRONE Gearless ALBERTO SASSI G100 – G180 - G200 - G300 - G400 - G500

In software you can change type of synchron machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchron motors, is that you have to connect machine with motor-wire in right way. The phase U must connected with coil U of motor, phase V must connected with coil V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter!

The voltage of 207 V DC brake is constant without overexcitation. The brake control element is operated with +24 V DC with NC contacts and evaluated by our GOLIATH-90 drives.

<p>Absolute encoder connection The pin assignment of 15-pin D-sub connector of connection of absolute encoder Heidenhain ECN 413 corresponds to connector on ABS-GOLIATH-90 so it can be plugged directly! Setting EnDat encoder and 2048 pulse is taken in menu for pulse encoder connection.</p>	PIN	Segnale	Colore
	1	DATA+	Grigio
	2	DATA-	Rosa
	3	Up Sensor	Blu (b)
	4	Up	Marrone - Verde
	5	GND	Bianco - Verde
	6	-	
	7	B+	Blu - Nero
	8	-	
	9	CLOCK-	Giallo
	10	CLOCK+	Viola
	11	GND Sensor	Bianco (b)
	12	A+	Verde - Nero
	13	A-	Giallo - Nero
	14	B-	Rosso - Nero
15	-		

	ALBERTO SASSI G100	ALBERTO SASSI G180		
Drive Menu	Synchronmaschine	Synchronmaschine		
Nominal-Current	Sassi G100	Sassi G180		
Rotation-Field	Motor-plate, motorpapers	Motor-plate, motorpapers		
Encoder-System Adapter	Right or left, pos.driving wheel	Right or left, pos.driving wheel		
Encoder-Pulses	EnDat-Geber ECN 413	EnDat-Geber ECN 413		
Offset-Angle	No	No		
Encoder-Direction	2048	2048		
Offset-Measure	Offset-measure	Offset-measure		
BrakeOpenMonitor	Left	Left		
	Before mounting the ropes	Before mounting the ropes		
	Over Goliath-90 Input	Over Goliath-90 Input		

	ALBERTO SASSI G200	ALBERTO SASSI G300	ALBERTO SASSI G400	ALBERTO SASSI G500
Drive Menu	Synchronmaschine	Synchronmaschine	Synchronmaschine	Synchronmaschine
Nominal-Current	Sassi G200	Sassi G300	Sassi G400	Sassi G500
Rotation-Field	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Encoder-System Adapter	Right or left, pos.driving wheel	Right or left, pos.driving wheel	Right or left, pos.driving wheel	Right or left, pos.driving wheel
Encoder-Pulses	EnDat-Geber ECN 413	EnDat-Geber ECN 413	EnDat-Geber ECN 413	EnDat-Geber ECN 413
Offset-Angle	No	No	No	No
Encoder-Direction	2048	2048	2048	2048
Offset-Measure	Offset-measure	Offset-measure	Offset-measure	Offset-measure
BrakeOpenMonitor	Left	Left	Left	Left
	Before mounting the ropes	Before mounting the ropes	Before mounting the ropes	Before mounting the ropes
	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

4.19 Einstellung Synchron Gearless CEGi ACT micro / ACT mini

In software you can change type of synchron machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchron motors, is that you have to connect machine with motor-wire in right way. The phase U must connected with pole U of motor, phase V must connected with pole V of motor, a.s.o. . The rotation field of motor can be only changed by software parameter!

The voltage of 207 V DC brake is constant without overexcitation. The brake control element is operated with +24 V DC with NC contacts and evaluated by our GOLIATH-90 drives.

<p>Absolute encoder connection The pin assignment of 15-pin D-sub connector of connection of absolute encoder Heidenhain ECN 413 corresponds to connector on ABS-GOLIATH-90 so it can be plugged directly! Setting EnDat encoder and 2048 pulse is taken in menu for pulse encoder connection.</p>	<p>Attention! Please order the machine with the 15-pin encoder D-Sub connector for the Ziehl-Abegg type!</p>
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	CEGi ACT mini 70	CEGi ACT mini 100	CEGi ACT mini 130	CEGi ACT mini 170
Drive Menu	Synchronmaschine	Synchronmaschine	Synchronmaschine	Synchronmaschine
Nominal-Current	ACT mini 70	ACT mini 100	ACT mini 100	ACT mini 170
Rotation-Field	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Encoder-System Adapter	Right or left, pos.driving wheel	Right or left, pos.driving wheel	Right or left, pos.driving wheel	Right or left, pos.driving wheel
Encoder-Pulses	EnDat-Geber ECN 413	EnDat-Geber ECN 413	EnDat-Geber ECN 413	EnDat-Geber ECN 413
Offset-Angle	No	No	No	No
Encoder-Direction	2048	2048	2048	2048
Offset-Measure	Offset-measure	Offset-measure	Offset-measure	Offset-measure
BrakeOpenMonitor	Left	Left	Left	Left
	Before mounting the ropes	Before mounting the ropes	Before mounting the ropes	Before mounting the ropes
	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	CEGi ACT mini 200	CEGi ACT mini 240	CEGi ACT micro 210
Drive Menu	Synchronmaschine	Synchronmaschine	Synchronmaschine
Nominal-Current	ACT mini 200	ACT mini 240	ACT micro 210
Rotation-Field	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Encoder-System Adapter	Right or left, pos.driving wheel	Right or left, pos.driving wheel	Right or left, pos.driving wheel
Encoder-Pulses	EnDat-Geber ECN 413	EnDat-Geber ECN 413	EnDat-Geber ECN 413
Offset-Angle	No	No	No
Encoder-Direction	2048	2048	2048
Offset-Measure	Offset-measure	Offset-measure	Offset-measure
BrakeOpenMonitor	Left	Left	Left
	Before mounting the ropes	Before mounting the ropes	Before mounting the ropes
	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

In software you can change type of synchronone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchronone motors, is that you have to connect machine with motor-wire in right way. The rotation field of motor can be only changed by software parameter!

Voltage of brake is constant 207 V DC. Brake release control is operated with 24 V DC and evaluated by our GOLIATH-90.

An absolute encoder Heidenhain ECN 413 with open ends is used. It would be advisable to use a Goliath-90 adapter cable ECN 413 with round socket on one side and 15 pin "Goliath" D-sub to other side.

7	1	10	4	15	16	12	13	14	17	8	9	11
Up	Sensor Up	0 V	Sensor 0 V	A+	A-	B+	B-	DATA	DATA	CLOCK	CLOCK	1)
BNGN	BL	WHGN	WH	GNBK	YEBK	BUBK	RDBK	GY	PK	VT	YE	

Kabelschirm mit Gehäuse verbunden
Cable shield connected to housing
 Blindage du câble relié au boîtier
 Collegare lo schermo del cavo alla carcassa
 Pantalla del cable conectada a carcasa

1) Innenschirm
Internal shield
 Blindage interne
 Schermo interno
 Blindaje interno

Nichtverwendete Pins oder Litzen dürfen nicht belegt werden!
Vacant pins or wires must not be used!
Les plots ou fils non utilisés ne doivent pas être raccordés!
I pin o i fili inutilizzati non devono essere occupati!
¡No conectar los pins o hilos no utilizados!

	Dynatech Tornado D60	Dynatech Tornado D80	Dynatech Tornado D360
Motor/Gear box	Synchronous machine	Synchronous machine	Synchronous maschine
Menu	Dynatech Tornado D	Dynatech Tornado D	Dynatech Tornado D
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	Motor-plate, motorpapers
Rotation-Field	Right or left, pos.driving wheel	Right or left, pos.driving wheel	Right or left, pos.driving wheel
Traction Sheave	240, 320 mm	240 & 320 mm	320 mm
Motorpole			
Encoder-System	EnDat-Geber ECN 413	EnDat-Geber ECN 413	EnDat-Geber ECN 413
Adapter	Yes	Yes	Yes
Encoder-Pulses	2048	2048	2048
Offset-Angle	Offset-measure	Offset-measure	Offset-measure
Geber-Drehricht.	Left	Left	Left
Offset-Measure	Over Offset-Measure	Over Offset-Measure	Over Offset-Measure
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

In software you can change type of synchrone machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.

First law for synchrone motors, is that you have to connect machine with motor-wire in right way. The rotation field of motor can be only changed by software parameter!

Voltage of brake is constant 207 V DC. Brake release control is operated with 24 V DC and evaluated by our GOLIATH-90.

When using an absolute encoder EnDat has 15 pin D-sub connectors have following pin assignment:

Absolut encoder with EnDat-Interface and 1 Vss-Sin/Cos-incremental tracks:			
Pin/Kl.	Pin allocation	Pin/Kl.	Pin allocation
1	DATA + (Data channel)	9	CLK – (Taktkanal)
2	DATA – (Data channel)	10	CLK + (Taktkanal)
3	+5V Sensor	11	0V Sensor
4	+5V DC	12	A + (Sin-Incremental channel)
5	OV GND	13	A - (Sin- Incremental channel)
6	N.c.	14	B - (Cos- Incremental channel)
7	B+ (Cos-Incremental channel)	15	n.c.
8	N.c.	Shield/ PE	Earth

	PRISMA Serie C	PRISMA Serie F	
Drive	Synchronmaschine	Synchronmaschine	
Menu	Prisma Serie C	Prisma Serie F	
Nominal-Current	Motor-plate, motorpapers	Motor-plate, motorpapers	
Rotation-Field	Right or left, traction sheave	Right or left, traction sheave	
Driving Wheel	210 mm	450 mm	
Motorpole	24 Motorpole pairs	30 Motorpole pairs	
Encoder-System	EnDat-Geber	EnDat-Geber	
Adapter	No	No	
Encoder-Pulses	2048	2048	
Offset-Angle	Offset-measure	Offset-measure	
Encoder-Direction	Left	Left	
Offset-Measure	Over Offset-Measure	Over Offset-Measure	
BrakeOpenMonitor	Over Goliath-90 Input	Over Goliath-90 Input	

4.22 Setting Syn. Gearless KONE Mono-Disc NMX07-11 MX05-05/10 06 06/10 10

In software you can change type of synchron machine. All important parameters are defaulted, like e.g. number of motor-poles, startparameter, controllerparameter. In spite of this, it is possible to change parameter if it is necessary.


First law for synchron motors, is that you have to connect machine with motor-wire in right way. The rotation field of motor can be only changed by software parameter!

	KONE NMX 07	KONE NMX 11	KONE MX 20	KONE GMX 1
Drive/ Gearbox	Synchron-motor	Synchron-motor	Synchronmaschine	Synchronmaschine
Menue	NMX 07	NMX 11	MX 20	GMX 1
Nominal-Current	Motorplate-motorpapers	Motorplate-motorpapers	Motorplate-motorpapers	Motorplate-motorpapers
Rotation-Field	Right or left	Right or left	Right or left	Right or left
Encoder system	Incremental HTL +15V	Incremental HTL +15V	Absolut BISS-C or HTL +15V	Inkremental HTL +15V
Adapter	No	No	Yes	No
Encoderresolution	16000	16000	2024 or 4096	2028
Friction wheel	No	No	No or great Friction wheel	No
Friction disc	No	No	No or mm	No
Null-pulse	No	No	No or Yes	No
Encoder-Direction	Left	Left	Right	Right
Offset-Measure	Every Ride	Every Ride	After start-up or Every Ride	Measure 1x per Day
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	KONE MX 05	KONE MX 05/10	KONE MX 06	KONE MX 06/10
Drive/ Gearbox	Synchron-motor	Synchron-motor	Synchron-motor	Synchron-motor
Menue	MX 05	MX 05/10	MX 06	MX 06/10
Nominal-Current	Motorplate-motorpapers	Motorplate-motorpapers	Motorplate-motorpapers	Motorplate-motorpapers
Rotation-Field	Right or left	Right or left	Right or left	Right or left
Encoder system	Incremental HTL +15V	Incremental HTL +15V	Incremental HTL +15V	Incremental HTL +15V
Adapter	YES	YES	YES	YES
Encoderresolution	4096	4096	4096	4096
Friction wheel	37,02 mm	37,02 mm	37,02 mm	37,02 mm
Friction disc			615,0 mm	
Null-pulse	YES	YES	YES	YES
Encoder-Direction	Right	Right	Right	Right
Offset-Measure	Every Ride	Every Ride	Every Ride	Every Ride
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

	KONE MX 10	KONE MX 18	KONE MX 18L	KONE MX 18R
Drive/ Gearbox	Synchron-motor	Synchronmaschine	Synchronmaschine	Synchronmaschine
Menue	MX 10	MX 18	MX 18L	MX 18R
Nominal-Current	Motorplate-motorpapers	Motorplate-motorpapers	Motorplate-motorpapers	Motorplate-motorpapers
Rotation-Field	Right or left	Right or left	Right or left	Right or left
Encoder system	Incremental HTL +15V	Absolut BISS-C	Absolut BISS-C	Absolut BISS-C
Adapter	YES	Yes	Yes	Yes
Encoderresolution	4096	2048	2048	2048
Friction wheel	37,02 mm	No	No	No
Friction disc		No	No	No
Null-pulse	YES	No	No	No
Encoder-Direction	Right	Right	Right	Right
Offset-Measure	Every Ride	After start-up	After start-up	After start-up
Brake Monitor	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input	Over Goliath-90 Input

4.23 PERFORMING A MEASUREMENT-DRIVE TO GET THE OFFSET ANGLE

	<p>General- Stoppage: The control must know the rotor position angle before starting the journey. There are machine manufacturers who install the ABS encoder on the 0-degree rotor angle. Since this is not available from other manufacturers, the angle must be determined before the first journey begins. This is done with the help of test signals and mathematical calculations. The process takes approx. 100ms and briefly causes noise in the motor.</p>
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1.0	If manufacturer of synchronemachine has noticed offset-angle on machine, e.g. companies Ziehl-Abegg & Thyssen have 0 degree, you don't have to make a offset-measurement
2.0	Please check encoder-pining and type of encoder (SSI – EnDat – Hyperface – SIN / COS - BISS-C) and pulses (1024 – 2048 - ...). Please check also, if motorwire is connected in right way (U-V-W) and shield is connected on both sides .
3.0	The ropes can remain on driving wheel!
4.0	Choose in Menu „A4 MOTOR/ GEARBOX“ , parameter machine-type right type of machine or parameter Universal with following settings: NUMBER OF MOTOR POLS , SPEED and NOMINAL CURRENT .
5.0	Switch ON parameter Encodersystem - Offset-Measure – Stoppage in Menu „A4 MOTOR/ GEARBOX“ . When the offset measurement is at a stoppage, the ropes remain on the traction sheave and the brake remains closed.
6.0	Please give the command drive-direction and speed-command. ATTENTION! - Speed Vi or VR should have a low value! Please wait, until motor has rotated in one direction and main contactor have switched off.

4.24 ACTIVATION IN RESTORE / INSPECTION MODE

Before performing first travel, please re-check following :

- A) Are parameters in Menu A4 **ENGINE /GEAR** matching data of device's namesplates installed?
- B) Is a real value for inspection speed menu A1 SETPOINTS registered ?

Error cause:


- If inspection drive initiates error messages "Direction wrong" or "Difference Demand/actual too high", check if holding brake is activated and if it has opened. If holding brake is opened than motor rotation direction could be false. Please change in software in menu **ENGINE/GEAR** motor rotation direction. Also check whether donor is permanently attached to motor shaft.
- If motor rotates in wrong direction, when initiating a restore / inspection drive, motor rotation direction is to be changed in menu drive : In menu **ENGINE/ GEAR** direction of rotation must be changed.
- If motor sounds noisy during restore / inspection drive, check if motor data are correct. Especially for planetary gear drives it is essential that e.g. motor frequency is entered correctly.

4.25 START RETARDATION

If there are Brake-Opening-Contacts, so you must connect these contacts with input-channels of GOLIATH-90 Inverter. In software, menu **A3 START / STOP**, you must set parameter **START DELAY –Forced Ending -> „BRAKE“** and parameter **Post Braking - Forced Ending -> „BRAKE“**.

If there are no Brake-Opening-Contacts, you must choose the software, menu **A3 START / STOP**, you must set parameter **START DELAY –Forced Ending -> „TIME“** and parameter **Post Braking - Forced Ending -> „TIME“**.

The **START DELAY and Post Braking** should be have a time at asynchronemotors of 150 ms. If you have a synchronemachine, time value is 700-1000 ms (Depending of dimension and reaction of mechanical brake).

	<p>ATTENTION!</p> <p>If there are problems at start movement with an old asynchrone-machine, you must switch off parameter POSITION REGULATION in menu A3 START / STOP!</p>
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4.26 PERFORMING STANDARD TRAVEL

Before you make your elevator system with normal driving, you need to meed at lift a few basic settings. The braking distance of car depends on several parameters, namely speed and selected delay.

After first inspection trip normal driving level to be adjusted. Table below gives an impression about required stopping distance.

	Drive speed							
DELAY	0,5 m/s	0,8m/s	1,0m/s	1,2m/s	1,6m/s	2,0 m/s	2,5 m/s	3,0 m/s
0,6 m/s ²	1,1 m	1,3 m	1,6m	2,1 m	2,7 m	3,7 m	5,0 m	6,0 m
0,8 m/s ²	1,0 m	1,2 m	1,4m	1,6 m	2,3 m	3,0 m	4,2 m	5,0 m
1,0 m/s ²	0,9 m	1,1 m	1,3 m	1,5 m	2,0 m	2,5 m	3,5 m	4,0 m
1,2 m/s ²	0,8 m	1,0 m	1,2 m	1,4 m	1,8 m	2,2 m	3,0 m	3,5 m
Minimum deceleration distances								

It is important that delay of individual points stops have always same distance. A good strategy for first normal run is to make braking distance longer than necessary. Elevator takes longer to drive into stop. The braking distance of access route can still be reduces later.

If a ruck occures when implemented by acceleration constant ride to normal ride, so this change of jerk acceleration can be corrected in menu **A2 DRIVING**. If smaller the registered value so softer is round.

The same applies analogously to transition from constant travel delay on trip. In parameter **jerk delay** in Menu A2 Drive curve allows operating curve make softer or harder.

4.27 CORRECTION OF THE STOP INACCURACIES

The stop accuracy for run-in to stop depends on two parameters Run-In Speed V0 of menu Speed and Run-In Ramp of menu Start/Stop. All testing should be performed in same stop.

Change of parameter Run-In Speed V0:

If cabin stops too early, Run-In Ramp is to be decreased in small steps. If cabin overruns levelled, Run-In Speed is to be decreased.

Change of parameter enter ramp

Does car too early stop so entry ramp is to decrease slightly. If car running over flush marker, so entry ramp increase. A good compromise is found only in variation of two parameters. At next all stops of system are drive on in both directions. Should hold inaccuracies so leveling switch in affected stations to be corrected.

Performing optimisation of braking distance:

For start with configuration of standard travel, we configured cabin for a little longer run-in distance. This is optimised by braking distance optimisation. The selection of matching one out of offered variants depends on selected Final Speed.

In general parameter braking distance for used final speed V1, V2 or V3 is to be selected in menu Speed Curve. The parameter Learn In Drive is to be set to "Yes".

After that, a standard travel is to be performed. After successful completion of travel, parameter braking distance optimisation is set to ON. For all future travels deceleration point of controller is ignored and reaction is delayed by an internal delay.

The Run-In travel distance is minimised.

4.28 CHANGING THE TRAVEL COMFORT

Caused by rope oscillations or other mechanical reasons, oscillations could occur in cabin. In **Menu A5 CONTROL** driving curve is divided into **nine areas**, namely starting, acceleration, speed, delay, insertion and stop. For each of these parts is a damping parameter assigned. Therefore vibrations can be compensated for targeted.

4.29 DIRECT DRIVE IN

At the motion **Direct Drive In** there will be speed V0 reduce to Zero. In the menu **Start / Stop** you will find parameter Direct Drive In. This parameter you should be only activate, if you have a lift controller, who can calculate the brake point very quickly. The condition to activate Direct Drive In function is that you have done before the learning drive for the brake distance with the right speed (look at 5.15 Performing optimisation of braking distance).

4.30 CATCH - RESCUE

The "Catch – Rescue" is located in the menu Start/Stop. For normal operation the motorphase current is limited to 1.7 times the nominal current.

For some situations this current is not enough to drive the cabin, i.e. after testing the catch.

Therefore this parameter allows to increase the current to twice the nominal current, while this operation mode is limited by:

- To be used only with inspection speed
- Max. 10 On/Off transitions in a time of 4 sec. After these 10 trials, the motor phase current is switched back to normal mode.

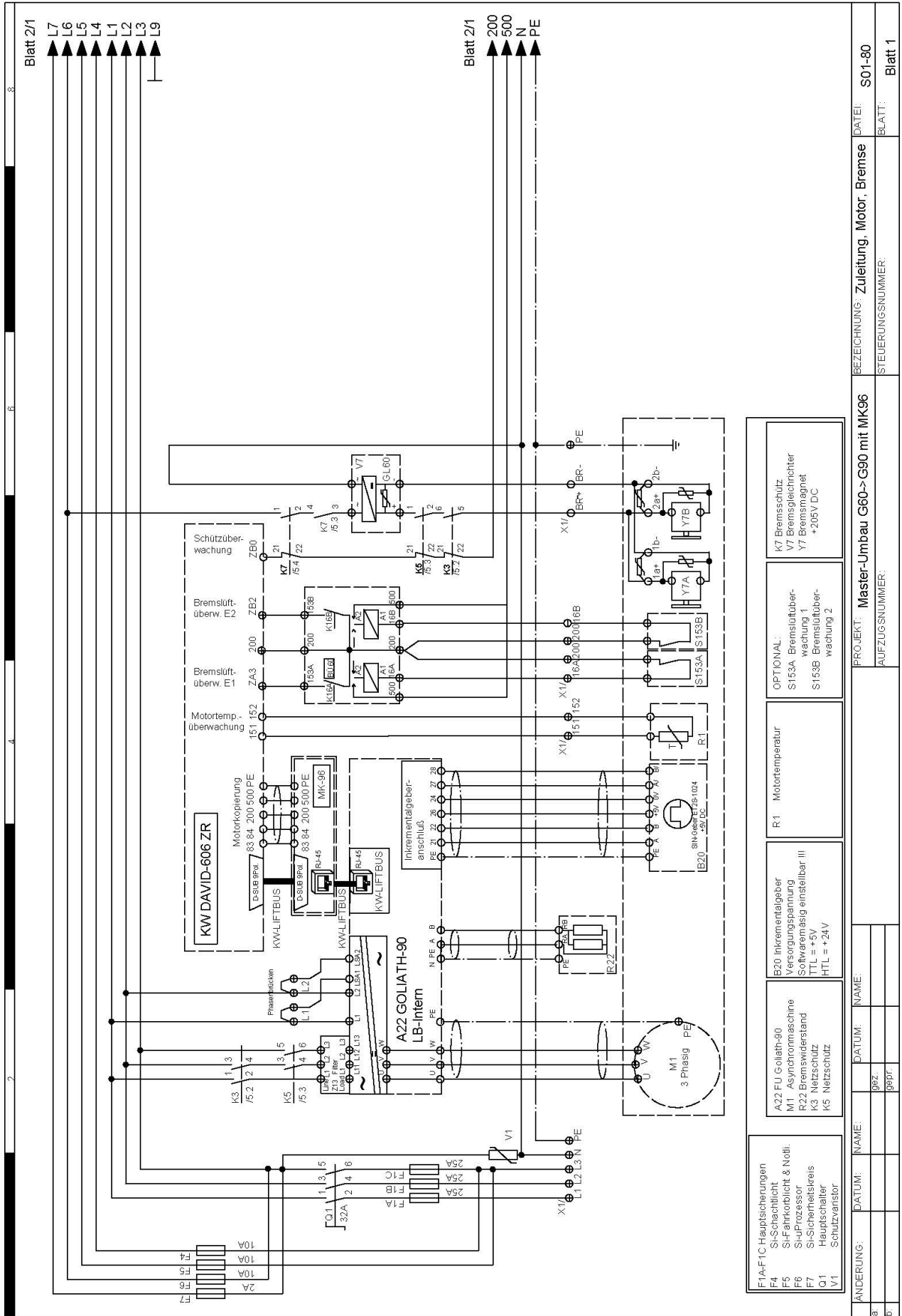
4.31 QUICK MAGNETIZATION

If you are use a good lift-controller (e.g. DAVID-2005/606 from KW) it is possible to reduce the time at the start. At the moment of the beginn of door closing, the order of the drive-direction is giving out to the inverter. The inverter is switching on the main contactors and it begins to magnetize the motor.

After the door is closed, the elevator can start immediately. With this funktion, you can reduce the time between two drives about 1 – 2 seconds.

5. DRAWING

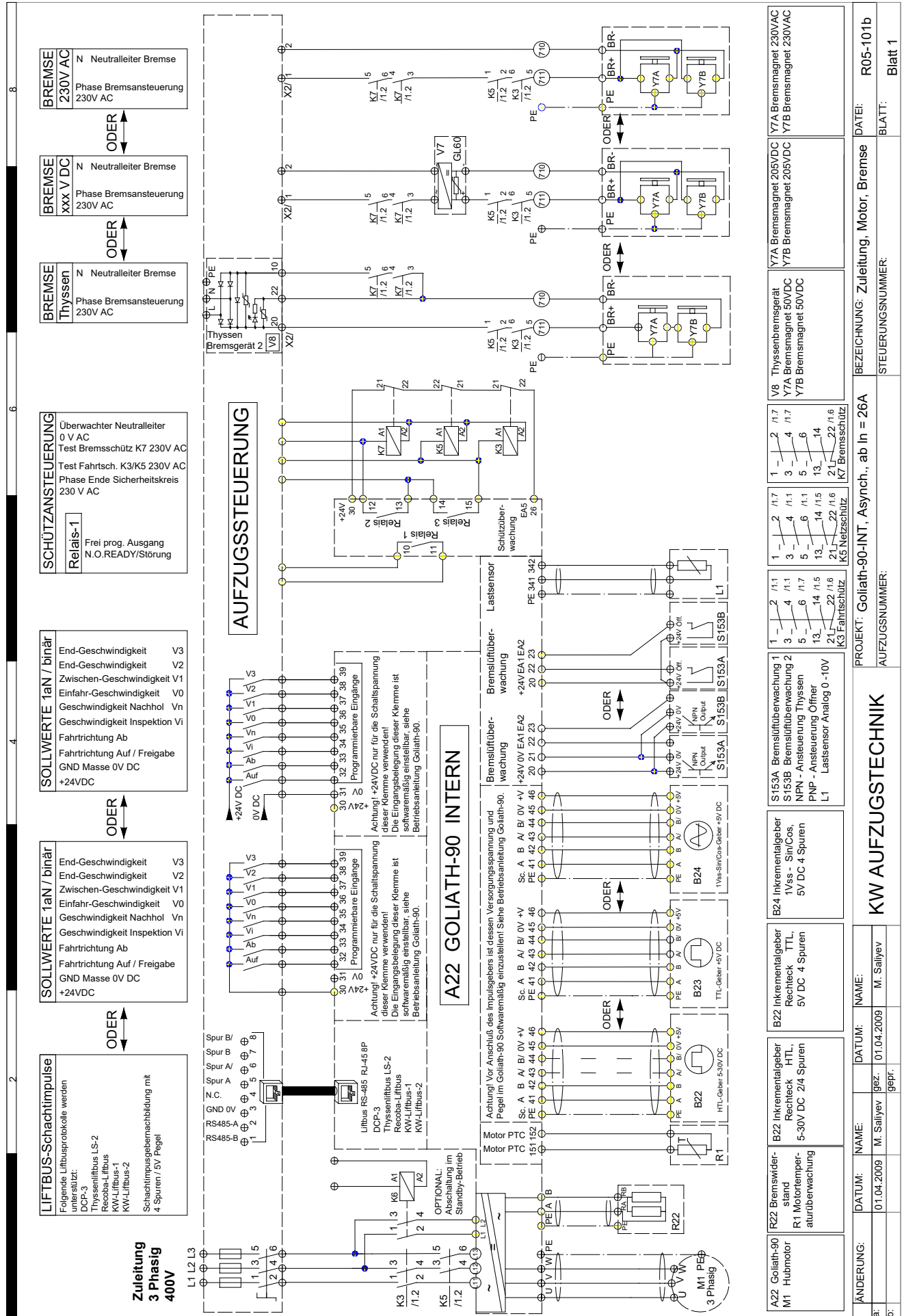
5.1 Drawing Conversion GOLIATH-60 to GOLIATH-90 with MK96 & Phasebridge



FIA-FIC Hauptsicherungen F4 Si-Schneidlicht F5 Si-Fahrkorblicht & Notl. F6 Si-U-Prozessor F7 Si-Sicherheitskreis Q1 Hauptschalter V1 Schutzvaristor	A22 FU Goliath-90 M1 Asynchronmaschine R22 Bremswiderstand K3 Netzschutz K5 Netzschutz	B20 Inkrementalgeber Versorgungsspannung Softwareinstg einstellbar III TTL = +5V HTL = +24V	R1 Motortemperatur	OPTIONAL: S153A Bremslüfterüberwachung 1 S153B Bremslüfterüberwachung 2	K7 Bremsenschutz V7 Bremsgleichrichter Y7 Bremsmagnet +205V DC
---	--	---	--------------------	---	---

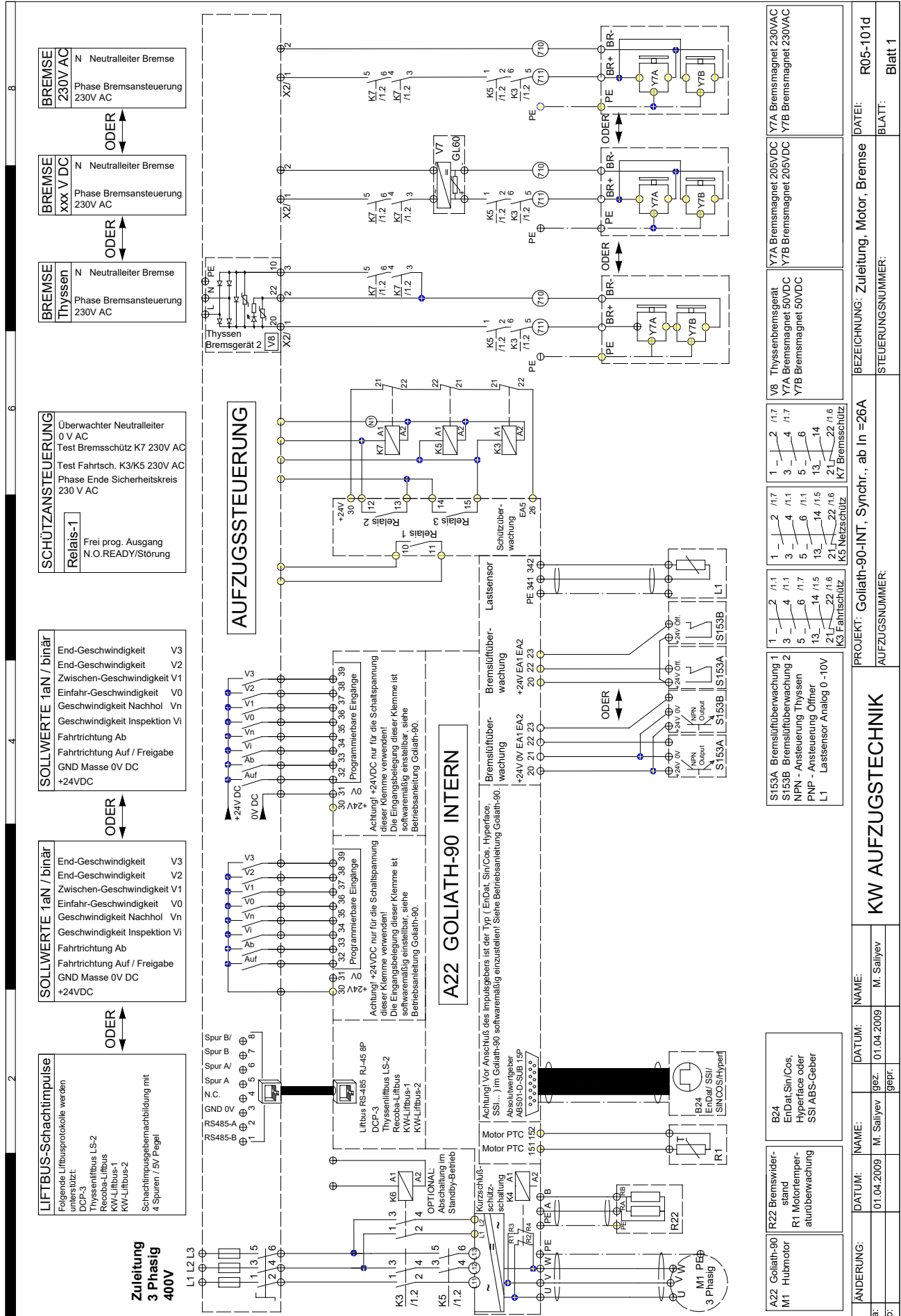
ANORDERUNG:	DATUM:	NAMEN:	DATUM:	NAMEN:	PROJEKT:	Master-Umbau G60->G90 mit MK96	BEZEICHNUNG:	Zuleitung, Motor, Bremse	DATEI:	S01-90
a		gepr.			AUFZUGSNUMMER:		STEUERUNGSNUMMER:		BLATT:	Blatt 1
b		gepr.								

5.2 DRAWING Internal GOLIATH-90 with Asynchrone-Maschine



A22 Goliath-90 M1 Hubmotor	R22 Bremswiderstand R1 Motortemperaturüberwachung	B22 Inkrementalgeber Rechteck TTL 5-30V DC 2/4 Spuren	B24 Inkrementalgeber 1Vss - Sin/Cos 5V DC 4 Spuren	S153A Bremslüfterüberwachung 1 S153B Bremslüfterüberwachung 2 NPN - Ansteuerung Thyssen PNP - Ansteuerung Ofmer L1 Lastsensor Analog 0 -10V	K5 Fahrschütz K3 Fahrschütz	K7 Netzschütz	K5 Fahrschütz	K7 Netzschütz	K7 Netzschütz	Y7A Thyssenbremsgerät Y7B Bremsmagnet 50VDC	Y7A Bremsmagnet 205VDC Y7B Bremsmagnet 205VDC	Y7A Bremsmagnet 230VAC Y7B Bremsmagnet 230VAC
<p>PROJEKT: Goliath-90-INT, Asynch., ab In = 26A</p> <p>AUFZUGSNUMMER:</p>												
<p>BEZEICHNUNG: Zuleitung, Motor, Bremse</p>												
<p>DATEI: R05-101b</p>												
<p>BLATT: Blatt 1</p>												

5.3 DRAWING Internal GOLIATH-90 with Synchrone-Gearless



BREMSE
230V AC
N Neutralleiter Bremse
Phase Bremsansteuerung
230V AC

BREMSE
xxx V DC
N Neutralleiter Bremse
Phase Bremsansteuerung
230V AC

BREMSE
Thyssen
N Neutralleiter Bremse
Phase Bremsansteuerung
230V AC

SCHÜTZANSTEUERUNG
Überwacher Neutralleiter
0 V AC
Test Bremsschutz K7 230V AC
Test Fahrtsch. K3/K5 230V AC
Phase Ende Sicherheitskreis
230 V AC

Relais-1
Frei prog. Ausgang
N.O.READY/Störung

SOLLWERTE 1aN / binär
End-Geschwindigkeit V3
End-Geschwindigkeit V2
Zwischen-Geschwindigkeit V1
Einfahr-Geschwindigkeit V0
Geschwindigkeit Nachhol Vn
Geschwindigkeit Inspektion Vi
Fahrtrichtung Ab
Fahrtrichtung Auf / Freigabe
GND Masse 0V DC
+24VDC

SOLLWERTE 1aN / binär
End-Geschwindigkeit V3
End-Geschwindigkeit V2
Zwischen-Geschwindigkeit V1
Einfahr-Geschwindigkeit V0
Geschwindigkeit Nachhol Vn
Geschwindigkeit Inspektion Vi
Fahrtrichtung Ab
Fahrtrichtung Auf / Freigabe
GND Masse 0V DC
+24VDC

LIFIBUS-Schachtipulse
Folgende Lifibusprotokolle werden
unterstützt:
DOP-3
Thyssenlifibus LS-2
Recoba-Lifibus
KW-Lifibus-1
KW-Lifibus-2
Schachtipulsgebemachbildung mit
4 Spuren / 5V Pegel

AUFZUGSSTEUERUNG

A22 GOLIATH-90 INTERN

Y7A Bremsmagnet 230VAC
Y7B Bremsmagnet 230VAC

Y7A Bremsmagnet 205VDC
Y7B Bremsmagnet 205VDC

V8 Thyssenbremsgerät
Y7A Bremsmagnet 50VDC
Y7B Bremsmagnet 50VDC

1 - 2 /1,7
3 - 4 /1,1
5 - 6 /1,1
13 - 14 /1,5
21 - 22 /1,6
K5 Netzschutz
K7 Bremschutz

1 - 2 /1,1
3 - 4 /1,1
5 - 6 /1,7
13 - 14 /1,5
21 - 22 /1,6
K3 Fahrtschutz

S153A Bremslüftüberwachung 1
S153B Bremslüftüberwachung 2
NPN - Ansteuerung Thyssen
PNP - Ansteuerung Offer
L1 Lastsensor Analog 0-10V

B24
EndDat, Sin/Cos,
Hyperface oder
SSI ABS-Geber

A22 Goliath-90
M1 Hubmotor
R22 Bremswiderstand
R1 Motortemperaturüberwachung

DATEI: R05-101d
BLATT: Blatt 1

BEZEICHNUNG: Zuleitung, Motor, Bremse
STEUERUNGNUMMER:

PROJEKT: Goliath-90-INT, Synchr., ab In =26A
AUFZUGSNUMMER:

KW AUFZUGSTECHNIK

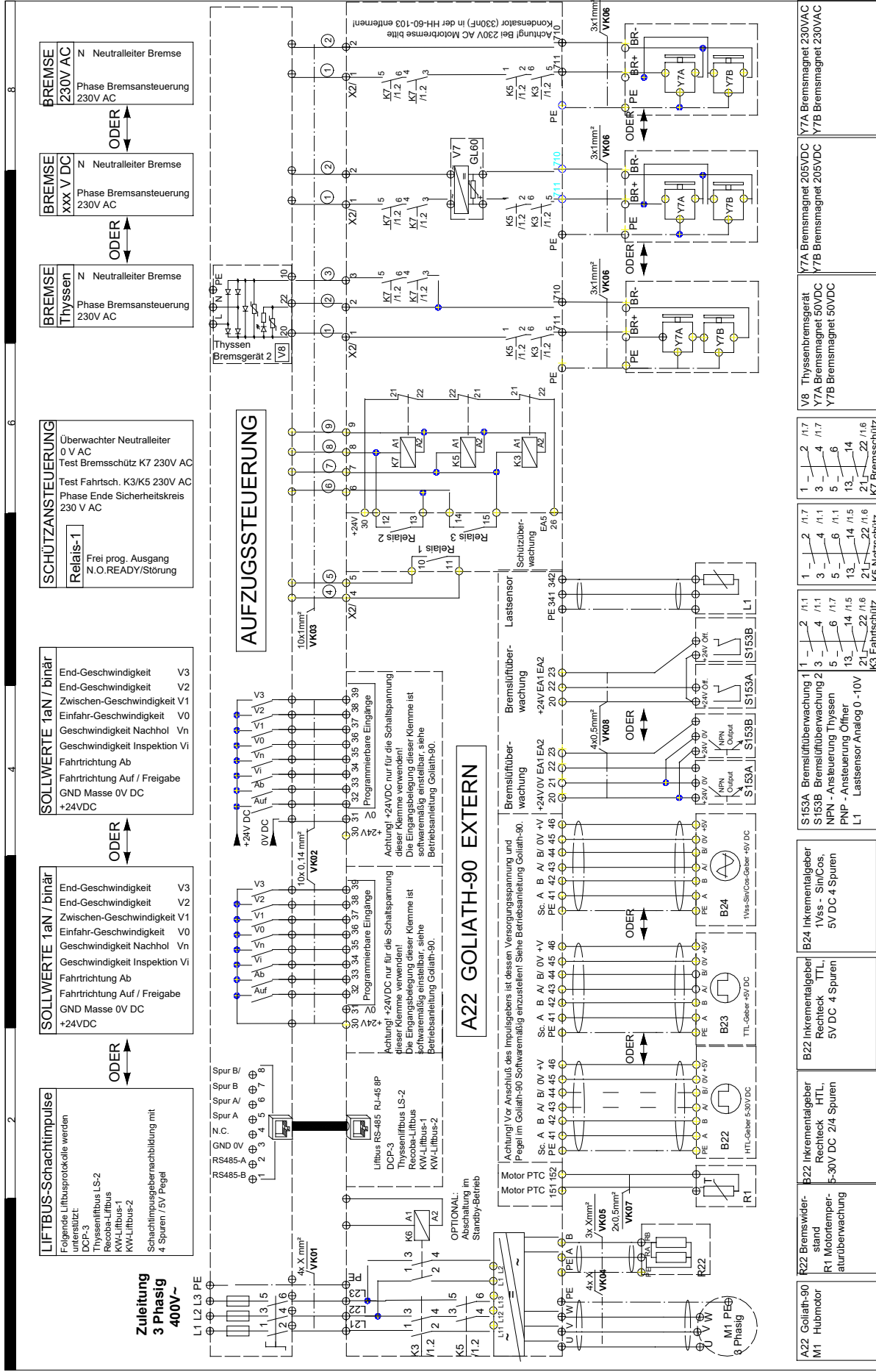
NAME: M. Salljey
DATUM: 01.04.2009

NAME: M. Salljey
DATUM: 01.04.2009

NAME: M. Salljey
DATUM: 01.04.2009

NAME: M. Salljey
DATUM: 01.04.2009

5.4 DRAWING External GOLIATH-90 with Asynchrone-Machine



BREMSE
230V AC
N Neutralleiter Bremse
Phase Bremsansteuerung
230V AC

BREMSE
xxx V DC
N Neutralleiter Bremse
Phase Bremsansteuerung
230V AC

BREMSE
Thyszen
N Neutralleiter Bremse
Phase Bremsansteuerung
230V AC

SCHÜTZANSTEUERUNG
Überwacher Neutralleiter
0 V AC
Test Bremsschütz K7 230V AC
Test Fahrtsch. K3/K5 230V AC
Phase Ende Sicherheitskreis
230 V AC

SOLLWERTE 1aN / binät
End-Geschwindigkeit V3
End-Geschwindigkeit V2
Zwischen-Geschwindigkeit V1
Einfahr-Geschwindigkeit V0
Geschwindigkeit Nachhol Vn
Geschwindigkeit Inspektion Vi
Fahrtrichtung Ab
Fahrtrichtung Auf / Freigabe
GND Masse 0V DC
+24VDC

SOLLWERTE 1aN / binät
End-Geschwindigkeit V3
End-Geschwindigkeit V2
Zwischen-Geschwindigkeit V1
Einfahr-Geschwindigkeit V0
Geschwindigkeit Nachhol Vn
Geschwindigkeit Inspektion Vi
Fahrtrichtung Ab
Fahrtrichtung Auf / Freigabe
GND Masse 0V DC
+24VDC

LIFIBUS-Schachtimpulse
Folgende Lifibusprotokolle werden unterstützt:
DCP-3
Thyszenlibbus LS-2
Recoba-Lifibus
KW-Lifibus-1
KW-Lifibus-2
Schachtimpulsgeberanschaltung mit 4 Spuren / 5V Pegel

Zuleitung
3 Phasig
400V~

A22 Goliath-90
M1 Hubmotor

B22 Bremswiderstand
R1 Motortemperaturüberwachung

B22 Inkrementaltalgeber
Rechteck TTL, 5-30V DC 2/4 Spuren

B24 Inkrementaltalgeber
1Vss - SinCos, 5V DC 4 Spuren

S153A Bremslüfterüberwachung
S153B Bremslüfterüberwachung 2
NPN - Ansteuerung Thyssen
PNP - Ansteuerung Other
L1 Lastsensor Analog 0 - 10V

K3 Fahrschütz
K7 Netzschütz

Y7A Bremsmagnet 205VDC
Y7B Bremsmagnet 205VDC

Y7A Bremsmagnet 230VAC
Y7B Bremsmagnet 230VAC

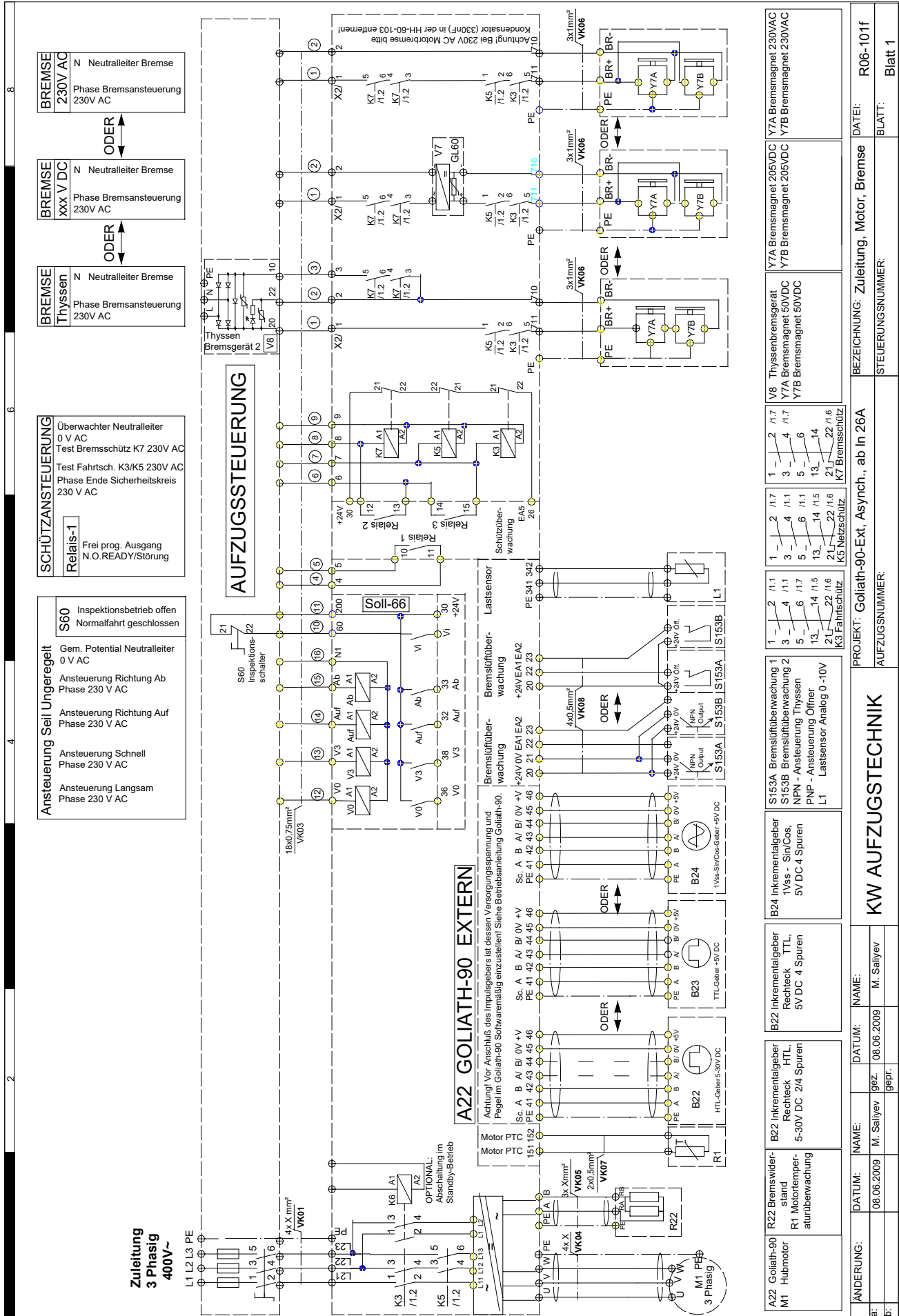
PROJEKT: Goliath-90-Ext. Asynch., ab in 26A
AUFZUGSNUMMER:

BEZEICHNUNG: Zuleitung, Motor, Bremse
STEUERUNGSNUMMER:

KW AUFZUGSTECHNIK

ÄNDERUNG: DATUM: NAME: blatt:
08.06.2009 M. Saliyev gepr. 08.06.2009 M. Saliyev
R06-101b
Blatt 1

5.5 DRAWING External GOLIATH-90 with Controller 2 Speeds



BREMSE
230V AC
N Neutralleiter Bremse
Phase Bremsensteuerung
230V AC

BREMSE
xxx V DC
N Neutralleiter Bremse
Phase Bremsensteuerung
230V AC

BREMSE
Thyssen
N Neutralleiter Bremse
Phase Bremsensteuerung
230V AC

SCHÜTZANSTEUERUNG
Überwacher Neutralleiter
0 V AC
Test Bremsschutz K7 230V AC
Test Fahrtsch. K3/K5 230V AC
Phase Ende Sicherheitskreis
230 V AC

Relais-1
Frei prog. Ausgang
N.O.READY/Störung

Ansteuerung Seil Ungeregelt
S60 Inspektionsbetrieb offen
Normalfahrt geschlossen

Gem. Potential Neutralleiter
0 V AC
Ansteuerung Richtung Ab
Phase 230 V AC
Ansteuerung Richtung Auf
Phase 230 V AC
Ansteuerung Schnell
Phase 230 V AC
Ansteuerung Langsam
Phase 230 V AC

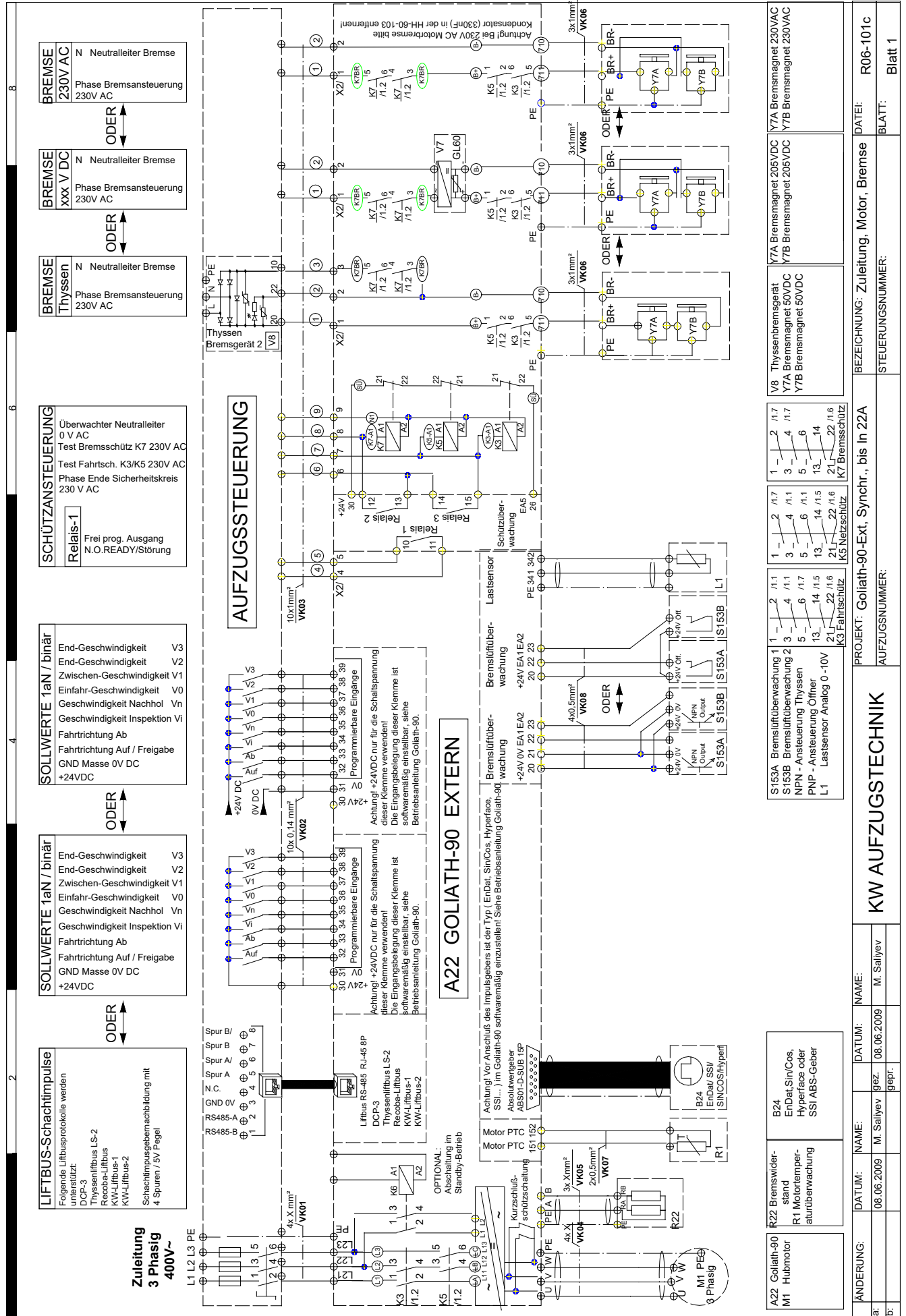
AUFZUGSSTEUERUNG

A22 GOLIATH-90 EXTERN

A22 Goliath-90 M1 Hubmotor	R22 Bremswiderstand R1 Motortemperaturüberwachung	B22 Inkrementalgeber Rechteck TTL 5-30V DC 2/4 Spuren	B24 Inkrementalgeber 1Vss - Sin/Cos 5V DC 4 Spuren	S153A Bremsluftüberwachung 1 S153B Bremsluftüberwachung 2 NPN - Ansteuerung Thyssen PNP - Ansteuerung Öffner L1 Lastsensor Analog 0 - 10V	K5 Fahrschutz K3 Fahrschutz 21, 22 /1,6 13, 14 /1,5 5, 6 /1,7 3, 4 /1,1 1, 2 /1,7	Y7A Bremsmagnet 205VDC Y7B Bremsmagnet 205VDC	Y7A Bremsmagnet 230VAC Y7B Bremsmagnet 230VAC
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ÄNDERUNG:	DATUM:	NAMEN:	DATUM:	NAMEN:	PROJEKT:	BEZEICHNUNG:	STEUERUNGSNUMMER:	DATEI:	BLATT:
a:	08.06.2009	M. Saliyev	08.06.2009	M. Saliyev	Goliath-90-Ext, Asynch., ab In 26A	Zuleitung, Motor, Bremse		R06-101f	Blatt 1

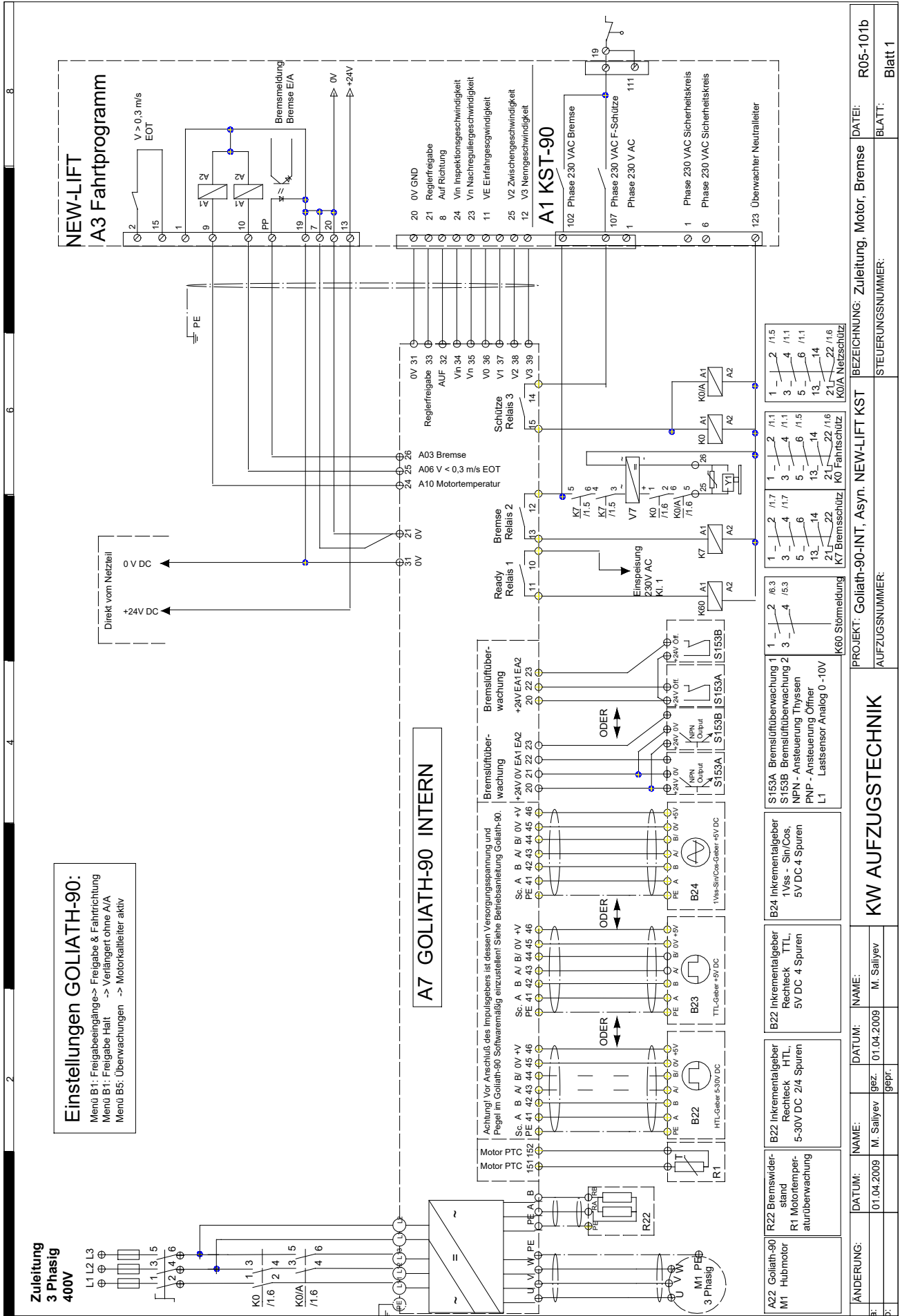
5.6 DRAWING External GOLIATH-90 with Synchron-Gearless



<p>BREMSE 230V AC N Neutralleiter Bremse Phase Bremsensteuerung 230V AC</p>	<p>BREMSE xxx V DC N Neutralleiter Bremse Phase Bremsensteuerung 230V AC</p>	<p>BREMSE Thyssen N Neutralleiter Bremse Phase Bremsensteuerung 230V AC</p>	<p>SCHÜTZANSTEUERUNG Überwacher Neutralleiter 0 V AC Test Bremsschutz K7 230V AC Test Fahrsch. K3/K5 230V AC Phase Ende Sicherheitskreis 230 V AC</p>	<p>SOLLWERTE 1an / binär End-Geschwindigkeit V3 End-Geschwindigkeit V2 Zwischen-Geschwindigkeit V1 Einfahr-Geschwindigkeit V0 Geschwindigkeit Nachhol Vn Geschwindigkeit Inspektion Vi Fahrtrichtung Ab Fahrtrichtung Auf / Freigabe GND Masse 0V DC +24VDC</p>	<p>SOLLWERTE 1an / binär End-Geschwindigkeit V3 End-Geschwindigkeit V2 Zwischen-Geschwindigkeit V1 Einfahr-Geschwindigkeit V0 Geschwindigkeit Nachhol Vn Geschwindigkeit Inspektion Vi Fahrtrichtung Ab Fahrtrichtung Auf / Freigabe GND Masse 0V DC +24VDC</p>	<p>LIFTBUS-Schachimpulse Folgende Liftbusprotokolle werden unterstützt: DCP-3 Thyssenliftbus LS-2 Reocobis-Liftbus KW-Liftbus-1 KW-Liftbus-2 Schachimpulsebestimmung mit 4 Spuren / 5V Pegel</p>	<p>A22 GOLIATH-90 EXTERN Achtung! Vor Anschluss des Impulsgebers ist der Typ (EnDat, Sin/Cos, Hyperface, SSI...) im Goliath-90 softwaremäßig einzustellen! Siehe Betriebsanleitung Goliath-90. Absolutgeber ABS01-D/SUB LSP</p>	<p>AUFZUGSSTEUERUNG Thyssen Bremsgerät 2 Relais-1 Relais-2 Schutzüberwachung EA6 EA5 PE 341 342</p>	<p>BREMSE Y7A Bremsmagnet 230VAC Y7B Bremsmagnet 230VAC</p>	<p>BREMSE Y7A Bremsmagnet 205VDC Y7B Bremsmagnet 205VDC</p>	<p>BREMSE Y7A Thyssenbremsgerät Y7B Bremsmagnet 50VDC Y7C Bremsmagnet 50VDC</p>	
<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K7 Fahrschutz</p>	<p>1 - 2 /1,7 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K3 Fahrschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>	<p>1 - 2 /1,1 3 - 4 /1,1 5 - 6 /1,1 13 - 14 /1,5 21 - 22 /1,6 K5 Netzschutz</p>

<p>ÄNDERUNG: nr. 08.06.2009 M. Saliyev</p>	<p>DATUM: 08.06.2009 M. Saliyev</p>	<p>NAME: M. Saliyev</p>	<p>DATUM: 08.06.2009 M. Saliyev</p>	<p>NAME: M. Saliyev</p>	<p>PROJEKT: Goliath-90-Ext, Synchron., bis in 2ZA</p>	<p>BEZEICHNUNG: Zuleitung, Motor, Bremse</p>	<p>DATEI: R06-101c</p>
<p>KW AUFZUGSTECHNIK</p>				<p>AUFZUGSNUMMER:</p>			
<p>STEUERUNGSNUMMER:</p>				<p>BLATT: Blatt 1</p>			

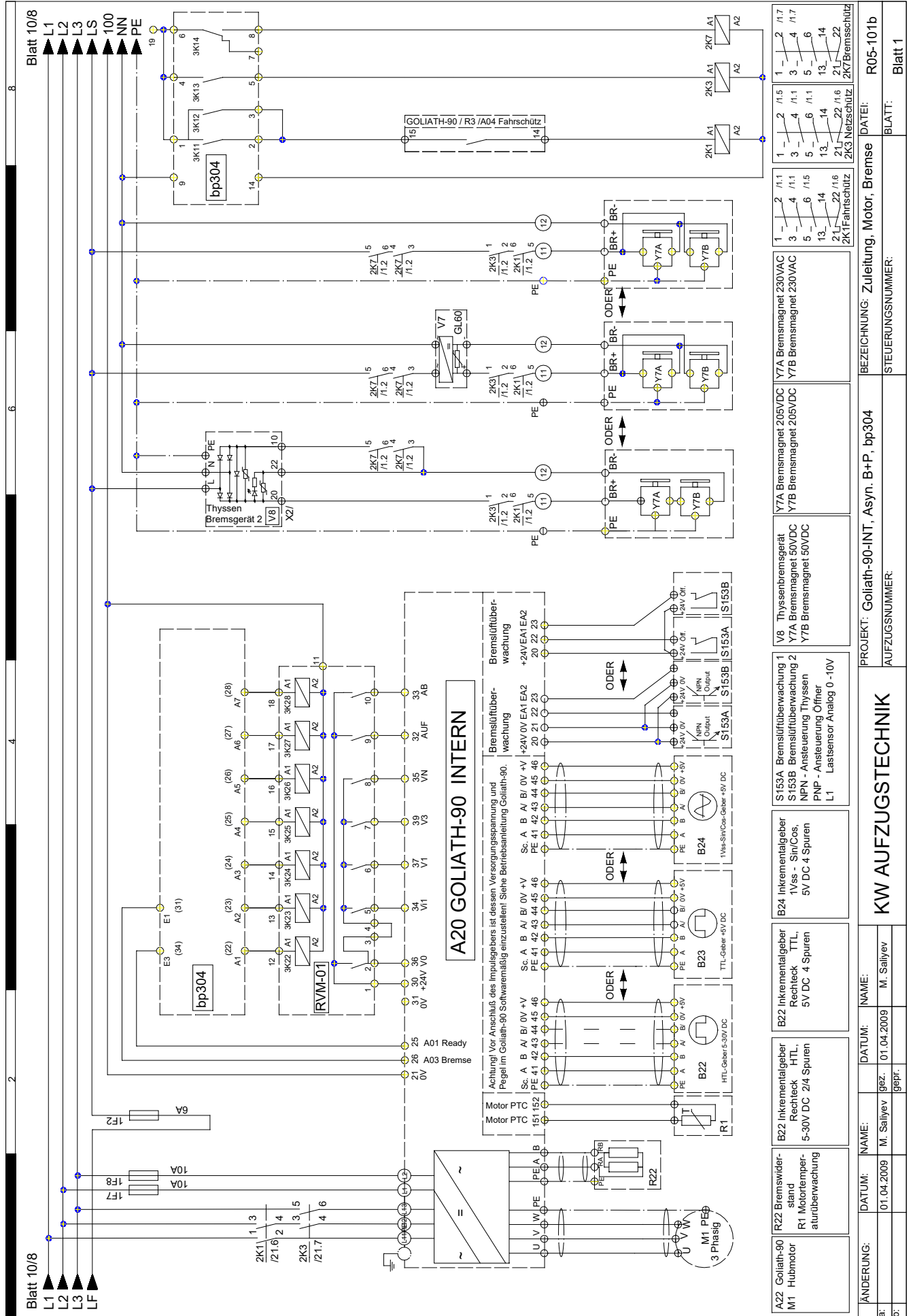
5.7 DRAWING Internal GOLIATH-90 with Asyn. with NEW-LIFT KST



Einstellungen GOLIATH-90:
 Menü B1: Freigabeeingänge-> Freigabe & Fahrtrichtung
 Menü B1: Freigabe Halt -> Verfährt ohne A/A
 Menü B5: Überwachungen -> Motorleiter aktiv

ÄNDERUNG:	DATUM:	NAM:	DATUM:	NAM:	PROJEKT: Goliath-90-INT, Asyn. NEW-LIFT KST	BEZEICHNUNG: Zuleitung, Motor, Brems	DATEI: R05-101b
a:	01.04.2009	M. Saliyev	01.04.2009	M. Saliyev	AUFZUGSNUMMER:	STEUERUNGSNUMMER:	Blatt 1
b:			gepr.				

5.8 DRAWING Internal GOLIATH-90 with Asyn. with BÖHNKE+PARTNER bp304

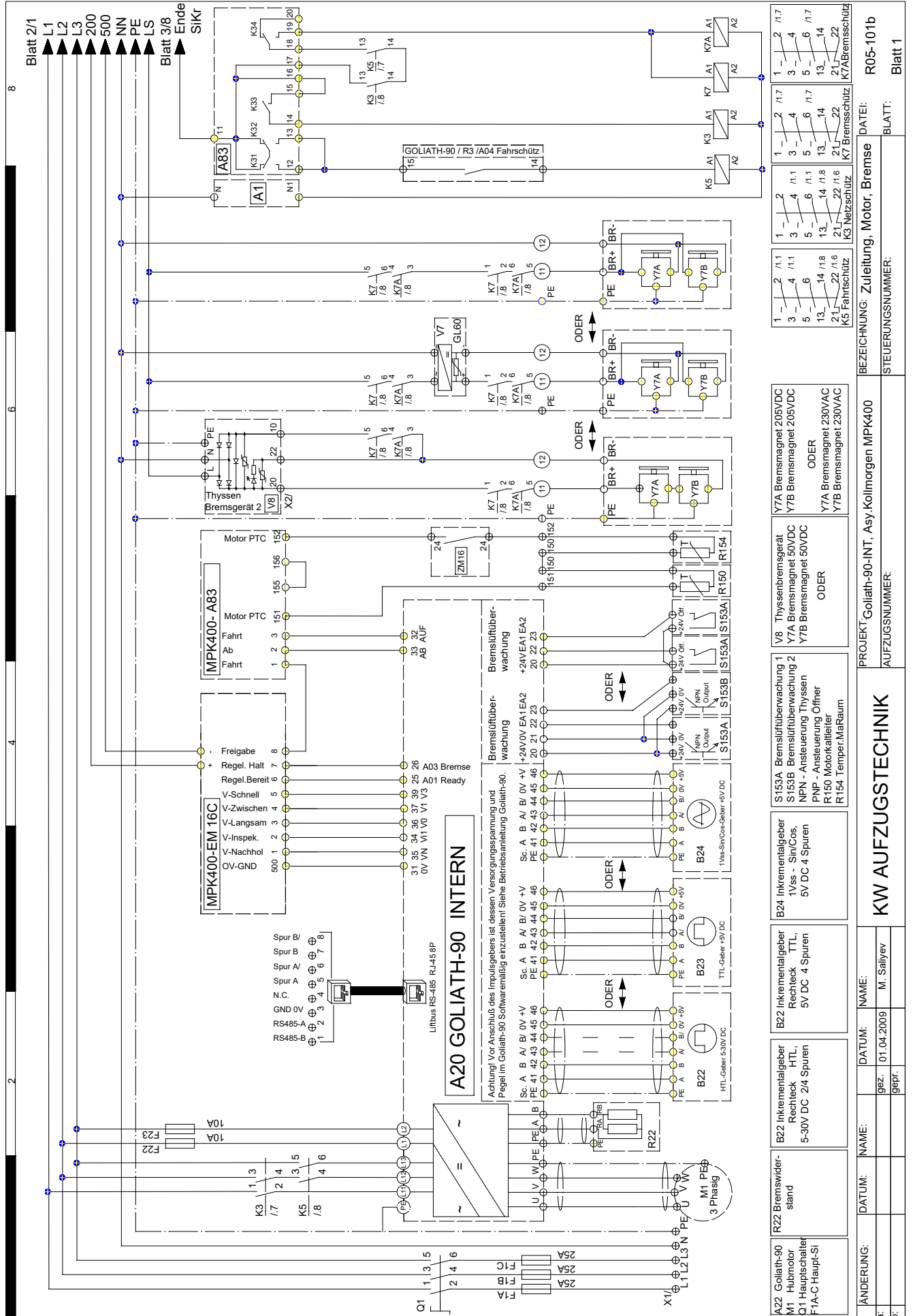


ÄNDERUNG:		DATUM:	NAME:	DATEI:	
a:	01.04.2009	M. Saliyev	gepr.	01.04.2009	M. Saliyev
b:					

PROJEKT: Goliath-90-INT, Asyn. B+P, bp304		BEZEICHNUNG: Zuleitung, Motor, Bremse
AUFZUGSNUMMER:		STEUERUNGSGRUPPE:
KW AUFZUGSTECHNIK		STEUERUNGSGRUPPE: R05-101b
Blatt 10/8		Blatt 1

REF.	DESCRIPTION	REF.	DESCRIPTION
R22	Bremswiderstand R1 Hubmotor	Y7A	Bremsmagnet 230VAC
B22	Inkrementalgeber Rechteck TTL 5-30V DC 2/4 Spuren	Y7B	Bremsmagnet 230VAC
B24	Inkrementalgeber 1Vss - Sin/Cos 5V DC 4 Spuren	S153A	Thyssenbremsgerät
S153A	Bremsstüberwachtung 1	S153B	Thyssenbremsgerät
S153B	Bremsstüberwachtung 2	V7	Thyssenbremsgerät
NP	NP - Ansteuerung Thyssen	V8	Thyssenbremsgerät
PNP	PNP - Ansteuerung Thyssen	V6	Thyssenbremsgerät
L1	Lastsensor Analog 0 - 10V	V5	Thyssenbremsgerät

5.9 DRAWING Internal GOLIATH-90 with KOLLMORGEN MPK400



Blatt 2/1
L1
L2
L3
500
200
NN
PE
LS
Blatt 3/8
Ende
SIKr

Blatt 1

BEZEICHNUNG: Zuleitung, Motor, Bremsse
STEUERUNGNUMMER:
DATEI: R05-101b

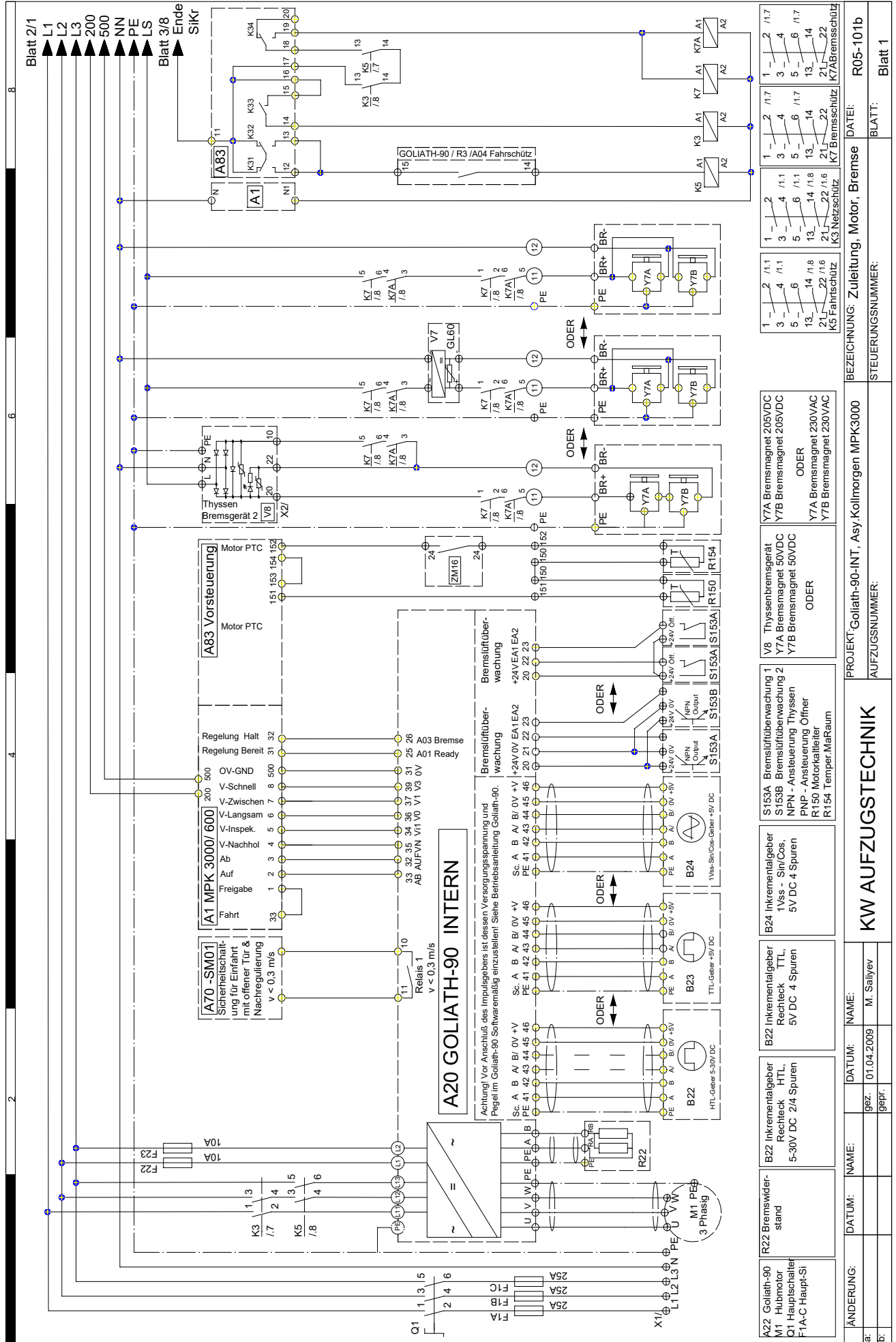
PROJEKT: Goliath-90-INT, Asy. Kollmorgen MPK400
AUFZUGSNUMMER:

KW AUFZUGSTECHNIK

NAMME: M. Salljey
DATUM: 01.04.2009
gepr.:
gepr.:

ANDERUNG: DATUM: NAME: DATUM: NAME: DATUM: NAME:

5.10 DRAWING Internal GOLIATH-90 with KOLLMORGEN MPK 3000/600



1	2	1/1,7	1	2	1/1,7
3	4	3	4	3	4
5	6	5	6	5	6
13	14	13	14	13	14
21	22	21	22	21	22

Y7A	Brmsmagnet 205VDC
Y7B	Brmsmagnet 205VDC
Y7A	Brmsmagnet 50VDC
Y7B	Brmsmagnet 50VDC
Y7A	Brmsmagnet 230VAC
Y7B	Brmsmagnet 230VAC

V8	Thyssenbrmsgerat
Y7A	Brmsmagnet 50VDC
Y7B	Brmsmagnet 50VDC
Y7A	Brmsmagnet 230VAC
Y7B	Brmsmagnet 230VAC

S153A	Brmsluftberwachung 1
S153B	Brmsluftberwachung 2
NPN	Ansteuerung Thyssen
PNP	Ansteuerung Thyssen
R150	Motoralleiler
R154	Temper.MaRaum

B24	Inkrementalgeber
1Vss	- Sin/Cos,
5V DC	4 Spuren

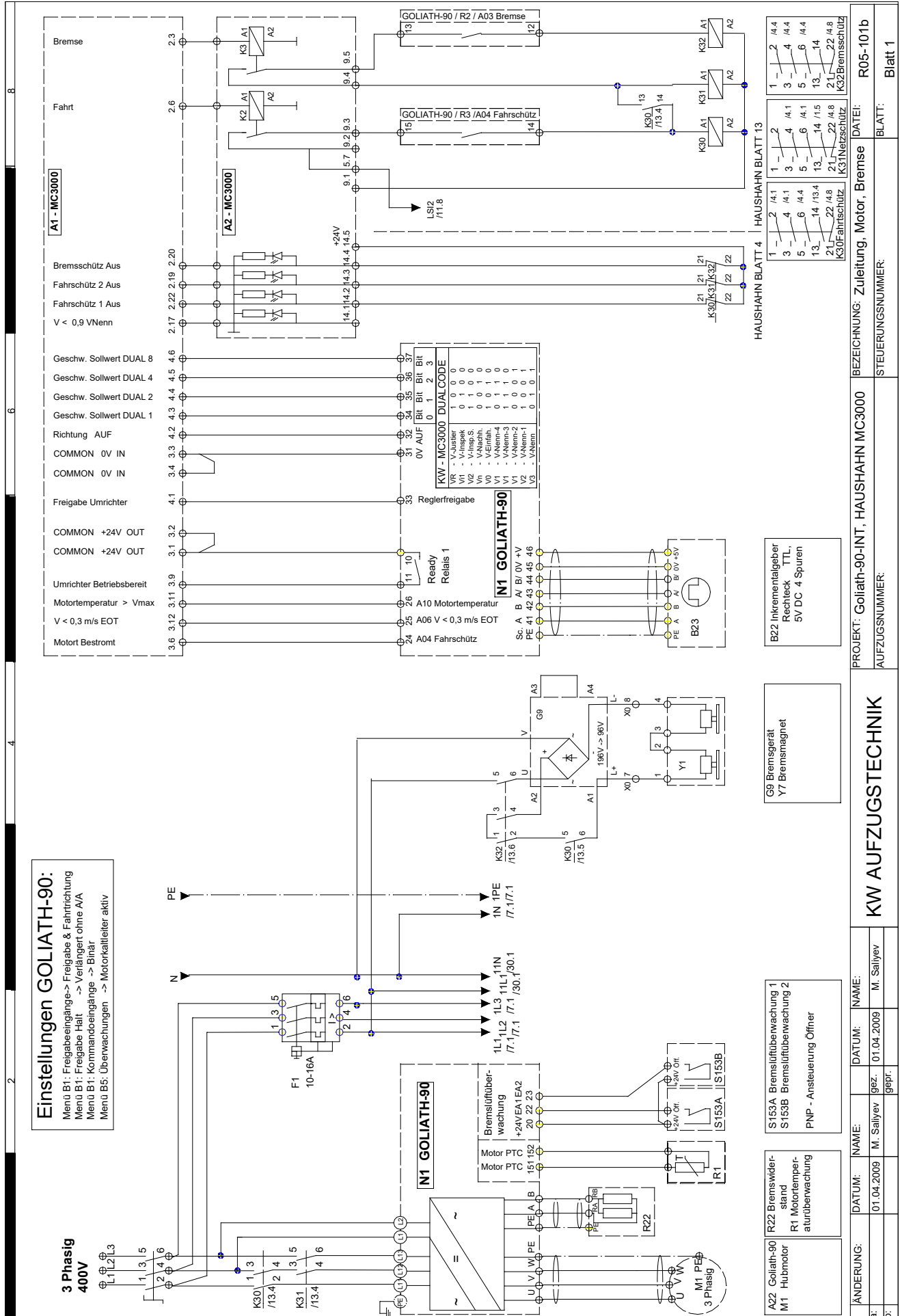
B22	Inkrementalgeber
Rechteck TTL	
5V DC	4 Spuren

B22	Inkrementalgeber
Rechteck HTL	
5-30V DC	2/4 Spuren

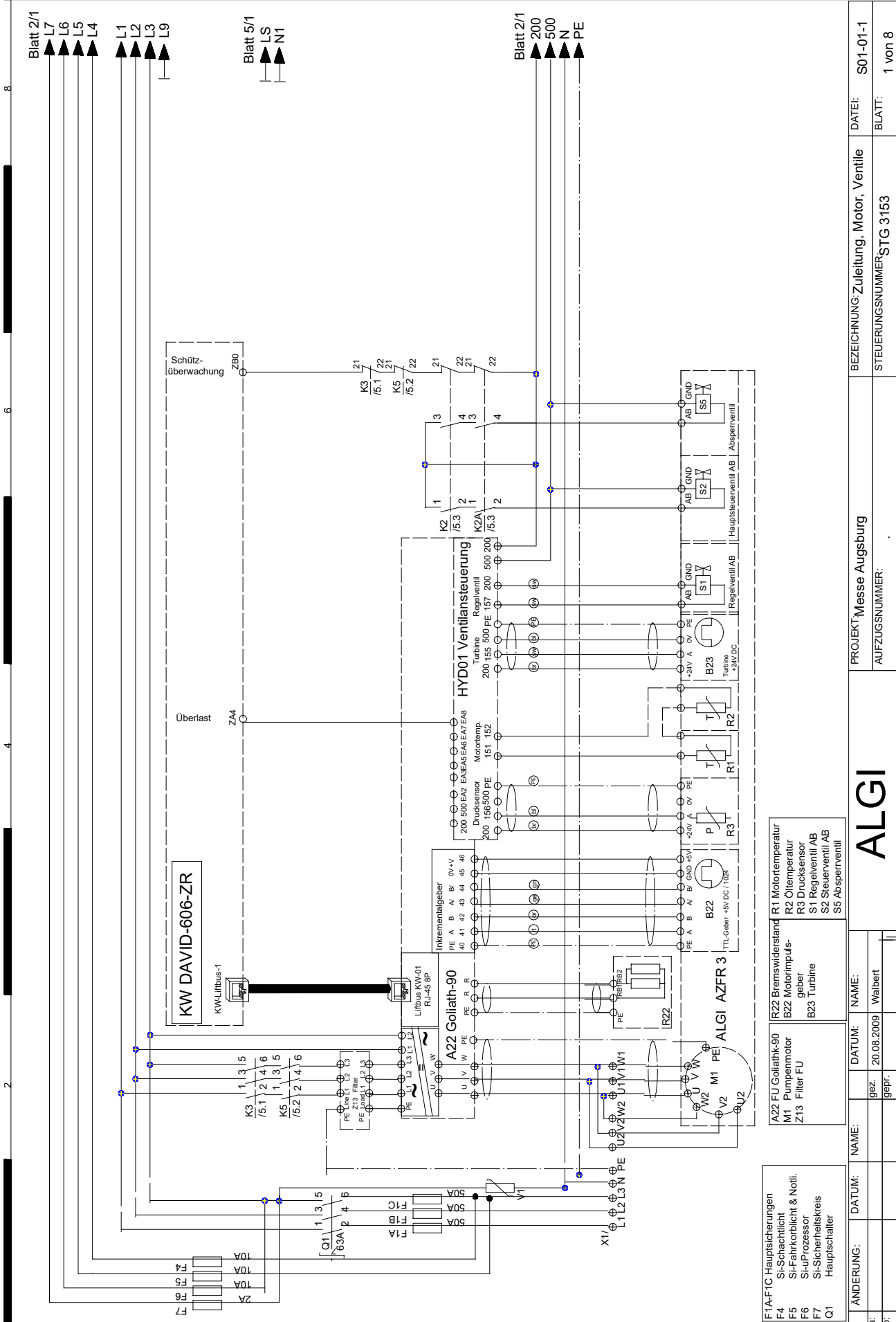
A22	Goliath-90
M1	Hubmotor
Q1	Hauptschalter/
F1A-C	Haupt-Si

ÄNDERUNG:	DATUM:	NAME:	DATUM:	NAME:
a:		gez.	01.04.2009	M. Saliyev
b:		gepr.		
PROJEKT: Goliath-90-INT, Asy. Kollmorgen MPK3000				
AUFZUGSNUMMER:				
BEZEICHNUNG: Zuleitung, Motor, Bremse				
DATEI: R05-101b				
STEUERUNGSNUMMER:				
BLATT: Blatt 1				

5.11 DRAWING Internal GOLIATH-90 with HAUSHAHN MC3000

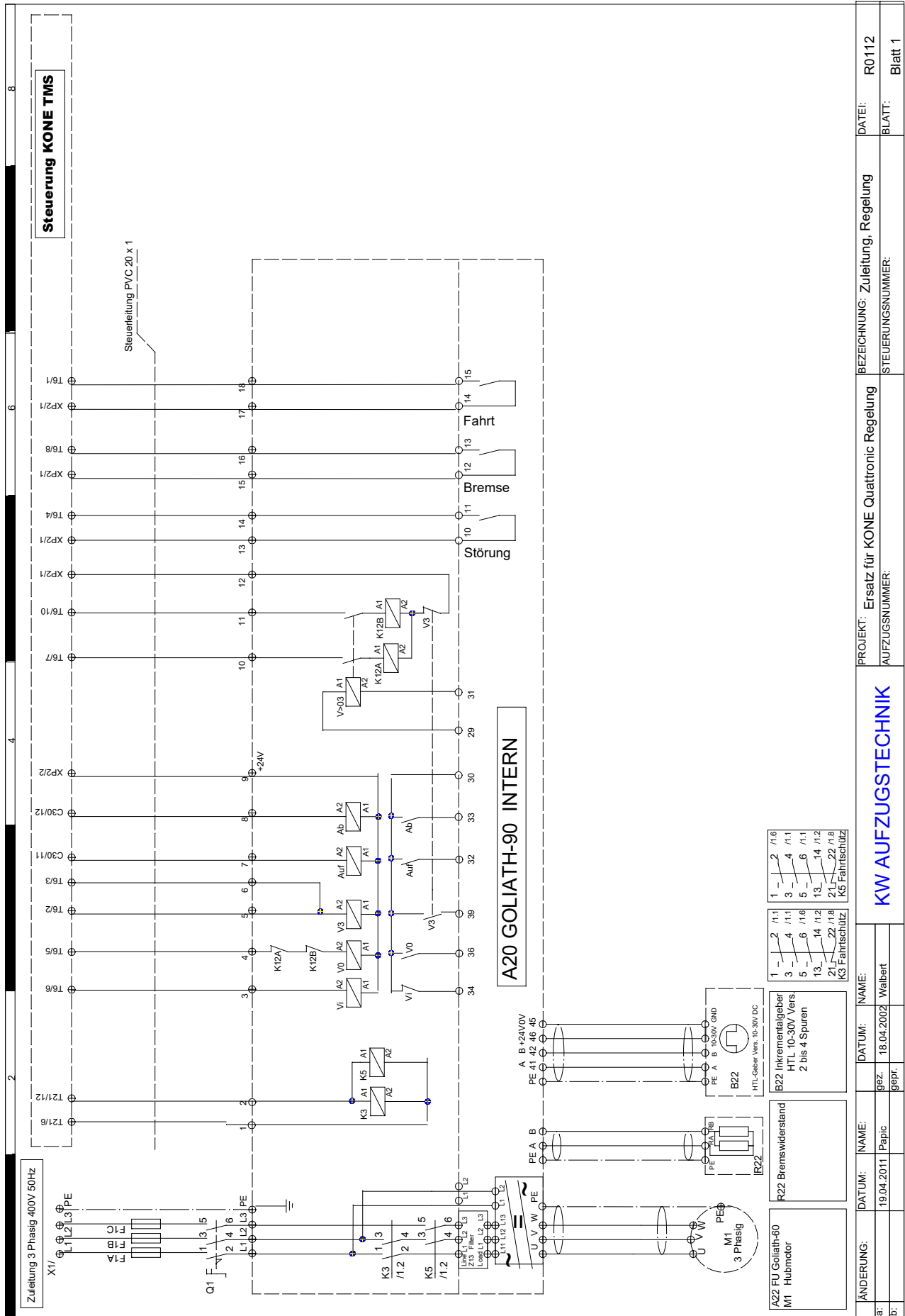


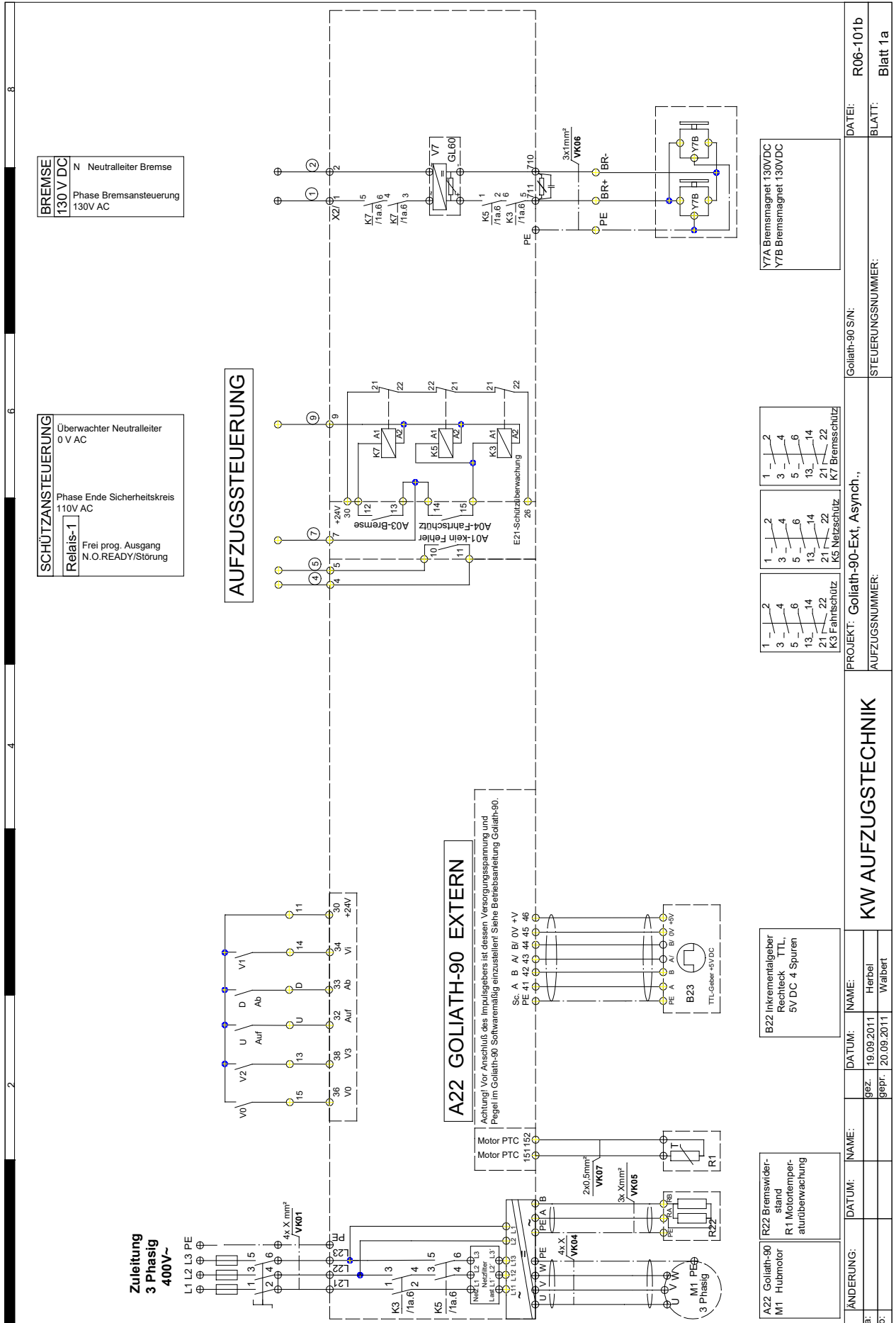
PROJEKT: Goliath-90-INT, HAUSHAHN MC3000	BEZEICHNUNG: Zuleitung, Motor, Bremse	DATEI: R05-101b
AUFZUGSNUMMER:	STEUERUNGSNUMMER:	BLATT: Blatt 1
KW AUFZUGSTECHNIK		
ÄNDERUNG:	NAMEN:	DATUM:
a)	M. Saliyev	01.04.2009
b)	M. Saliyev	01.04.2009



ANDERUNG:	DATUM:	NAME:	DATUM:	NAME:	PROJEKT: Messe Augsburg	BEZEICHNUNG: Zuleitung, Motor, Ventile	DATEI: S01-01-1
a:	gez.	20.08.2009	Waltbert	AUFZUGSNUMMER:	STEUERUNGSNUMMER: STG 3153		BLATT: 1 von 8
b:	gepr.						

ALGI





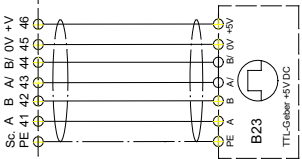
BREMSE
130 V DC
N Neutralleiter Bremse
Phase Bremsensteuerung
130V AC

SCHÜTZANSTEUERUNG
Überwachter Neutralleiter
0 V AC
Phase Ende Sicherheitskreis
110V AC
Relais-1
Frei prog. Ausgang
N.O.READY/Störung

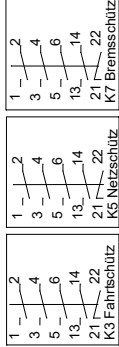
AUFZUGSSTEUERUNG

A22 GOLIATH-90 EXTERN

Achtung! Vor Anschluss des Impulsgebers ist dessen Versorgungsspannung und Pegel im Goliath-90 Softwaremäßig einzustellen! Siehe Betriebsanleitung Goliath-90.



Y7A Bremsmagnet 130V/DC
Y7B Bremsmagnet 130V/DC

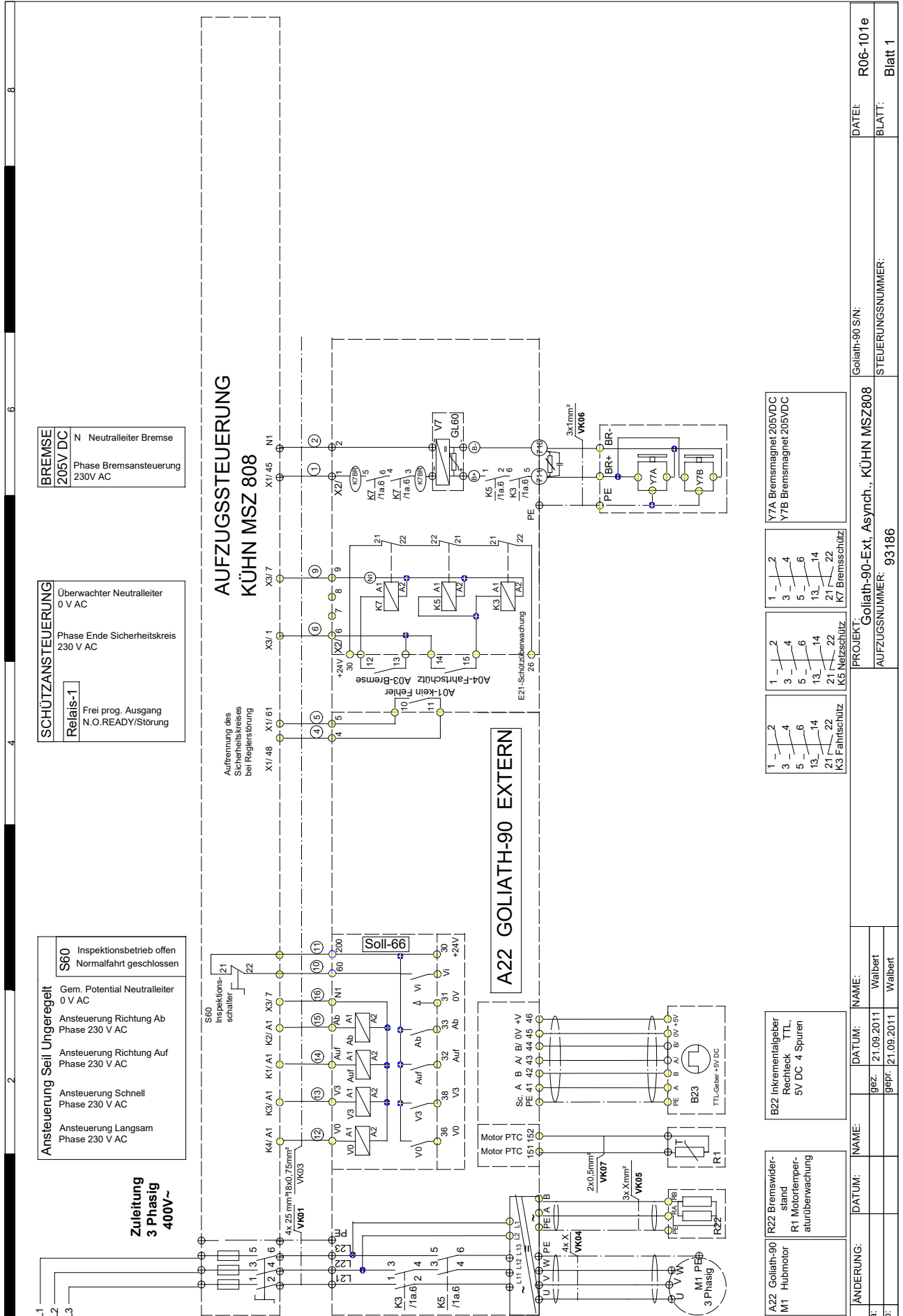


B22 Inkrementalgeber
Rechteck TTL
5V DC 4 Spuren

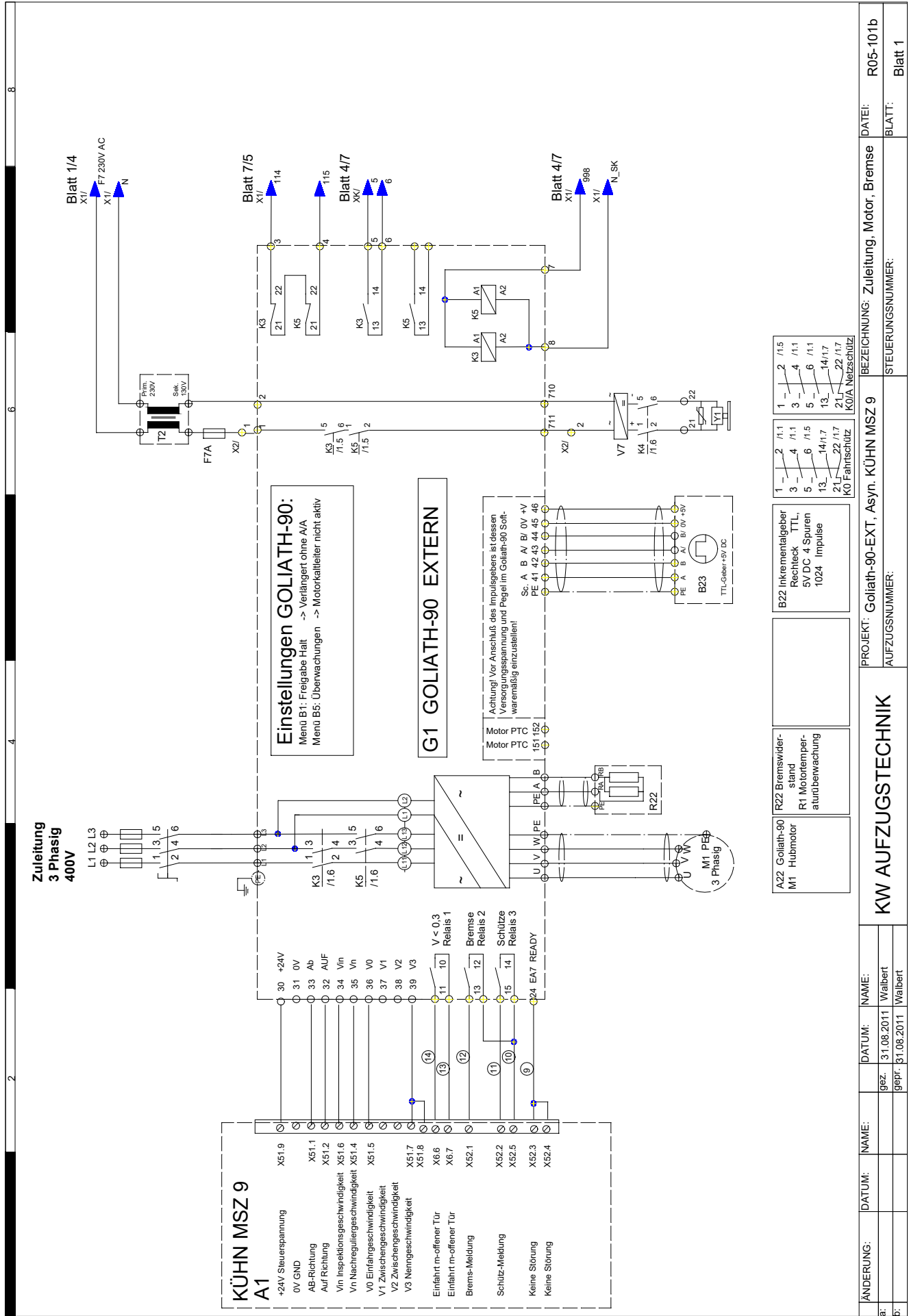
R22 Bremswiderstand
R1 Motortemperaturüberwachung

ÄNDERUNG:	DATUM:	NAME:	PROJEKT: Goliath-90-Ext. Asynch.,	Goliath-90 S/N:	DATEI: R06-101b
a:	gez. 19.09.2011	Herbel	AUFZUGSNUMMER:	STEUERUNGSNUMMER:	BLATT: Blatt 1 a
b:	gepr. 20.09.2011	Walbert			

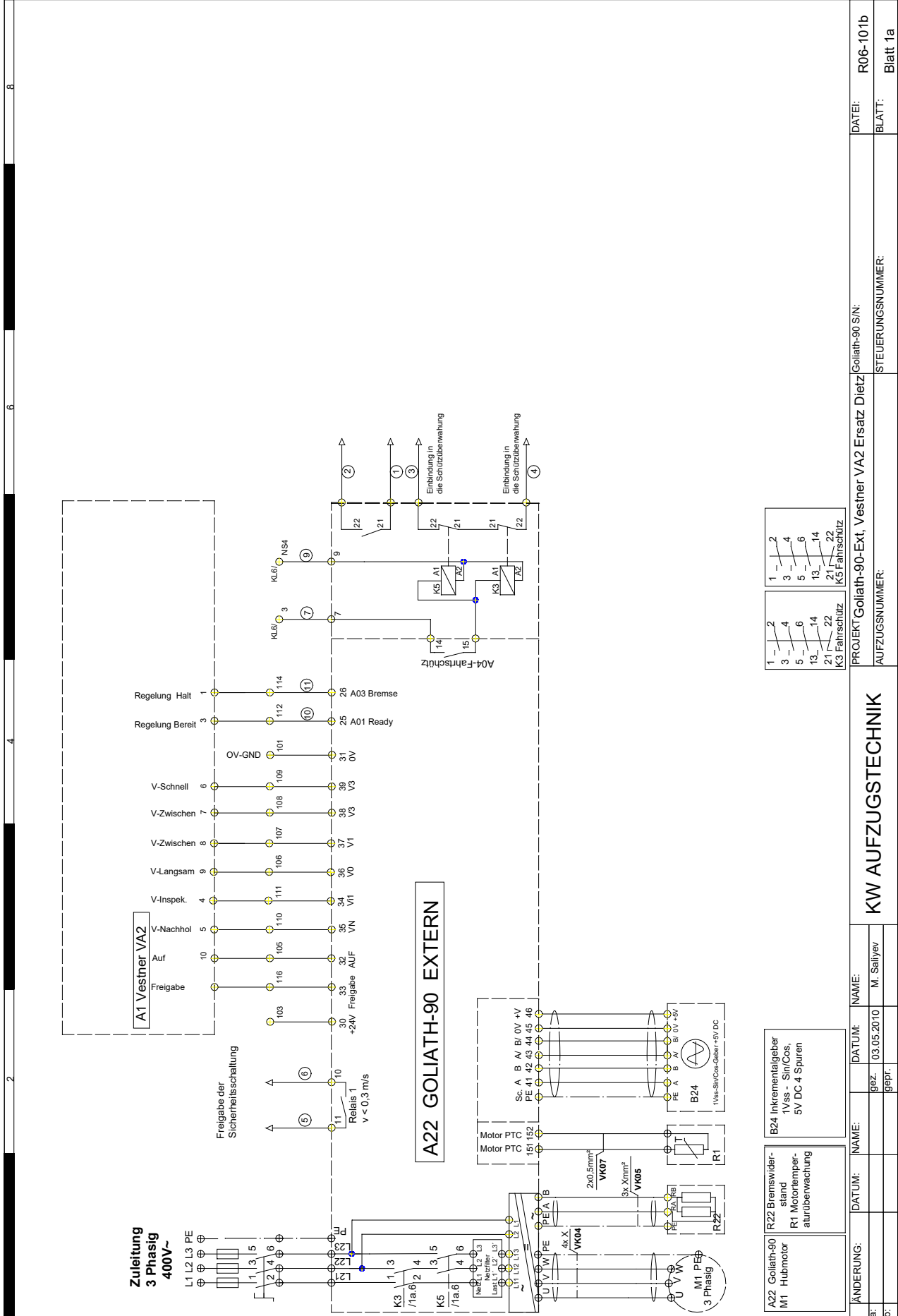
5.15 DRAWING External GOLIATH-90 for STG KÜHN MSZ 808



5.16 DRAWING External GOLIATH-90 for STG KÜHN MSZ 9



PROJEKT: Goliath-90-EXT, Asyn. KÜHN MSZ 9		DATEI: R05-101b
AUFZUGSNUMMER:		BLATT: Blatt 1
BEZEICHNUNG: Zuleitung, Motor, Bremse		
STEUERUNGSNUMMER:		
KW AUFZUGSTECHNIK		
ÄNDERUNG:	NAME:	DATUM:
a:	Walbert	31.08.2011
b:	Walbert	31.08.2011

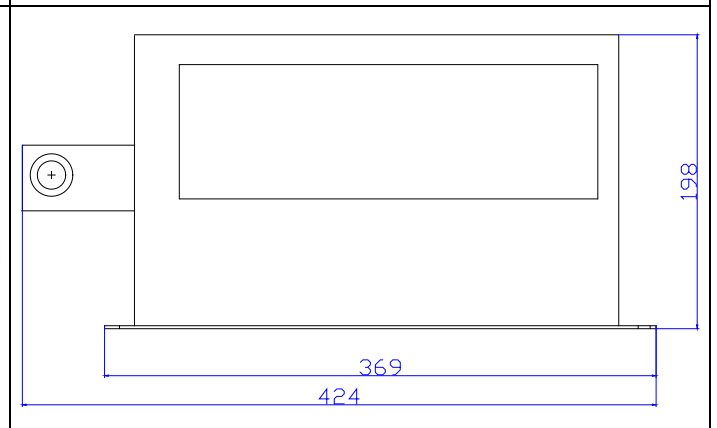
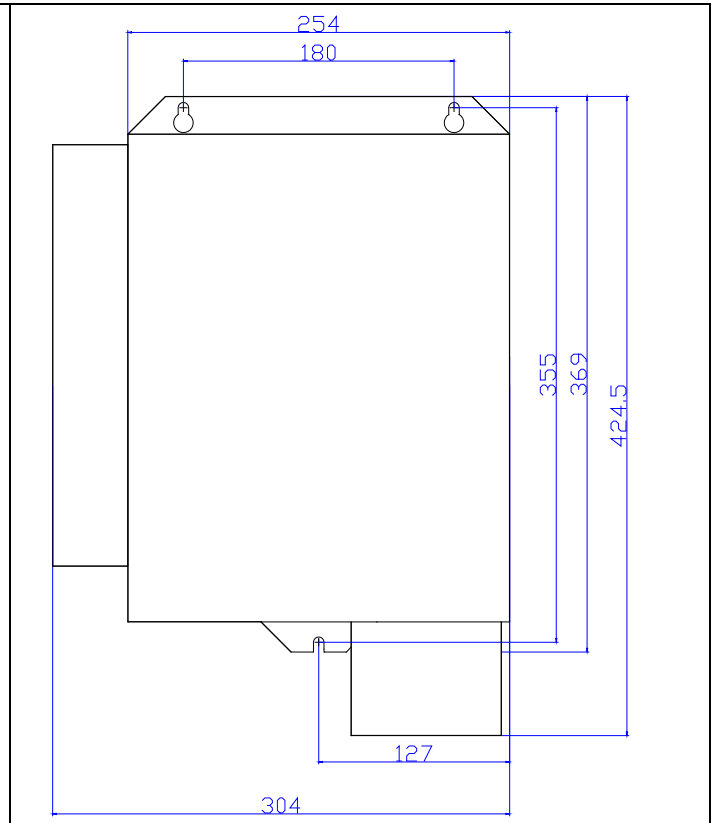


6. TECHNICAL DATA

6.1 CONSTRUCTION PICTURE Goliath-90 - 12 to 32A NOMINAL CURRENT

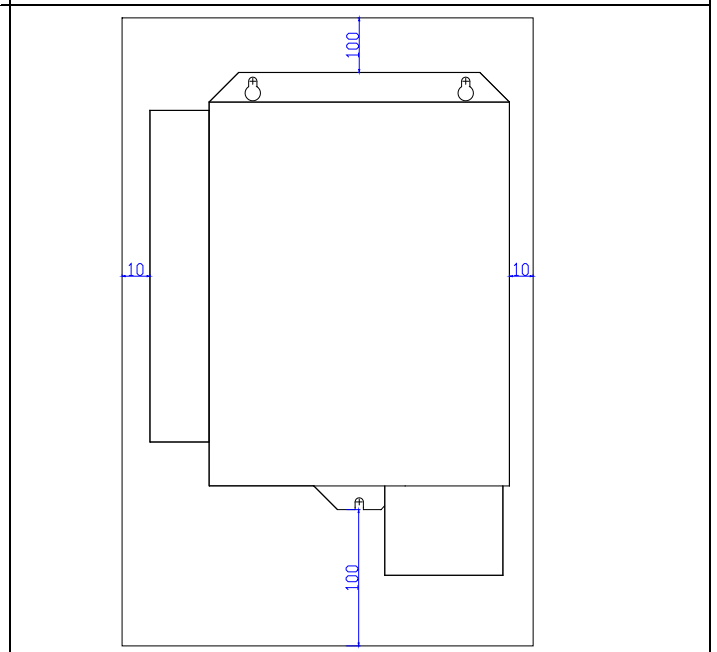
<p>Controller Casing Mounting</p> <ol style="list-style-type: none"> 1- The fixing of inverter must be done with three M6 Screws. 2- The mounting of inverter must be in controller casing, with main terminals at bottom. 3- The controller casing must have an air circulation. The minimal ways to other components is designed in picture on right side. 1.) 4- The law of concerning electromagnetic compatibility (EMVG) must be considered, e.g. shielded motor-& brakeresistor-cable must be used. The shield must be connected on both sides! 	

6.2 CONSTRUCTION PICTURE Goliath-90 - 42 to 52A NOMINAL CURRENT



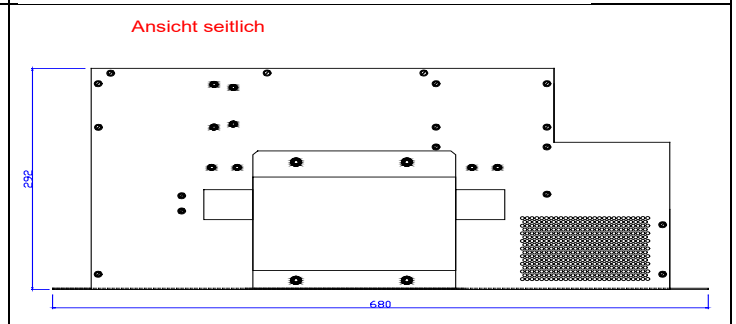
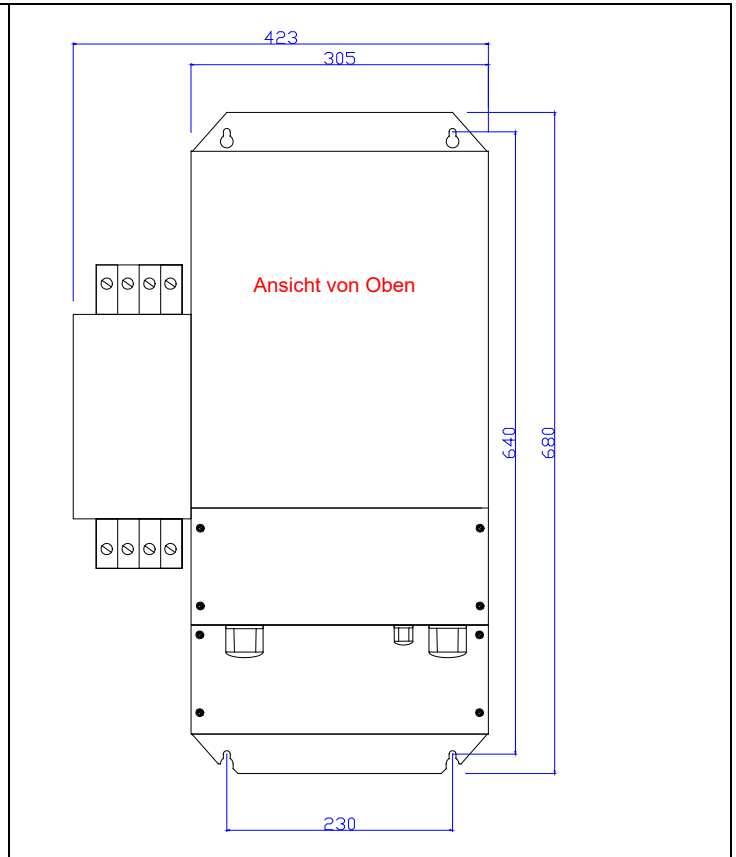
Controller Casing Mounting

- 1- The fixing of inverter must be done with three M6 Screws.
- 2- The mounting of inverter must be in controller casing, with main terminals at bottom.
- 3- The controller casing must have an air circulation. The minimal ways to other components is designed in the picture on the right side.
- 4- The law of concerning electromagnetic compatibility (EMVG) must be considered, e.g. shielded motor- & brakeresistor-cable must be used. The shield must be connected on both sides!



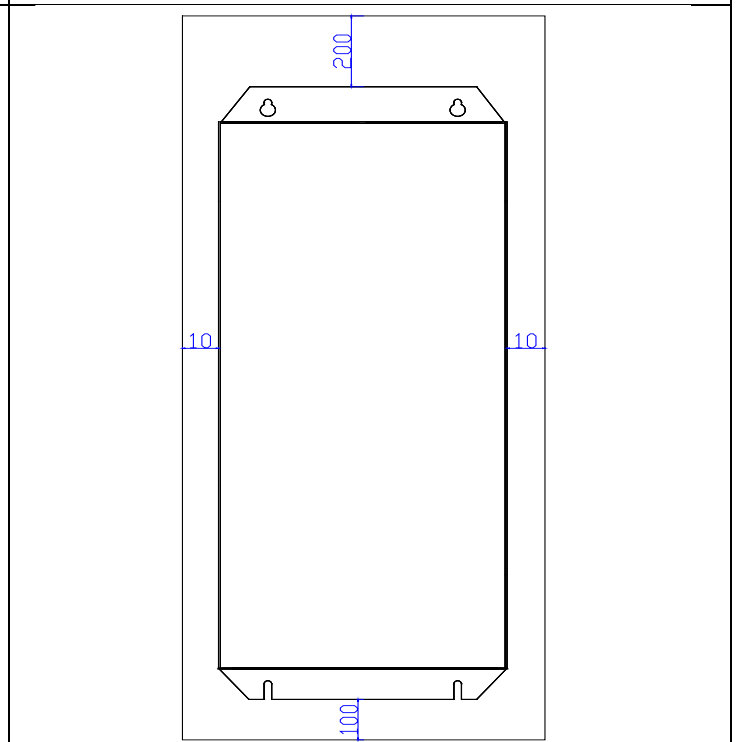
6.3 CONSTRUCTION PICTURE Goliath-90 - 62A to 82A NOMINAL CURRENT

<p>Controller Casing Mounting</p> <ol style="list-style-type: none"> 1- The fixing of the inverter must be done with three M6 Screws. 2- The mounting of the inverter must be in the controller casing, with the main terminals at the bottom. 3- The controller casing must have an air circulation. The minimal ways to other components is designed in the picture on the right side. 4- The law of concerning electromagnetic compatibility (EMV) must be considered, e.g. shielded motor- & brakeresistor-cable must be used. The shield must be connected on both sides! 	



Externe Montage

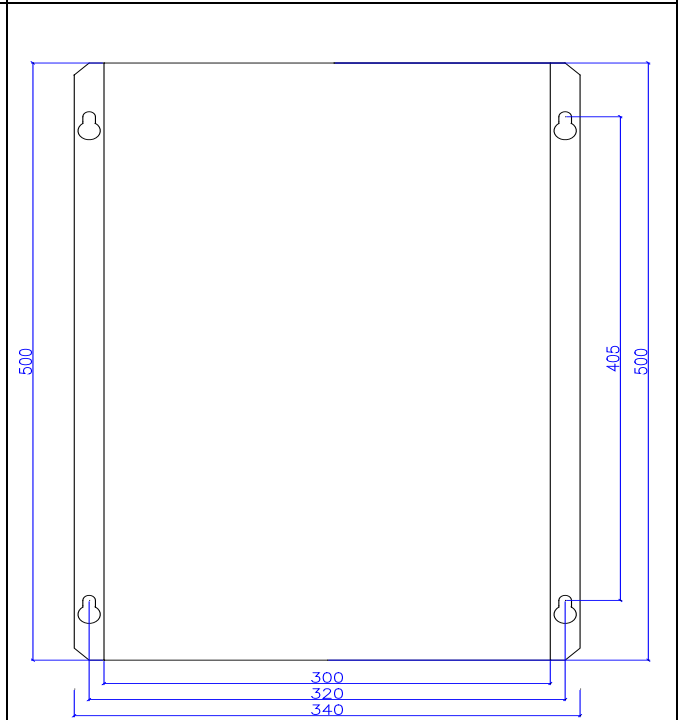
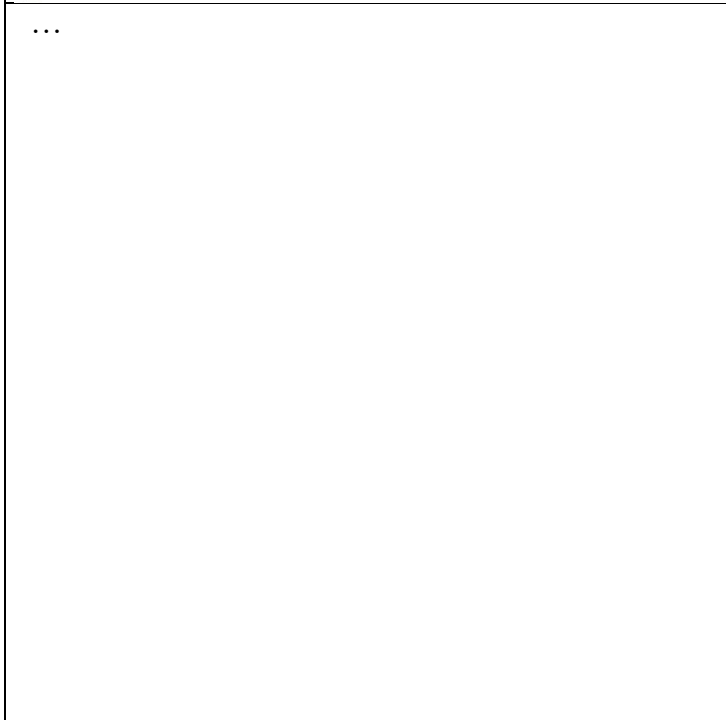
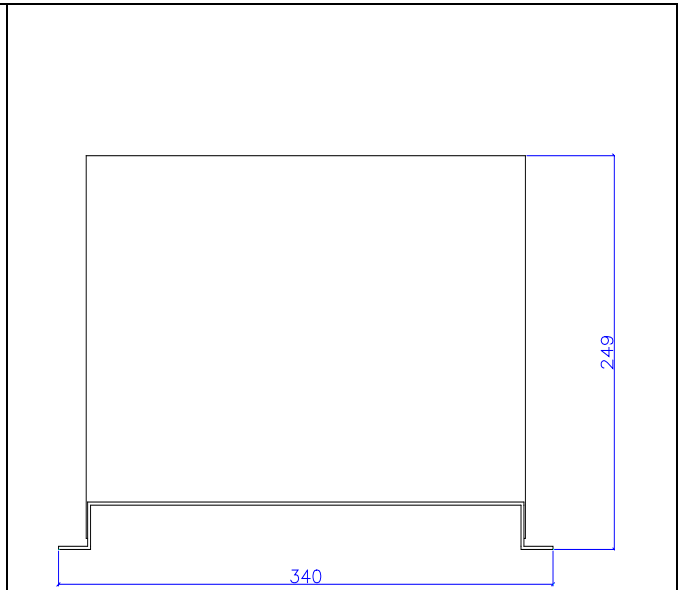
- 1.) The fixing of the inverter must be done with four M6 Screws.
- 2.) The mounting of the inverter cant be in or out of the controller casing, with the main terminals at the bottom.
- 3.) The law of concerning electromagnetic compatibility (EMVG) must be considered, e.g. shielded motor-& brakeresistor-cable must be used. The shield must be connected on both sides!..



6.5 CONSTRUCTION PICTURE Goliath-90 EXTERN - 12 to 32A NOMINAL CURRENT

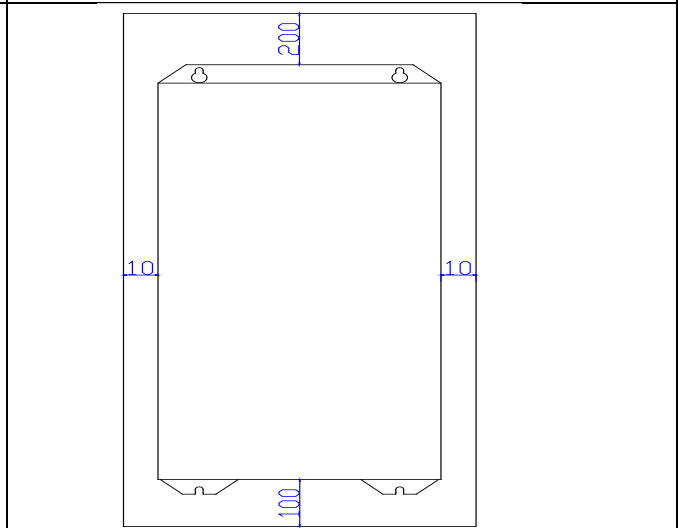
<p>Extern / Casing Mounting</p> <ol style="list-style-type: none"> 1.)The fixing of the inverter must be done with four M6 Screws. 2.) The mounting of the inverter cant be in or out of the controller casing, with the main terminals at the bottom. 3.)The law of concerning electromagnetic compatibility (EMV) must be considered, e.g. shielded motor-& brakeresistor-cable must be used. The shield must be connected on both sides!.. 	

6.6 CONSTRUCTION PICTURE Goliath-90 EXTERNAL - 42 to 52A NOMINAL CURRENT



Extern / Casing Mounting

- 1.) The fixing of the inverter must be done with four M6 Screws.
- 2.) The mounting of the inverter must be out of the controller casing, with the main terminals at the bottom.
- 3.) The law of concerning electromagnetic compatibility (EMV) must be considered, e.g. shielded motor-& brakeresistor-cable must be used. The shield must be connected on both sides!.



6.7 CONSTRUCTION PICTURE Goliath-90 EXTERNAL - 62 to 82A NOMINAL CURRENT

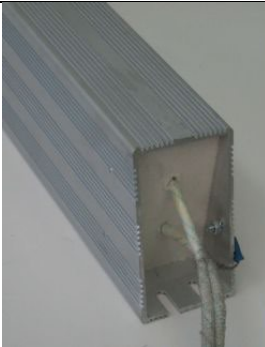

<p>Extern / Casing Mounting</p> <ol style="list-style-type: none"> 1.) The fixing of the inverter must be done with four M6 Screws. 2.) The mounting of the inverter must be out of the controller casing, with the main terminals at the bottom. 3.) The law of concerning electromagnetic compatibility (EMV) must be considered, e.g. shielded motor- & brakeresistor-cable must be used. The shield must be connected on both sides!. 	

6.8 CONSTRUCTION PICTURE Goliath-90 EXTERNAL-102 to 142A NOMINAL CURRENT


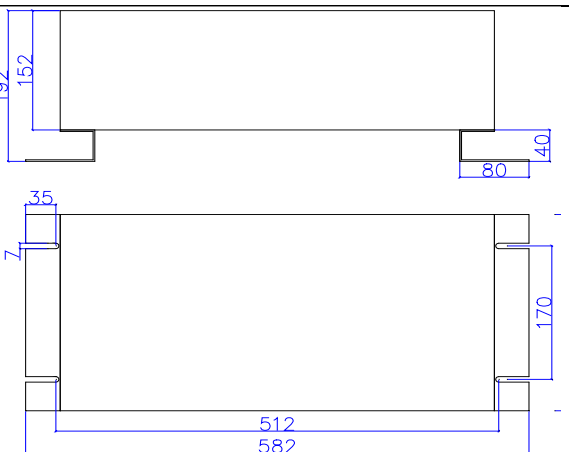
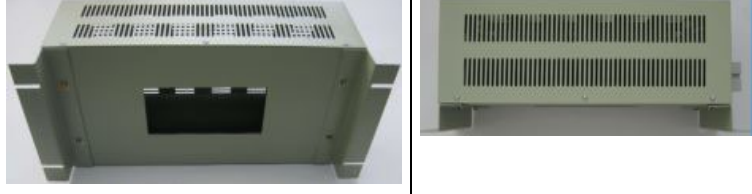

<p>Extern / Casing Mounting</p> <ol style="list-style-type: none"> 1.) The fixing of the inverter must be done with four M6 Screws. 2.) The mounting of the inverter must be out of the controller casing, with the main terminals at the bottom. 3.) The law of concerning electromagnetic compatibility (EMV) must be considered, e.g. shielded motor- & brakeresistor-cable must be used. The shield must be connected on both sides!. 	

6.9 CONSTRUCTION PICTURE BRAKE RESISTORS


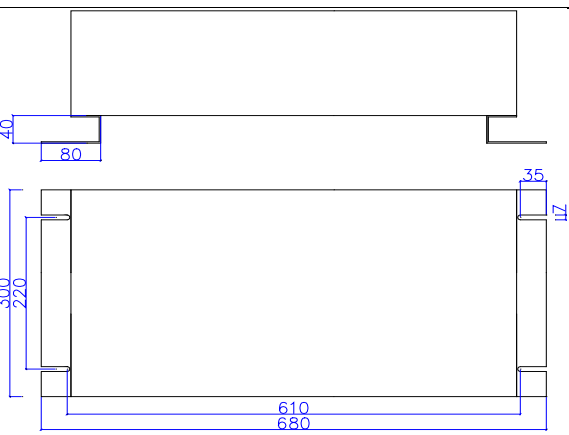


BRAKE RESISTOR BW-1KW

<p>RESISTOR: 50 OHM POWER: 1 KW closed Aluminium-Profile casing with shielded brake-resistor cable</p> <p>For inverters with a nominal current to 16A.</p>	
	

BRAKE RESISTOR BW-3KW

<p>RESISTOR: 30 OHM POWER: 3 KW Coloured metal casing with plastic terminalcasing and shieldterminal.</p> <p>For inverters with a nominal current of 22A to 32A.</p>		
		

BRAKE RESISTOR BW-6KW

<p>RESISTOR: 15 OHM POWER: 6 KW Coloured metal casing with plastic terminalcasing and shieldterminal.</p> <p>For inverters with a nominal current of 42A to 142A.</p>		
		

6.10 CONSTRUCTION Regenerating Unit Type Class VACON-30



Compact regenerating unit for frequency regulated elevators. The power classes are from **4 kW to 40 kW**.

Fully metal-cased central processing unit in accordance with EN12015 of the law concerning electromagnetic compatibility (EMVG).

The reduce power consumption in stand-by is 3W. After a minute from the motor switch off, the system turns off.

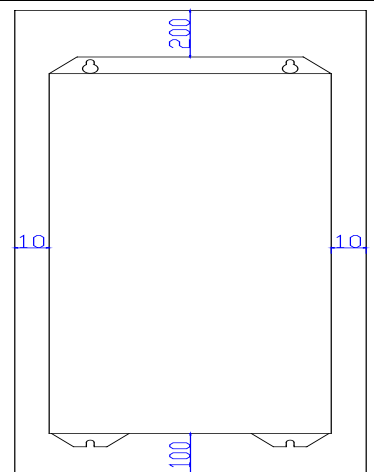
It will turn on again, ready to recover energy, at the next activation of a new command

Maße und Gewichte



Type-Sizes	Max. Power (kW)	Widtht (mm)	Max. Width with handles	Height (mm)	Depht (mm)	Weight (kg)
VACON-30 Typ 3 & 8	3,00	394	480	520	180	22,5
VACON-30 Typ 21	8,00	394	480	520	180	35
Fixing	Is mounted at the top using two enclosed screw hooks spaced 310 mm apart					

Extern / Casing Mounting

- 1.) The fixing of the energy save unit must be done with four M5 Screws.
- 2.) The mounting of the inverter must be out of the controller casing, with the main terminals at the bot-tom.
- 3.) The law of concerning electromagnetic compatibility (EMVG) must be considered, e.g. shielded motor-& brakeresistor-cable must be used. The shield must be connected on both sides

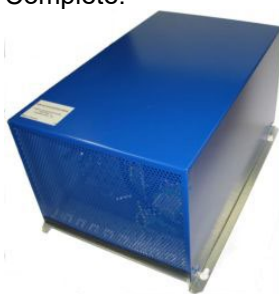



6.11 TYPE DATA AND POWER CLASSES /ORDER NOTICE /ACCESSORIES_Frequency-Inverter Type **GOLIATH-90 Intern** for Elevators:

<p>To 32A:</p> 	<p><u>Technical Short-Description:</u> Field-oriented four-quadrant frequency inverter for traction elevator systems for control cabinet installation. EMI-proof aluminium housing ensures compliance with limit of class B. Delivery includes attached mains input filter and brake resistor. Clock frequency by motor, as well generator is 16 kHz. Frequency inverter can be operated with asynchronous and synchronous machines. Full features of inputs and outputs , such as motor thermistor , fan brake control, bus, incremental and absolute encoders,...</p>	<p>Up 42A:</p> 
--	---	--

Nominalcurrent	Overload	Type	Order-No.
12A	x 1,7	GOLIATH-90/400V/12A Intern	1000701
16A	x 1,7	GOLIATH-90/400V/16A Intern	1000702
22A	x 1,7	GOLIATH-90/400V/22A Intern	1000703
26A	x 1,7	GOLIATH-90/400V/26A Intern	1000704
32A	x 1,7	GOLIATH-90/400V/32A Intern	1000705
42A	x 1,7	GOLIATH-90/400V/42A Intern	1000706
52A	x 1,7	GOLIATH-90/400V/52A Intern	1000707
62A	x 1,7	GOLIATH-90/400V/62A Intern	1000708
82A	x 1,7	GOLIATH-90/400V/82A Intern	1000709
102A	x 1,7	GOLIATH-90/400V/102A Intern	1000710
122A	x 1,7	GOLIATH-90/400V/122A Intern	1000711
142A	x 1,7	GOLIATH-90/400V/142A Intern	1000712

Frequency-Inverter Type **GOLIATH-90 Extern** for Elevators:

<p>Complete:</p> 	<p><u>Technical Short-Description:</u> Field-oriented four-quadrant frequency inverter for traction elevator systems for external installation with integrated network and brake contactors. EMI-proof aluminium housing ensures compliance with limit of class B. Frequency inverter can be operated with asynchronous and synchronous machines. Following equipment is supplied as standard: - Line filter, power contactors and reversing contactor - Complete set of cables (motor-, brake chopper cond., Network and set point)</p>	<p>Open Cover:</p> 
--	---	--

Nominalcurrent	Overload	Type	Order-No.
12A	x 1,7	GOLIATH-90/400V/12A Extern	1000713
16A	x 1,7	GOLIATH-90/400V/16A Extern	1000714
22A	x 1,7	GOLIATH-60/400V/22A Extern	1000715
26A	x 1,7	GOLIATH-90/400V/26A Extern	1000716
32A	x 1,7	GOLIATH-60/400V/32A Extern	1000717
42A	x 1,7	GOLIATH-60/400V/42A Extern	1000718
52A	x 1,7	GOLIATH-60/400V/52A Extern	1000719
62A	x 1,7	GOLIATH-60/400V/62A Extern	1000720
82A	x 1,7	GOLIATH-90/400V/82A Extern	1000721
102A	x 1,7	GOLIATH-90/400V/102A Extern	1000722
122A	x 1,7	GOLIATH-90/400V/122A Extern	1000723
142A	x 1,7	GOLIATH-90/400V/142A Extern	1000724

Optional Bakeunit for synchronemachines (Shortcut of the motor wires)

Type	Order-No.
Bakeunit to 32A	KS-90 1000725
Bakeunit to 52A	KS-93 1000726
Bakeunit to 142A	KS-94 1000727

Type	Order-No.
HPG-60	1000697

Type	Order-No.
Internal Display / Keyboard PD-90	1000696

Adaptertcard / wires for the digital encoder at the GOLIATH-90:

Type	Order-No.
Thyssen DAF / SC EnDAT	T-ECN 113 1000779
SAD WSG EnDAT	S-ECN 1313 1000780
Xinda Sin / Cos	X-Sin 1000781
Xinda EnDAT	X-ECN 413 1000782
Monitor Sin / Cos	M-ECN 1585 1000783
Blocher GA41 / GA42 SSI	B-SSI 1000784
Xinda EnDAT	X-ERN 487 1000785
Adaptertcard ABS	ABS-Adapt 1000788

Type	Order-No.
Extention-wire for Absolute-encoder	AWG-K 5m 1000793
Extention-wire for Absolute-encoder	AWG-K 10m 1000794
Extention-wire for Absolute-encoder	AWG-K 15m 1000795
Extention-wire for Absolute-encoder	AWG-K 20m 1000796
Extention-wire for Absolute-encoder	AWG-K 25m 1000797

Inkremental Mountingkit SOLUTION, Connectingsrew for M10, M12, M16 srew:

Type	Order-No.
Inkremental Mountingkit	SOLUTION M8-20 1000757-761

Resolvercard for Synchroniousmaschins (Type Alpha EPM / ECD) for GOLIATH-90:

Type	Order-No.
Resolvercard	RES-02 1000728

Type	Order-No.
Recovery units	VACON 3 -7,5KW 1000751
Recovery units Type VACON	VACON 8 -20 KW 1000752
Recovery units Type VACON	VACON 21-50KW 1000753

Priceconditions: At the Factoy, without casing & tax

Orderadress: KW Aufzugstechnik GmbH
Zimmersmühlenweg 69
D-61440 Oberursel
Tel.: +49 (0)6171-9895-23
FAX: +49 (0)6171-9895-03
Email: Verkauf@kw-aufzugstechnik.de

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