OVF20

Service Tool Manual

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Running on PCB: GBA 26800 H

Software Version: GAA 30158 AAD

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Date	Author	Page	Comment
16-Feb-1996	G. Priebe	1 - 28	Original Document
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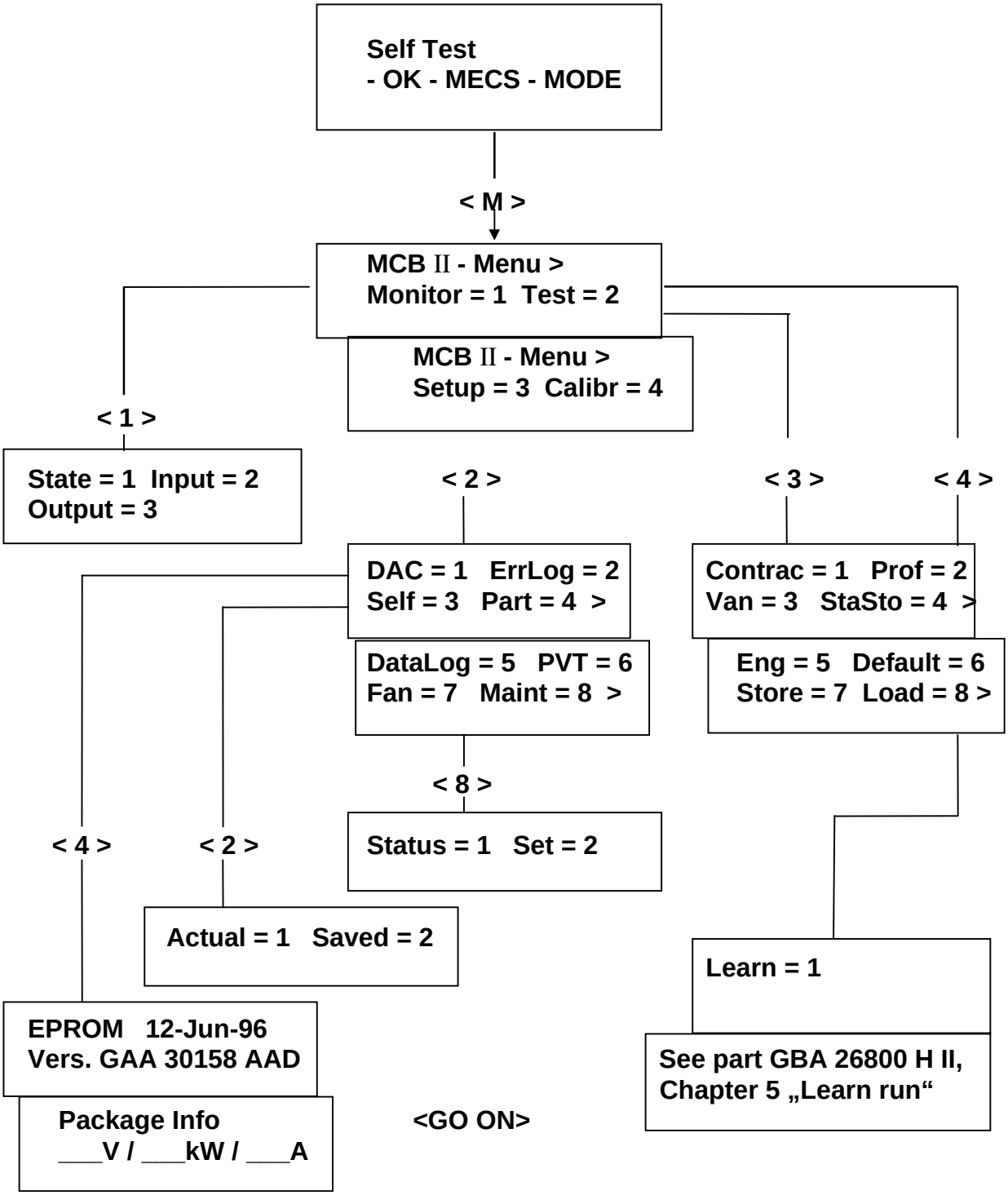
1 Service Tool Description

1.1 Flow chart



1.2 Service Tool Display

If there occurs an error message after pressing <M>, then see part GBA 26800 H1 I. Service Handling, point 2.

Press <Shift> <5> to clear the error and switch on the inverter again.

Monitor = 1 This display is used to observe the system state.
State = 1

State = 1 Input = 2 Output = 3	⇒ < 1 > ⇒	0000000 111111 nn 222222222222222

for the digits:
0000000 = Motion Command Mode
111111 = Motion Logig State
22222222222222 = Actual Event Display
nn = floor counter (only at CONTR TYPE = 4)
At unknown postion 99 is indicated. The bottom landing s always number 0.

Explanation of the short notations see point *2. Short notations.*

Monitor = 1
Input = 2
Output = 3 This display is used to know the state (high or low) of the in- or output values.

State = 1 Input = 2 Output = 3	⇒ < 2 > ⇒ ⇒ < 3 > ⇒	00000000 111111 222 333 444 555

for the digits:
00000000 = Motion Command Mode
111111 = Motion Logic State
222 , 333 , 444 , 555 = Input / Output

Note*:*
capital letters = input is active.
With < GO ON > further input/output values can be recalled.
It is possible to fade-in current event messages on display.
Activate this feature <Shift> <1> of <ON>.
Deactivate it by pressing <Shift > < 0> or <OFF>.

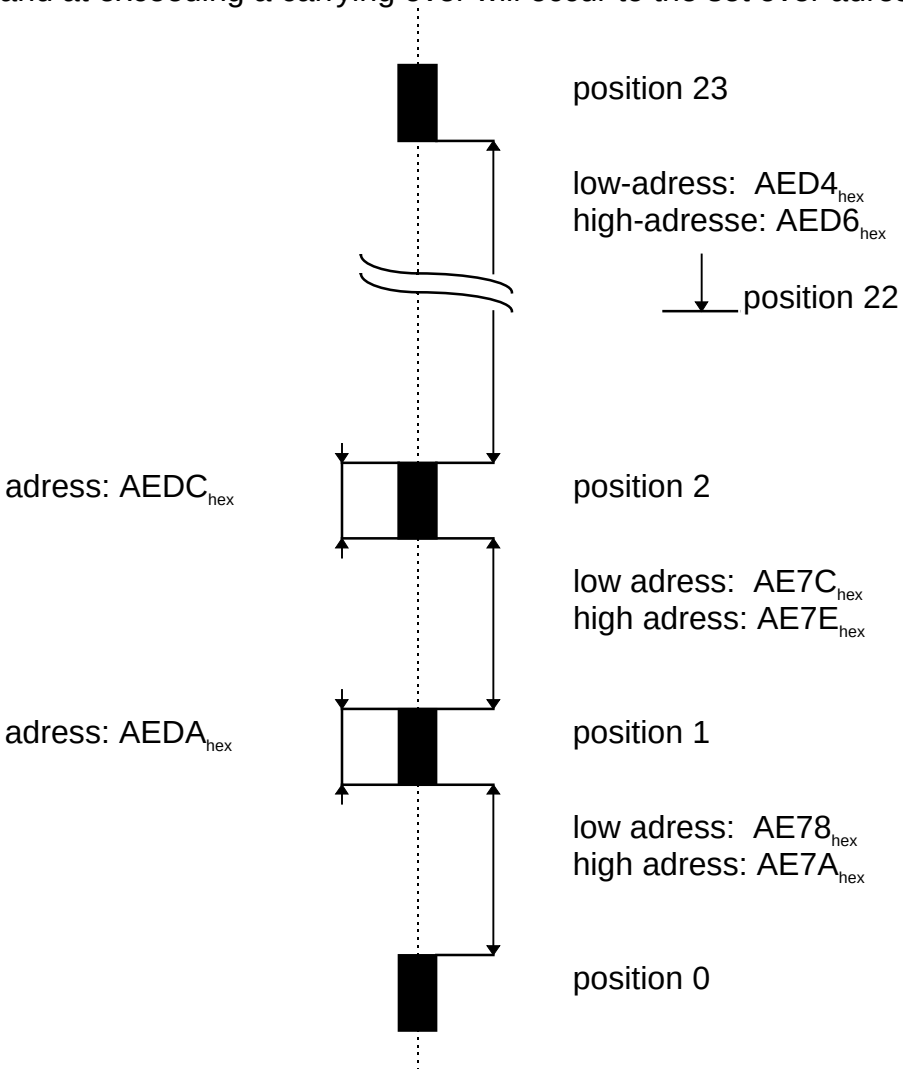
Explanation of the short notation see point *2. Short notations.*

Monitor = 1
DATA-CPT = 4

The result of the learn run can be controlled in DATA-CAPTURE menu (hidden menu).

To get the individual dates, go further with 0 until 9, or A until F.

The dates which there can be read on the corresponding adress show the repectively distance in „Encoder pulses“. It has to attend that the contain of the adress is maximal 65535 and at exceeding a carrying over will occur to the set over adress.



Test = 2
DAC = 1 Analog output channel for the system variables.

DAC = 1 Errlog = 2 Output = 3 Part = 4	⇒ < 1 > ⇒	00000000000000 = 111111 (2222222)

for the digits:
00000000000000 = selected variabel
111111 = actual value of selcted variable
(2222222) = Unit of the actual value

Use <GO ON> and <GO BACK> to scroll to the values.

Explanation of the Short notations see point *2. Short notations.*

Test = 2 This display is the event logging of the motion system.
ErrLog = 2

DAC = 1 Errlog = 2 Output = 3 Part = 4	⇒ < 2 > ⇒	Actual =1 Saved = 2

1 = This display contains the actuell events

⇓
< 1 > or < 2 >
⇓

2 = This display shows the events since the last clear of the event list, even if the inverter was switched off.
The actuell and saved event list can be cleared by pressing <Shift> < 5 > when reading the **saved** event list

Number of runs
000000000000

Acual number of runs since the last system-reset <1> or event list clear <2>

⇓
< GO ON >
⇓

Actual Time / Day
11 . 11 : 11 0

Time since the last system - reset <1> or list clear <2>

⇓
<GO ON>
⇓

222222222222
33 R = 000000

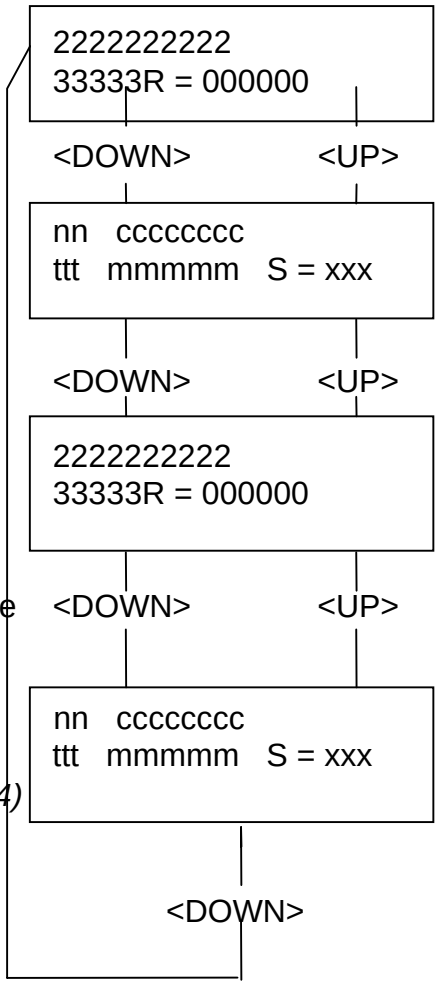
for the digits:
22222222222222 = events name
33 = number of the events
R = Run
000000 = number of run when the event occured.

Explanation of the short notations see point *2. Short notations.*
A blinking asterisk (∗) before the " R " in the actual event list indicates that the event is actually active.

Test = 2
ErrLog = 2
Actual = 1 or Saved = 2

The <DOWN> (<Shift> <3>) key allows to see more detailed information about an event.

< GO ON > < GO ON > ⇒



The last occurence of an event is displayed

Detailed information for the error
DRV: SHUT DOWN
The reason of the SHUT DOWN is shown here

The next to last occurence of the event is displayed.

Detailed information about the error

2222222222 = event name
33333 = number of events
R = RUN
0000 = number of run when the event occured
nn = Error code number
(see event list in point 2.5)
ccccccc = error class
mmmm = motion logic state
ttt = time in 10 ms in the motion logig state when the event occured
S = xxx S speed value
(only for event # 72, 74)

C speed error code
(only event # 70)

I current value
(only event # 25, 27)

Test = 2
Self = 3 Executing a self test.

DAC = 1 Errlog = 2 Self = 3 Part = 4	⇒ < 3 > ⇒	0000 111111 2222

for the digits:

0000 = Self test of the EEPROM
111111 = Self test of the EPROM
2222 = Self test of the RAM
? = Executing the self test
+ = Self test O.K.
- = Self test not O.K.

By pushing <GO ON> the test will be executed.

Test = 2
Part = 4 Data about the software version.

DAC = 1 Errlog = 2 Self = 3 Part = 4	⇒ < 3 > ⇒	EPROM 11 - 222 - 33 Vers : 444444444444

for the digits:

11 = Day of generation
222 = Month of generation
33 = Year of generation
444444444444 = Part number of the EPROM

By pushing <GO ON> the package information will be executed.

0000 = voltage e.g. 480V - package
1111 = Power e.g. 9kW
222 = Nominal current e.g. 25A

Package Duty
0000 1111 222

Test = 2
Datalog = 5 Display of max. values of the last run.

Datalog = 5 PVT = 6 Fan = 7 Maint = 8	⇒ < 5 > ⇒	0000 11111111111 2222 33333333333

for the digits:

0000 = Name of the first parameter
1111111111111 = Value of the first parameter
2222 = Name of the second parameter
3333333333333 = Value of the second parameter

Using <GO ON> or <GO BACK> keys to scroll through the values.
Short notations see point *2. Short notations*

Test = 2
PVT = 6 Display of max. values of the last run.

Datalog = 5 PVT = 6 Fan = 7 Maint = 8	⇒ < 6 > ⇒	Enc. Pulses 00000 Speed [rpm] 1111

for the digits:

00000 = Speed Encoder pulses
1111 = Speed in rpm

Test = 2
Fan = 7

Datalog = 5 PVT = 6 Fan = 7 Maint = 8 >	⇒ < 7 > ⇒	Fan is running Check it ! (Clear)

The fan should be switched on for approx. 1 minute.
Check to see if the fan is running (is it making a noice?).
By pressing the <Clear> button, the submenu is once again obtaines.

Test = 2
Maint = 8
If there occurs a maintenance hint, see *Service Handling E- 3.3 0 2 - 4.*
Status =1

Status = 1 Set = 2	⇒ < 1 > ⇒	Abs Operat Time hh . mm : ss dddyy	Display of absolute operating time
		⇓	
		<GO ON>	
		⇓	
		Abs No. of Runs 0000000	0000000 = absolute number of runs
		⇓	
		<GO ON>	
hh = number of hours mm = number of minutes ss = number of seconds ddd = number of days yy = number of yaers		⇓	
		Cap Board in use Day : ddd Year : yy	displays used lifetime ofr capacitor board
		⇓	
		<GO ON>	
		⇓	
		Fan in use hh : mm : ss dddyy	displays used lifetime of the fan
		⇓	
		<GO ON>	
		⇓	
xxxxx : number of EEPROM write cycles	xxxxx	E2P Write Cycle	

Test = 2
Maint = 8
If there occurs a maintenance hint, *see Service Handhandling, part GBA 26800 H1.*
Set = 2

Attention!
The parameter in this area are necessary for maintenance and normally must never be changed.
A variation of these parameters is only in case of an exchange of the capacitor board, fan or EEPROM.

For further information, see *Service Handling, part GBA 26800 H1.*

Setup = 3
Contrac = 1 Adjusting of contract specified parameters
Prof = 2 Adjusting of all speed priofil parameters
Van = 3 Adjusting of hoistway signals
StaSto = 4 Adjusting of start and stop parameters

Contrac = 1 Prof = 2 Van = 3 StaSto = 4 >	< 1 > < 2 > < 3 > < 4 >	0000000000000000 OLD:1111 NEW:2222

for the digits:

0000000000000000 = name of selected parameter
1111 = old value of the parameter
2222 = new value of the parameter

Using <GO ON> or <GO BACK> keys to scroll through the values.

Short notations see point *2. Short notations.*

The list of parameters can be find in the part GBA 26800 H1 VIII „Software“.

Setup = 3
Eng = 5 Adjusting of engineering data

Eng = 5 Default = 6
Store = 7 Load = 8 >

⇒ < 5 > ⇒

Control = 1 U / F = 2
Old : 1111 New : 2222

⇓

< 1 > oder < 2 >

⇓

00000000000000000
Old : 1111 New : 2222

for the digits:
0000000000000000 = name of selected parameter
1111 = old value of parameter
2222 = new value of parameter

The list of parameters can be find in the part GBA 26800 H1 VIII „Software“.

Setup = 3
Default = 6

Eng = 5 Default = 6 Store = 7 Load = 8 >	⇒ < 6 > ⇒	PPARAMETERS LOST ! YES : PRESS ENTER !

By pushing of Default = 6 the standard values will be set for the start up.
If thesevalues should be set, after pressing of Default = 6, the < ENTER > key has to be pressed. With these values the drive is ready for inspection run. For normal run the drive has to be adjusted once more.

Attention!
All values adjusted before will be lost.

Setup = 3
Store = 7

Eng = 5 Default = 6 Store = 7 Load = 8 >	⇒ < 7 > ⇒	Store settings ? YES : PRESS ENTER !

The parameter adjustment is stored into the EEPROM.
It is possible to save a „good adjustment“, the change some parameters for try, and then load the saved adjustment (see below) again without rechanging the modified parametres.
To perform parameter saving, press the „Enter“ key. drücken.

Setup = 3
Load = 7

Eng = 5 Default = 6 Store = 7 Load = 8 >	⇒ < 8 > ⇒	Load settings ? YES : PRESS ENTER !

The parameter adjustment is loaded from the EEPROM.
To perform parameter loading, press the „ENTER“ key.

Attention!
All values adjusted before wii be overwritten.

Calibr = 4
Learn = 1

The learn run will started in this menu, see „Start up routine“ GBA 26800 H1 II.

2 Short notations

2.1 Short Notations State < M > < 1 > < 1 >

2.1.1 Motion Command Modes

SHTDWN	A run is interrupted because of a fault. An event display (Errlog = 2 Actual = 1) always explains the reason.
WT F SF	Wait for Safety, the drive waits for a DIB, UIB or NOR signal
NORMAL	MCS 220 (M) With switched on UIB, DIB signal the drive waits for a command (v1 - v4). MS 300 and MCS 310 With switched on UIB, DIB and NOR the drive waits for a command (U, D, T,.G).
RUN UP	Normal run up
RUN DWN	Norma run downwärts
INS UP	Inspection run up *Inspection run is started with UIB or DIB*
INS DWN	Inspection run down
ES	Emergency stop, during normal run the safety chain (UIB, DIB or NOR signal) was cut off.
DDP	Run time controlling will be reset by IPU / IPD or LV.

2.1.2 Motion Logic State

IDLE	(0)	Waiting for a command (Inverter disabled)
START	(1)	Energize BY,and SW1, SW2 relays and premagnetization
ACC	(2)	Accelerating to NOM SPE or SHR SPE
CONST	(3)	Normal speed or reduced speed MCS 220 (M) with learn run (Contr.Type = 4) generates IP signals and waits for <SD> or 1LS / 2LS other controller (Contr.Type = 0, 1, 2) waiting for: IPU / IPD and / T or <SD> at NOM SPE SLU / SLD at SHR SPE 1LS / 2LS
T DEC	(4)	Deceleration to CRE SPE
CREEP	(5)	Creep run, waiting for LV
HALT	(6)	Deceleration to speed zero, electrical stop and DZ becomes activ

2.2 Short notations INPUT < M > < 1 > < 2 >

2.2.1 Controller Type (0 , 1) without coded Input Interface

Input variabl	Erklärung	PIN (MCB II)
NOR	Normal run	P 1.2
UIB	Inspection button up direction, input signal for normal run	P 1.3
DIB	Inspection button down direction input signal for norm. run	P 1.4

U	Normal run up	P 4.9
D	Normal run down	P 4.10
T	Fast run	P 4.11
G	Slow run	P 4.12
1LS	1LS deceleration switch	P 4.7
2LS	2LS deceleration switch	P 4.8
IPU / IPD	Deceleration pulse (up or down)	P 4.1 and P 4.2
LV	Door zone (1LV und 2LV aktiv)	--
1LV	Door zone	P 4.3
2LV	Door zone	P 4.4
SLU	Deceleration short landing up	P 4.5
SLD	Deceleration short landing down	P 4.6
SW	Up or down signal (internal)	--
DBD	SW1 , SW2 and BY relay dropped	P 3.1
RDY	Ready signal, PWM enabled (internal hardware protection)	--

2.2.2 Controller Type (2) with coded Input Interface

Input vari-able	**Explanation**	**Pin MCB** II
UIB	Inspection button up direction, input signal for normal run	P 1.3
DIB	Inspection button down, input signal for normal run	P 1.4
<cc dd>	cc = WT <Wait> or ST <Stop> or FR <Fast Run> or RR <Reduced Run> or RL <Releveling> or SD <Slow Down> or IN <Insektion> or RS <Rescue Run> dd = UP direction up or Dn direction down	
MC V_4V_3 V_2V_1 <cc dd>	V4 - V1 binary code, eg . 0000 = <wait>	P 4.9 - P 4.12 --
1LS	1LS deceleration switch	P 4.7
2LS	2LS deceleration switch	P 4.8
IPU / IPD	Deceleration pulse (up or down)	P4.1 and P 4.2
LV	Door zone (1LV and 2LV activ)	--
1LV	Door zone switch up	P 4.3
2LV	Door zone switch down	P 4.4
SLU	Deceleration short landing up	P 4.5
SLD	Deceleration short landing down	P 4.6

SW	Up or down signal on (internal)	--
DBD	SW1, SW2 and BY relay dropped	P 3.1
RDY	Ready signal, PWM enabled (internal hardware protection)	--

2.2.3 Controller Type 4 with coded Input Interface and Learn run

Input variable	Explanation	Pin MCB II
UIB	Inspection button up direction, input signal for normal run	P 1.3
DIB	Inspection button down, input signal for normal run	P 1.4
<cc dd>	cc = WT <WAIT> or ST <STOP> or FR <FAST RUN> or RR <Reduced Run> or IN <Inspektion> or RS <Rescue Run> dd = UP Direction up or Dn Direction down	
MC V_4V_3 V_2V_1 <cc dd>	V4 - V1 binary code, eg. 0000 = <wait>	P 4.9 - P 4.12 --
1LS	1LS deceleration switch	P 4.7
2LS	2LS deceleration switchr	P 4.8
1LV	Door zone switch up	P 4.3
2LV	Door zone switch down	P 4.4
LV	Door zone (1LV and 2LV activ)	--
UIS	Releveling up	P 4.1
DIS	Releveling down	P 4.2
LW1	Load weighing switch 1	P 4.5
LW2	Load weighing switch 2	P 4.6
SW	Up or down signal on (internal)	--
DBD	SW1, SW2 and BY relay dropped	P 3.1
RDY	Ready signal, PWM enabled (internal hardware protection)	--

2.2.4 Table of Motion Commands (V1 - V4) for MCS220

V4	V3	V2	V1	MC	Explanation
0	0	0	0	<W>	WAIT, the drive waits for the next run
1	1	1	1	<ST>	STOP, current run is finished
0	0	0	1		UNVALID, not used (hardware on LCB -II)
1	1	1	0	<SD>	SLOW DOWN, stop at next floor
0	0	1	0	<OP UP>	not used
0	0	1	1	<OP DN>	not used
0	1	0	0	<IN UP>	INSPECTION RUN UP
0	1	0	1	<IN DN>	INSPECTION RUN DOWN
0	1	1	0	<FR UP>	FAST RUN UP, normal run
0	1	1	1	<FR DN>	FAST RUN DOWN, normal run
1	0	0	0	<RS UP>	RESCUE RUN UP
1	0	0	1	<RS DN>	RESCUE RUN DOWN
1	0	1	0	<RL UP>	RELEVELING UP
1	0	1	1	<RL DN>	RELEVELING DOWN
1	1	0	0	<RR UP>	REDUCED RUN UP
1	1	0	1	<RR DN>	REDUCED RUN DOWN

2.3 Short notations OUTPUT < M > < 1 > < 3 >

2.3.1 Controller Type (0 , 1) without coded Output Interface

Output variable	Explanation	PIN (MCB II)
DR	Drive ready	
UP	Run direction signal up (internal)	
DN	Run direction signal down (internal)	
BY	Brake	P 3.4
DZ	Door zone and end of run signal	P 2.2
INVD	Inverter (PWM) disabled (if activ)	
LNS	Load information (LNS) for OCSS	P 2.4
SL*	Short landing	P 2.3
REL	Inverter relay, switches on/off the inverter	P 8.5
FAN	Fan relay	P 8.3

* Controller Type = 1: Output has no funktion, SC will diplayed

2.3.2 Controller Type (2) with coded Output Interface

Output variable	Explanation	PIN (MCB II)
DR	Drive ready	
UP	Run direction signal up (internal)	
DN	Run direction signal down (internal)	
BY	Brake	P 3.4
RUN	Elevator is running	
INVD	Inverter (PWM) disabled (if activ)	
LNS	Load information (LNS) for OCSS	
SC	Speed control for ADO / releveling	P 2.3
REL	Inverter relay, switches on/off the inverter	P 8.5
FAN	Fan relay	P 8.3
DS 3	coded Output Interface	P 2.3
DS 2		P 2.2
DS 1		P 2.1

2.3.3 Controller Type (4) with coded Output Interface and learn run

Output variable	Explanation	PIN (MCB II)
DR	Drive ready	
UP	Run direction signal up (internal)	
DN	Run direction signal down (internal)	
BY	Brake	P 3.4
RUN	Elevator is running	
INVD	Inverter (PWM) disabled (if activ)	
LNS	Load information (LNS) for OCSS	
SC	Speed control for ADO / releveling	P 2.3
IP	Deceleration signal (for LCB II)	P 2.5
REL	Inverter relay, switches on/off the inverter	P 8.5
FAN	Fan relay	P 8.3
DS 3	Coded Output Interface	P 2.3
DS 2		P 2.2
DS 1		P 2.1

2.4 Short notations Digital / Analog Converter < M > < 2 > < 1 >

Important variables for the control can be displaayed by Service Tool (SVT).
The digital analog converter(DAC) generates an analog signal of these values which can be measured by oscilloscop between pin P6.2 and P6.9 (GND).

	DAC =	-10 V	+ 10 V
PROFILE GENERATR	Internal required speedkeit	0%	100 %
STATOR FREQUENCY	Inverter frequency is the same as stator frequency of the motor		
SPEED	Measured speed depending on the encoder pulses		
ACCELERATON	Measured acceleration depending on the encoder pulses	- 100 %	
SLIP	Difference between inverter frequency and measured speed	- 20 %	20 %
ACC PRCTR	Frequency precontrol to compensate the torque of inertia		
SPEED ERROR	Control errror = difference between required and measured speed		
SPEED ERROR INT	Integral of control error	- 40 %	40 %
SPEED CTL OUTPUT	Control output	- 20 %	20 %
CURRENT	Motor current on the inverter output		200 %
VOLTAGE	Inverter voltage is the same as stator voltage of the motor	0 %	100 %
TEMP	IGBT heatsink temperature	2°C	119°C
DC - VOLTAGE	Inverter DC link voltage	0 V	1000 V

2.5 Short notations Event logging < M > < 2 > < 2 > < 1 >

2.5.1 General

All event messages are classified in different groups or error classes.
Some events are displayed for *Information (i)* only, others like *WARNINGS (w)* or *ERRORS (e) are displayed without consequences for the operation.*

FATAL ERRORS (f) interrupt the current run resp. cause a „shut down".
After x "Shut downs " (fx) in series the system will blocked finally and the package will be switched off (package protection).

The events are stored on the MCB II with the run number of the last occurence.
Power off deletes all events in the „Actual" SVT menu (<M> <2> <2> <1>).
A blinking asterisk (*) indicates that the event is currently activ.
In case of a power down all „Actual" events will be copied in the " Saved " Area (< M > < 2 > < 2 > < 2 >).
If the inverter is switched off, the actual event list is cleared but saved into the saved event list.
The actual number of events and the actual number of runs is added to the saved values.
The saved and actual event list can be cleared by pressing <Shift> <5> when reading the saved events.

If you want to see more information about an event, press <Down> = <Shift> <3> when readng the event message.
Additional to the error classes the events are subdevided into the following groupes:

SYS	-	**SYS**tem messages by MCB
INV	-	**INV**erter related events
MC / MLS	-	Events concerning **M**otion **C**ommand / **M**oion **L**ogic **S**tate
DRV	-	**DR**i**V**e control related events
LRN	-	**L**ea**RN** run related events

2.5.2 SYS Information by MCB II about the System

0	**SYS : Warmstart**	f	Software reset without power reset
a) defective EPROM (error occures in the actual error logging) b) time did not sufficient to store all occured events into the saved event logging			a) start selftest, if negativ, then change EPROM b) the error can be neglect if it occurs in the saved event logging
1	**SYS : Shut down**	f	Shut down of the inverter after occurence of an error
the error which caused the shut down will displayed with <shift> <down>			
2	**SYS : DDP**	f	Drive was in DDP
DDP time			check parameter
3	**SYS : E2P missing**	f	EEPROM writing or reading problems
a) no EEPROM on the MCB_II b) defective EEPROM c) defective MCB_II			a) plug EEPROM correctly b) change EEPROM c) change MCB_II
4	**SYS : E2P written**	i	Changed parameters in EEPROM after switching on
information only			
5	**SYS : E2P Default**	i	All parameters are set to their default values.
a) Inverter is blocked up b) the unit has bad riding comfort			a) cause of blockage can find out in the error logging b) the elevator has to be adjusted again
6	**SYS : Unvalid Para**	w	Any parameter in the EEPROM is out of range.
			note all parameters, set DEFAULT parameters, set all parameters as noted
7	**SYS : Inputs lost**	f	Inputs can not be read for longer then 30 ms
a) signals are missing b) defective MCB_II			a) check wiring b) change MCB_II
8	**SYS : Pckg Tst Err**	e	Information for Engineering
			if error occur, call PIC (OEC Berlin)
9	**SYS : Power fail**	f	main power supply low (e.g. one phase lost)
a) voltage loss (net) b) short voltage drop or voltage variation			a) check conductor L1 till L3 b) clarification with the customer
10	**SYS : < 24V Supply**	f2	24V power supply is missing (comes from PDB)
a) external short circuit in the 24VAC power supply			a) remove all plugs, out of P1, then switch on the inverter and check if an error

			message will indicate, if not then the wiring is faulty
b) defective MCB_II c) defective PDB			b) change MCB_II c) change PDB
11	**SYS : < 15V Supply**	f2	15V power supply is missing (comes from PDB)
see error 10			
12	**SYS : Inv-Relay**	f1	Inverter relay dropped, will logged at switch off of the inverter each time
information only			
13	**SYS : Int 0-Flow**	w	Internal data overflow
numerical overflow in the speed control caused by noisy encoder signals			check encoder, encoder cable (screen and laying) and MCB_II
14	**SYS : Calc Time**	w	Information for Engineering
information only			
15	**SYS : 1LS + 2LS**	e	1LS and 2LS are working synchronous
a) faulty wiring b) defective sensor c) voltage supply of LS sensors is missing d) defective MCB_II			a) check wiring b) change sensor c) check voltage supply d) change MCB_II
16	**SYS : ADC Offset**	e	Zero reference for A/D converter invalid.
a) defective MCB_II b) defective inverter			a) change MCB_II b) change inverter
17	**SYS : HSO Buf Ful**	e	Information for Engineering
information only			
18	not used		
19	not used		
20	not used		

2.5.3 INV Information about the Inverter

21	**INV : > Volt DC**	f2	Over voltage in the DC link
a) wrong or defective brake resistor (DBR) b) faulty wiring to the DBR c) defective inverter			a) measure DBR and change it perhaps b) check wiring c) change inverter
22	**INV : > Heat Packg**	f	Excess temperatur heatsink IGBT , fault message occurs 5°C before shut down
a) defektive fan b) defective temperature sensor			a) test fan, change it perhaps b) change inverter
23	**INV : < Volt DC**	f2	Low voltage in the DC link , possible by lost of line voltage (<350 V bei 480 V Paket)
a) lost of line voltage b) line voltage is too low			a) check wiring of line voltage supply b) check line voltage
24	not used	e	
25	**INV : > Curr IGBT**	f4	Short circuit in transistor modules.
a) short circuit in the motor cable or earth			a) check motor cable

leakage b) defective inverter (error occurs permanent)			b) change inverter
26	not used	e	
27	**INV : > Curr Motor**	f4	Motor current exceeds 240% of the inverter current. If this occurs after the start of each run, check the windings of motor before changing the inverter.
a) power of inverter is too low b) short circuit in the motor or earth leakage c) faulty encoder signals (the errors „Speed Msmt“ and „Int O Flow“ occur silmutan			a) check inverter power b) check motor and motor cable c) check encoder, encoder cable (screen and laying) or MCB_II
28	**INV : Temp meas**	e	Temperature messurment does not work correctly (heat sink) danger of overheating for MCB II or inverterr
a) defective Temp. sensor (error occur permanent) b) ambient temperature is very low (< 5°C)			a) change inverter
29	**INV : brake chopp**	f4	Brake resistor has a short circuit or is not connected
see event 21			
30	**INV : UDC ELGA**	e	ELGA - measurement of periods does not work, it will switched over on analog UDC - measurement.
a) defective MCB_II b) defective PDB			a) change MCB_II (if bad ride comfort only) b) change inverter
31	**INV :Err undefnd**	e	undefined error
a) defective MCB_II b) defective PDB			a) change MCB_II b) change inverter
32	not used	e	
33	not used	e	
34	not used	e	
35	not used	e	
36	not used	e	

2.5.4 MC Information about Motion Commands

37	**MC: EMERGNCY ST**	f	If during normal run the safety chain is switched off, an emergency stop will be activated.
safety chain was disconnected			check wiring and contacts of safety chain
38	**MC: Command Lst**	f5	Communication error MCB II ←→ LCB II, check V1- till V4- wiring, before changing of MCB or LCB .
a) faulty V1 till V4 or DS1 till DS3 wiring b) defective MCB_II or LCB_II			a) check wiring b) change MCB or LCB
39	**MC: FR w/o Learn**	e	Normalrun is practice without previous successfully learn run, MCB II gets no hoistway signals
			learn run has to be carry out
40	**MC: WT F SWITCH**	w	SW 1, SW 2 do not work correctly although the SW signal is activated.

a) faulty wiring of SW1 or SW2 b) defective MCB_II			a) check wiring b) change MCB_II
41	**MC: MC + Safety Ch**	f	An emergency stop will be activated if during normal run the safety chain is switched off.
a) run command and corresponding input signal are not in conformity b) change of input signal was to fast at in-spection mode			a) check V1 till V4 wiring
42	**MC: U / D lost**	f	Up or down signal lost during a run
faulty wiring between LCB_II and MCB_II (V1 till V4)			check wiring
43	**MC: SafetyChain**	f	Unvalid combination of NOR , UIB and DIB
a) faulty wiring of safety chain b) defective MCB_II			a) check wiring b) change MCB_II
44	**MC: Chk SW Sig**	f	Unvalid state of SW - signal, SW-signal indicates switching state of main contactors
defective MCB_II			change MCB_II
45	**MC: Chk DBD Sig**	f	Unvalid state of DBD - signal (1 = Stop , 0 = run), check wiring (and contacts of SW1, SW2, BY), before changing of MCB II
a) faulty wiring of SW1, SW2 or BY b) defective MCB_II			a) check wiring b) change MCB_II
46	**MC: Chk RDY Sig**	f	Failure on the MCB II Ready logic (Ready signal will not give out)
defective MCB_II			change MCB_II
47	not used	e	
48	not used	e	
49	not used	e	
50	not used	e	

2.5.5 MLS Information about the signal flow

51	**MLS : < ACC Dist**	w	The distance for the acceleration is too short. The car does not reach the normal run speed at floor to floor run (at units without learn run only). (At correction run the error has to ignore.)
a) acceleration rate to low b) final speed to high			a) increase acceleration b) reduce the parameter NOM SPE or SHR SPE
52	**MLS : < Dec Dist**	w	The distance for the deceleration is too short. The car stops without creep speed. It is also possible that the MCB II has miscount.
a) IPU/IPD delays are too big or the distance of deceleration is too short (IP- distance) b) final speed is too high (at units without			a) decrease IPU/IPD delay or increase deceleration distance b) reduce NOM SPE or SHR SPE

learn run) c) the LV1/LV2 signals were read delayed during a run, i.e. the actual floor distance is not corresponding with learned floor distance d) it is possible that the MCB_II has miscount			c) check floor distance and start learn run again
53	**MLS : Stop in LS**	w	Limit switch 1LS / 2LS versus run direction.
a) faulty 1/2LS wiring b) if possible run the car beyond the 1/2LS and back at ERO operation			a) check wiring b) lengthening of LS- magnet
54	**MLS : / T <>IP**	w	Command T has been removed without IPU / IPD detection. IPU / IPD - Magnets must be activ longer then 150 ms.
T-signal was removed although the IP-signal was not active (IP-signal is too short)			check IP- magnet
55	**MLS : Inp Error**	e	Car does not start, limit switch 1LS / 2LS versus run direction.
faulty 1/2LS wiring			check wiring
56	**MLS : 1LS Ini Dec**	w	Deceleration in the bottom landing initiated by 1LS.
deceleration (IP) distance too short (if no correction or learn run)			increase parameter 1LS DLY
57	**MLS : 2LS Ini Dec**	w	Deceleration in the top landing initiated by 2LS. In case of on cerrection run increase parameter 2LS
see error 56			increase parameter 2LS DLY
58	**MLS : Event Miss**	w	Problems with reading of IPU / IPD inputs or 1LV / 2LV inputs.
defective MCB_II			if this occurs repeated → change MCB_II
59	**MLS :SL Missed**	f8	SLU / SLD missed between two LV on a short run (only at units without learn run)
a) faulty SLU/SLD wiring b) defective sensors c) defective MCB_II			a) check wiring b) check sensors c) change MCB_II
60	**MLS : LV Missed**	f	LV signal was not detected during creeping. At Units with learn run a miscounting is possible.
a) IPU/IPD- DLY too low b) only one LV signal was detected at units with 1LV and 2LV c) defective MCB_II			a) increase IPU/IPD DLY b) check sensors and wiring c) change MCB_II
61	**MLS : LV Lost**	f8	Levelling zone lost during DEC ; CREEP or HALT.
a) IPU/IPD DLY too large b) LV DLY too large c) LV signal is not detected d) MCB_II has miscount			a) decrease IPU/IPD DLY b) decrease LV DLY c) check sensors and wiring
62	**MLS : LV Count Err**	w	MCB II has miscount (only with learn run).
a) LV signals were not detected			a) check LV signals

b) miscounting of door zones at INS operation c) parameter TOP FLOOR is not correct			c) check parameter
63	**MLS : LV Trig Err**	w	(only with learn run) LV-signals rebound longer then 20 ms
a) distance between sensor and magnet is not correctly b) defective LV sensors c) disturbances of LV- or IP- signals			a) check distance between sensor and magnet b) change sensors c) Use SW version GAA30158AAD02, otherwise decrease IPU/D-Delay to avoid the occurrence of this error and with it the occurrence of long creep times
64	not used	e	
65	not used	e	
66	not used	e	
67	not used	e	
68	not used	e	

2.5.6 DRV Information about drive control

70	**DRV : Speed Msmt**	e	Speed measurement error. Perhaps noises are on the encoder lines. Take notice of laying of the encoder cable.
see event „SYS: Int O-Flow“			
71	**DRV : > Speed**	f4	Over speed: the motor turns 10% faster as for the required speed is legal.
the parameters „N SYN MOTOR, ENCODER PULSES, ENCODER TRACES“ could set incorrectly			check parameters
72	**DRV : < Speed**	f4	Low speed : the motor turns 45% slower as the required speed. *It can be caused by problems with encoder .*
a) defective encoder b) the parameters „N SYN MOTOR, ENCODER PULSES and ENCODER TRACES could set incorrectly c) defective MCB_II			a) check encoder, use SVT-Menü „PVT“ (<M> <2> <6>) b) check parameters c) change MCB_II
73	**DRV : Open Loop**	e	The drive is in open loop modus. In case of no speed encoder and normal run the system shuts down. Inspection runs without speed encoder are possible.
one of the parameters „N CTR : kp“ or „ENCODER PULSES“ is 0 (zero)			check parameters

74	**DRV : Rollb Start**	e	Rollback at start (only for encoder with two traces)
Start-Stop-parameters are set incorrectly			increase LFT BK DLY and PRET FREQ , NEG PRET is able to decrease at load weighing too
75	**DRV : Rollb Stop**	e	Rollback at stop (only for encoder with two traces)
Start-Stop-parameters are set incorrectly			check parameters for stopping
76	**DRV : Encoder Dir**	e	the sequence of the encoder signals is reversed (only for encoder with two traces)
			Change the encoder traces at connector P5.
77	**DRV : Phase Down**	f3	The current of one motor phase is zero.
a) the motor wiring is disconnect between inverter and motor b) power of inverter is too high			a) check motor wiring (also contactors). b) check power of inverter and motor
78	**DRV : Over Load**	f4	Motor current exceeds 200% of nominal current for more then 3 seconds.
a) acceleration rate is too high b) dimension of inverter is incorrectly c) fly wheel inertia is too big			a) decrease acceleration rate b) check power of inverter and motor c) reduce fly wheel
79	not used	e	
80	not used	e	
81	not used	e	
82	not used	e	
83	not used	e	
84	not used	e	
85	not used	e	

2.5.7 Informationen about learn run

86	**LRN : Learn abort**	f	Learn run was aborted with an error
see Error Logging (<M> <2> <1>)			
87	**LRN : < Mag Len**	f	Lenght of magnet is too short (minimum 170 mm)
faulty floor will displayed in Error Logging			use magnet with the right lenght
88	**LRN : > Mag Len**	f	Lenght of mangnet is too long (maximum 450 mm)
see event 87			
89	**LRN : Mag Len Var**	f	Magnetlenghts in the hoistway are different more then 2 cm.
faulty floor will displayed in Error Logging			use magnets with the same lenght
90	**LRN : < Floor Dist**	f	Distance between 2 door zones is too short (minimum 170 mm)
faulty floor will displayed in Error Logging.			check distance
91	**LRN : > Floor Dist**	f	The run time at contract speed between 2 landings is more then 52 seconds.
floor distance is too large			check floor distance, install intermediate landing if necessary

92	**LRN : Too many LV**	f	It will be count more floors at learn run then adjusted by SVT (Top Floor).
parameter TOP FLOOR is incorrect			check parameter
93	not used	e	
94	not used	e	
95	not used	e	
96	not used	e	
97	not used	e	
98	not used	e	
99	**SYS : Msg Lost**	i	Only indicates in state-display, if more events occur as can displayed.

2.6 Short notations DATALOG < M > < 2 > < 5 >

For each run the values are rebuilt.
They are useful to check the adjustment with empty car in up and down direction or at a final shut down after an error.

tcr up	Minimum and maximum creep time in up and dowm direction released by IPU / IPD switch since last power reset in 10 ms steps.
tcr do	The creep time of the last run is displayed in the midddle. unit : in 10 ms steps

I	Four values of the current and of the according slip during last run.
S	- maximum current value during accelerationigung - last value during constant run - maximum current value of deceleration - last value during creep run unit : % of I_n (NOM CURR) unit : 0,1% of f_n (NOM FREQ)
PGN	Profilgenerator and slip on transitions of open loop --> closed loop
Slip	closed loop -> open loop in % unit : 1000 = CON SPE unit : 1000 = NOM FREQ
I	Average current with the time of the last run and the squared average current with the time of run and brake in %,
t	unit : % NOM CURR unit : 10 ms

2.7 SETUP error handling < M > < 3 >

By setting a parameter < M > < 3 > ...
the following error messages are possible:

1) [Below Min D 1234]

- 1234: minimum value for selected parameter
- D: out of fixed default range,
- S: out of variable range (caused by " Speed " - relations) (for speed encoder)
- C: out of variable range (caused by " Control " - relations) (for control algorithms)
- R: out of variable range (caused by " Run Car " - relations) (for signal operations)

2) [Above Max D 1234]

- 1234: maximum value for selected parameter
- D: out of fixed default range,
- S: out of variable range (caused by „Speed " - relations) (for speed encoder)
- C: out of variable range (caused by " Control " - relations) (for control algorithms)
- R: out of variable range (caused by " Run Car " - relations) (for signal operations)

3) [Imp / Time Over R 12]

- 12: Code number

Overflow by calculation of number of encoder pulses or time for signal delays.
< M > < 2 > < 3 >

Parameter	Code number	Maximum depends on
IPU DLY	R_4 R23	NOM SPE, *1) NOM SPE, *2)
IPD DLY	R_5 R24	NOM SPE, *1) NOM SPE, *2)

LV DLY UP	R_1 R21	CRE SPE , *1) CRE SPE, *2)
LV DLY DOWN	R_2 R22	CRE SPE, *1) CRE SPE, *2)
1LS DLY	R_7 R26	NOM SPE, *1) NOM SPE, *2)
2LS DLY	R_8 R25	NOM SPE, *1) NOM SPE, *2)
SLU DLY	R_9 R27	SHR SPE, *1) SHR SPE, *2)
SLD DLY	R10 R28	SHR SPE, *1) SHR SPE, *2)

*1) and also on N SYN MOTOR, ENCODER PULSES, CONTR TYPE and N Ctr:kp
*2) and also on CON SPE, N SYN MOTOR, ENCODER PULSES and CONTR TYPE

4) [Para Conflict R 12]
└──── Code number

Conflict with other parameters

Code number	Explanations, Remarks
S:	caused by " Speed " - relations (for speed encoder)
S_1	Minimum for ENCODER PULSES
C:	caused by " Control " - relations (for control algorithms)
C_1	ACC PRECTR, PRET FREQ and PRET SLOP have to be in a special relation to CON SPE, NOM SPE and INS SPE
R :	caused by " Run Car " - relations (for signal operations)
R_3	Minimum of IPU DLY is related to NOM SPE
R_5	Minimum of IPD DLY is related to NOM SPE
R15	Minimum of CRE SPE is related to CON SPE
R16	Minimum of CRE SPE is related to N SYN MOTOR, ENCODER PULSES and ENCODER TRACES
R17	Minimum of CRE SPE is related to CON SPE, N SYN MOTOR, ENCODER PULSES and ENCODER TRACES
R18	REL SPE has to be zero without speed encoder
R19	Minimum of REL SPE is related to CON SPE, N SYN MOTOR, ENCODER PULSES and ENCODER TRACES

5) [Reset to Default]

Fatal error of EEPROM - parameters (wrong or damaged EEPROM), reset all parameters.

2.8 Parameters

2.8.1 Contract < M > < 3 > < 1 >

The adjustment of these parameters is explained in the starting up routine.

NOM FREQ	nominal frequency of motor, e.g. 500 or 600 in [0,1 Hz]
CON SPE	Speed of the car at synchronous speed of the motor convert m/s into rpm and vise versa. *Do not confuse!* *CON SPE with NOM SPE.* CON SPE fixed value, which is fixed by motor and machine parameter. NOM SPE nominal speed ---> with SVT adjustable
N SYN MOTOR [rpm]	Synchronous motor speed (e.g. 1000, 1500)
ENCODER PULSES	Number of encoder pulses per trace
ENCODER TRACES	Number of traces of speed encoder
2LV (1 = Yes / 0 = No)	= 0 no 2LV = 1 for 1LV / 2LV door zone mode
DDP	DDP - time
CONTR TYPE	0 - Two speed AC, MS300, MCS310 1 - MCS 220 (M) - Controller without coded Interface 2 - MCS 220 (M) - Controller with coded Interface, without learn run 4 - MCS 220 (M) - Controlller with learn run
ACC PRECTR	Parameter for compensation of torque inertia
SLIP LOAD	Slip, which activates the LNS - output and the differential part of speed control.
TOP FLOOR *	Number of top floor. The bottom floor is always „0“.
FLOORS IN 1LS *	Number of floors in the range of 1LS switch

* 4 asterisks are diplayed at CONTR TYPE ≠ 4 (without learn run)

2.8.2 Drive < M > < 3 > < 2 >

Adjusting of CON SPE sets the Drive - Parameter to standard values.

INS SPE	Speed for inspection run
NOM SPE	Speed for normal run
SHR SPE **	Speed for a short run
REL SPE	Speed for releveling
CRE SPE	Creep speed
ACC	Acceleration rate
DEC	Deceleration rate
JERK	Changing of acceleration/ deceleration

** 4 asterisks are diplayed at CONTR TYPE = 4 (with learn run)

2.8.3 Vane related parameter < M > < 3 > < 3 >

Are used to delay hoistway signals without mechanical adjustments.

IPU DLY ***	Delay for IPU / IPD - signals in mm. A minimum delay of 100 ms should be provided to consider the propagation delay of the deceleration command by the operational control, this correspont. 100 mm at v = 1 m/s.
IPD DLY ***	The creep time of last run is displayed in SVT display in 10 ms steps.
LV DLY UP	Delay between LV - signal and initiation of ramp down for final stop (RMP DWN T2) for up and down direction.
LV DLY DOWN	
1LS DLY	Delay of 1LS / 2LS - signal in mm
2LS DLY	
SLU DLY ***	Sets the deceleration control point after short landing switch detection. *The creep time of the last run is displayed in SVT display (right above) in 10 ms steps.*
SLD DLY ***	

*** 4 asterisks are displayed at CONTR TYPE = 4 (with learn run)

2.8.4 Start - Stop Parameter (StaSto) < M > < 3 > < 4 >

The sequence of operation during start and stop is explained in the Guide lines.

LFT BK DLY	Lift brake delay
PREMAG PER	Specifies the time to energize the motor before acceleration.
PRET FREQ	Specifies the freuquency during the pre magnetization period. If load weighing is used, then this parameter is valid for motory load.
NEG PRET **	Specifies the freuquency during the pre magnetization period for generatory load. This parameter should only be used if load weighing contacts are connected to the package. (only at CONTR TYPE = 4)
PRET SLOPE	Specifies the slope of speed profil after the premagnetization until valid speed encoder signals are measured. al anliegt
RMP DWN T2	Ramp down period. During this time the speed profile is reduced by a constant slope from creep speed to zero.Zeit, in der nach einer Kriechfahrt die Geschwindigkeit auf Null reduziert wird.
DRP BK DLY	Drop brake delay. The brake should become effectiv after the drive has to stopped electricaly. An experienced value is about 100 ms less than the ramp down period.
EL HLT PER	Electrical halt period. Afterthe ramp down period the drive come to final stop still powerd by the inverter. the brake should become effectiv during this period.
DEMAG PER	Demagnetization period. The inverter output is zero and the current decreased before the main contactors are dropped.

**** 4 asterisks are displayed at CONTR TYPE = 4 (with learn run)

2.8.5 Engineering Parameter (Eng) < M > < 3 > < 5 >

2.8.5.1 General

Normally the OVF20 system runs well with the default values of these parameters.
Be careful when changing the parameters!

2.8.5.2 Control < M > < 3 > < 5 > < 1 >

N CTR : kp	Proportional gain P - part (proportional) of PID - Reglers
N CTR : Ti	Integral faktor I - part (integral) of PID - Reglers
N CTR : Td	Differential faktor D - part (differential) of PID - Reglers
SLIP LIMT	Slip limit Specifies the maximum slip to limit the motor current. Acceleration rate may be reduced.
Red I1 limt in %	Reduce motor current to a limit value ([%] of In)

2.8.5.3 U / F Specification < M > < 3 > < 5 > < 2 >

Ustart	Offset (at frequency = 0)
Uacc	Specifies the voltage at nominal frequency.
Uslip	Determines the voltage offset according to the measured or estimated slip.
Udc	DC link voltage Motor voltage is reduced when the DC link voltage exceeds this value in case of generative load. If the load compesation mode is selected, the relation Udc (measured) Udc (parameter) is used to norm the output voltage of the inverter.

2.8.6 Default parameters < M > < 3 > < 6 >

For initiation of system it is possible to set default parameters.
After adjusting of system do not use the menu „DEFAULT“, because all adjusting parameters will be lost.
The Question „PARAMETERS LOST ?” has to notice for this reason!

Remark:
At a controller with coded interface the parameter CONTR TYPE has to be set to 2 or 4, otherwise you can not run without speed encoder!