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CDA3000

HF Model

Inverter System
750 W - 37 kW



Adapting the Drive System
to the Application

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Model Variant CDA3000, HF

ID No.: 0895.08B.2-00

Date: 12/2004

valid for inverter model CDA3000, HF or HF, BR
valid from firmware version: V180.45

The CDA3000 HF model inverter modules are equipped with special control hardware and firmware. The PWM calculation frequency has been doubled compared with the standard version to achieve a better sine form for the motor current. This in turn means that the motor does not heat up as much, it has less tendency to 'hunt' and it runs more smoothly.



The standard firmware must not be loaded on inverter modules with the "HF" hardware version (CDA3x.xxx, Xx.x, HF).

Loading a firmware version <V3.2 is not permitted and can lead to uncontrolled movements.

If a firmware version >V3.2 is loaded, the error message E-CPU-39 is signalled by the display H1 flashing once.

Subject to technical change without notice.

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1 About these supplementary instructions

There are always limits to the development of standard devices for broadband application solutions when specific applications or technologies are involved. Mindful of these constraints, we felt it essential to create the HF model option for fast-running motors and drives as a dedicated solution in a separate converter variant. We believe this is the only way in which the important demands made by these applications can be satisfied and future-oriented solutions can be implemented.

The HF inverter variant has been developed from the CDA3000 series of the c-line DRIVES and is therefore based on an established, proven concept for drive controllers and comprehensive accessories. As a result, the HF variant offers many well-known functions yet at the same time it calls for compromises to create opportunities for new solutions. This inverter variant has had to lose the SFC and FOR modes to make way for a large number of new functions.

The following sections are designed to supplement standard documentation such as the CDA3000 operating instructions and applications manual, and so they describe only the special functions of this particular inverter variant.

2 Changes from the CDA3000 operating instructions and applications manual

The drive controller CDA3000, HF no longer supports the following modes:

- SFC (Sensorless Flux Control)
- FOR (Field Oriented Regulation)

Please note the following changes:

Section	Function completely deleted	Function partly deleted	Subject / Remarks
3.7.1 Choice of terminal assignment	X		<ul style="list-style-type: none"> • Control modes SFC and FOR are not supported • Terminal assignment 3 not supported
3.7.5 Terminal assignment 3	X		<ul style="list-style-type: none"> • Control mode FOR is not supported
3.7.6 Rotary encoders	X		<ul style="list-style-type: none"> • Rotary encoders are not supported
4.2 Standard commissioning	X		<ul style="list-style-type: none"> • Full motor identification for operation with control modes SFC and FOR is not supported
4.3 KEYPAD commissioning	X		<ul style="list-style-type: none"> • Full motor identification for operation with control modes SFC and FOR is not supported
4.4 DRIVEMANAGER commissioning	X		<ul style="list-style-type: none"> • Full motor identification for operation with control modes SFC and FOR is not supported • Control modes SFC and FOR are not supported
5.1 First commissioning		X	<ul style="list-style-type: none"> • No rotary encoder evaluation in the application dataset
5.2.1 Analogue output		X	<ul style="list-style-type: none"> • Control modes SFC and FOR are not supported
5.2.4 Digital outputs		X	<ul style="list-style-type: none"> • Control modes SFC and FOR are not supported
5.3.1 Frequency limiting		X	<ul style="list-style-type: none"> • Max. 1700 Hz to 15 kW / max. 1000 Hz to 37 kW
5.3.2 Digital inputs		X	<ul style="list-style-type: none"> • No rotary encoder evaluation
5.3.8 VAL actual values		X	<ul style="list-style-type: none"> • Control modes SFC and FOR are not supported
5.3.9 Warning messages		X	<ul style="list-style-type: none"> • Control modes SFC and FOR are not supported
5.5.3 Running profile generator		X	<ul style="list-style-type: none"> • Output stage de-energised at 0 Hz, except for d.c. holding
5.5.14 Magnetising		X	<ul style="list-style-type: none"> • Control modes SFC and FOR are not supported
6.2.1 SFC Speed controller	X		<ul style="list-style-type: none"> • Control mode SFC is not supported
6.3.1 Rotary encoder evaluation	X		<ul style="list-style-type: none"> • Control modes SFC and FOR are not supported
6.3.2 FOR Speed controller	X		<ul style="list-style-type: none"> • Control mode FOR is not supported
6.3.3 Current control		X	<ul style="list-style-type: none"> • Control mode SFC is not supported

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3 New factory settings in the CDA3000, HF

A number of the factory settings of functions in the standard CDA3000 have been modified for use in the CDA3000, HF.

Comparison: CDA3000 V. 3.60
CDA3000, HF V. 180.30

Changes to factory settings in the CDA3000, HF

Parameter	Function	Value Range	Factory Setting	Unit	Online
306-FMXA1	CDS 1: Absolute limit of output frequency	0 ... 1700	1700	Hz	
307-FMXA2	CDS 2: Absolute limit of output frequency	0 ... 1700	1700	Hz	
640-CLSL1	CDS 1: Function selector current-controller run-up	OFF, ..., CCWFS	OFF		
645-CLSL2	CDS 2: Function selector current-controller run-up	OFF, ..., CCWFS	OFF		
681-HODCT	DC holding time	0 ... 60.0	0	s	
700-VB1	CDS 1: Boost voltage	0 ... 100	0	V	
715-VB2	CDS 2: Boost voltage	0 ... 100	0	V	
734-APGN1	CDS 1: Anti-hunting gain	-19999 ... 19999	0		
737-APGN2	CDS 2: Anti-hunting gain	-19999 ... 19999	0		
740-IXR1	CDS 1: IxR load control On/Off	OFF, ..., ON_2	OFF		
742-IXR2	CDS 2: IxR load control On/Off	OFF, ..., ON_2	OFF		
760-CICN1	CDS 1: Current injection setpoint	0 ... 180	0	%	
763-CICN1	CDS 2: Current injection setpoint	0 ... 180	0	%	
826-PRMX1	CDS 1: Process controller limiting	0 ... 1700	1700	Hz	
827-PRMX2	CDS 2: Process controller limiting	0 ... 1700	1700	Hz	

Notes

- The changes to the factory settings matches this inverter model to the basic “fast-running motors“ conditions.
- All closed-loop controls are deactivated in the factory setting.

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4 Enhanced switching frequencies and automatic load-dependent selection of the switching frequency of the output stage

The switching frequency of an inverter's output voltage has a major impact on its running smoothness. The rule is that the running smoothness increases with modulation frequency, as do the power losses of the power output stage.

The switching frequency can be automatically set to the highest admissible switching frequency of the output stage, depending on the apparent current. As the load increases, the switching frequency is reduced to a minimum switching frequency at which the maximum power of the output stage can be available.

Setting the switching frequency in subject area 69PM Modulation

Parameter	Function	Value Range	Factory Setting	Unit	Online
690-PMFS	Switching frequency of the output stage	4, 8, 12, 16	device dependent	kHz	
691-PMFSA	Current switching frequency of the output stage	4, 8, 12, 16	device dependent	kHz	
692-PMSW	Switching frequency selection during load increase	ON, OFF	OFF		

Notes

- Factory setting from 750 W to 15 kW: 8 kHz.
Factory setting from 22 W to 37 kW: 4 kHz
- If automatic switching frequency selection is activated, the current switching frequency is displayed in parameter "691-PMFSA". The displayed switching frequency of the "690-PMFS" output stage is therefore without function.

5 Power relative to max. rotating field frequency

Assignment of rotating field frequencies to power rating

Inverter Type	Model Size	Rating	Rotating Field Frequency
CDA32.004 to CDA34.032	BG1 ... BG5	0.75 ... 15 kW	0 ... 1700 Hz
CDA34.045 to CDA34.072	BG6	22 ... 37 kW	0 ... 1000 Hz

Please note the reduction in power as a function of the switching frequency of the output stage. Consult your designer.

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6 Enhanced function selectors for the digital outputs

Setting for 240-FOS00, ...246-FOE03 in subject area 240D Digital Output

BUS	KP/DM	Function	Effect	FOS00	FOS01	FOS02	FOE0X
38	CUSEL	Active characteristic data set	Output inactive = CDS 1 active Output active = CDS 2 active	✓	✓	✓	✓
39	ENC0	Standstill monitoring with encoder	Output active = standstill detected	✓	✓	✓	✓

Notes

- Depending on the standstill detector, the standstill monitor switches via the digital inputs ISD02 and ISD03 with the setting ENC.

7 Standstill detection with rotary encoder

Depending on the standstill detector, the standstill monitor switches the digital output with the setting "ENC0". The motor is deemed to be stopped (speed = 0 RPM) when no edge is detected at either of the two inputs ISD02 or ISD03 in the time "256-TSMNT".

Parameters for standstill monitoring in subject area 25CK Monitoring

Parameter	Function	Value Range	Factory Setting	Unit	Online
212-FIS02	Function selector digital standard input ISD02 (subject area 211D digital inputs)	..., ENC, ...	SADD1		
213-FIS03	Function selector digital standard input ISD03 (subject area 211D digital inputs)	..., ENC, ...	OFF		
256-TSMNT	Time window for standstill monitoring with rotary encoder	0 ... 300	0	s	

Setting for 212-FIS02 and 213-FIS03

BUS	KP/DM	Function	Effect	FIS02	FIS03
27	ENC	Rotary encoder input	Connection of the A or B signal of an HTL rotary encoder or Hall IC (24 V logic)	✓	✓

Notes

- Measuring is done at 5 ms intervals.
- Refer to the specification of the digital inputs.

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8 Start-up monitoring with rotary encoder

The measured frequency is filtered with “255-INCLF“. The frequency threshold “253-FMNT“ must be exceeded inside the time “254-TMNT“. If this does not happen, the error message “E-SPL“ is output and the output stage is disabled.

Extract from start-up monitoring parameters in subject area 25CK Monitoring

Parameter	Function	Value Range	Factory Setting	Unit	Online
212-FIS02	Function selector digital standard input ISD02 (subject area 211D digital inputs)	..., ENC, ...	SADD1		
253-FMNT	Limit for actual-value control	0 ... 1700	50	Hz	
254-TMNT	Time delay for actual-value control	0 ... 300	0	s	
255-INCLF	Filter constant for actual-value control	0.002 ... 2	0,01	s	
537-R-SPL	Reaction to frequency limit being undershot (subject area of 51ER error messages)	RAMP, ..., RESET	LOCK		

Setting for 212-FIS02

BUS	KP/DM	Function	Effect	FIS02	FIS03
27	ENC	Rotary encoder input	Connection of the A or B signal of an HTL rotary encoder or Hall IC (24 V logic)	✓	✓

Notes

- The maximum measurable frequency is 2000 Hz.
- Measuring is done at 5 ms intervals.
- Refer to the specification of the digital inputs.
- Monitoring is inactive with the setting “254-TMNT“ = 0.

9 Stall monitoring with rotary encoder

The measured frequency is filtered with “255-INCLF“. The frequency determined at digital input ISD02 is compared with the setpoint value of the controller. If the frequency deviates from the programmable window “251-FRMNT“ by the setpoint value, then the error message “E-FLW“ is output after time “252-TRMNT“ and the output stage is disabled.

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Parameters for stall monitoring in subject area 25CK Monitoring

Parameter	Function	Value Range	Factory Setting	Unit	Online
212-FIS02	Function selector digital standard input ISD02 (subject area 21ID digital inputs)	..., ENC, ...	SADD1		
251-FRMNT	Maximum actual value deviation	0 ... 1700	50	Hz	
252-TRMNT	Time delay of the monitoring of actual value deviation	0 ... 300	0	s	
255-INCLF	Filter constant for actual-value control	0.002 ... 2	0.01	s	
536-R-FLW	Reaction to frequency limit being exceeded (subject area of 51ER error messages)	RAMP, ..., RESET	LOCK		

Setting for 212-FIS02

BUS	KP/DM	Function	Effect	FIS02	FIS03
27	ENC	Rotary encoder input	Connection of the A or B signal of an HTL rotary encoder or Hall IC (24 V logic)	✓	✓

Notes

- The maximum measurable frequency is 2000 Hz.
- Measuring is done at 5 ms intervals.
- Refer to the specification of the digital inputs.
- Monitoring is inactive with the setting "252-TRMNT" = 0.

10 Current-dependent selection of characteristic data sets

When parameter "651-CDSSL" is set to ACCUR – selection by active current – the characteristic data set (CDS) is selected depending on the active current. A changeover from CDS1 to CDS2 only occurs in steady-state mode, but not before timer "656-CDTMD" has timed out and only if the current falls below the threshold "653-CDCL". After the change to CDS2, the current threshold is calculated for the change to CDS1. This is done by calculating the product of "654-GCDCL" and the currently filtered active current and setting it as the current threshold after the minimum retention time "657-CDTMN" in CDS2. If the filtered active current exceeds the calculated current threshold, then CDS1 is selected again.

Parameters of subject area 65CS Characteristic Selection

Parameter	Function	Value Range	Factory Setting	Unit	Online
650-CDSAC	Characteristic data set (CDS) active	CDS1 / CDS2	CDS1		Display
651-CDSSL	Control site for CDS selection	OFF ... ACCUR	OFF		
653-CDCL	Current limit for changeover to CDS2	0 ... 180	30	%	
654-GCDCL	Scaled current limit for changeover to CDS1	0 ... 180	130	%	
656-CDTMD	Off delay for CDS1	0.01 ... 60	30	s	
657-CDTMN	Minimum retention time in CDS2	0.01 ... 60	1	s	
754-KSCTF	Filter time constant for slip compensation (subject area 75SL slip compensation)	0.0005 ... 20	0.01	s	

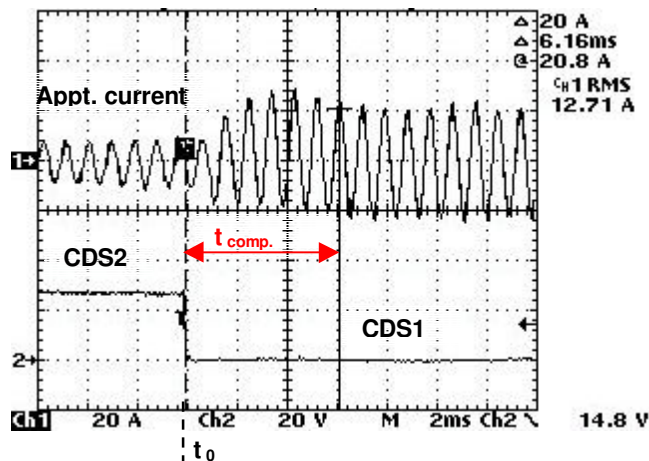
Notes

- The “active current after filter for slip compensation“ (754-KSCTF) is used for the changeover.
- The changeover occurs in steady-state mode only, i.e. no acceleration ramp is active.

With the changeover, an idling motor can be operated with reduced voltage and hence with reduced current. This significantly reduces the motor’s temperature while idling.

To achieve this, the nominal data of the U/f characteristic must be entered in CDS1 and the data of the reduced U/f characteristic in CDS2. The reduced U/f characteristic must be determined depending on the motor, and can be typically up to half the nominal data.

Typical changeover with a sudden load variation of M_N from CDS2 to CDS1



11 Filtering the voltage setpoint value of the U/f characteristic on CDS changeover

The voltage setpoint value of the inverter is filtered with the filter time constant for voltage filtering “739-VTF“. This produces a “soft“ transition between the U/f characteristics with no overcurrent tripping when the characteristic data sets change over.

Parameters of the U/f characteristic

Parameter	Function	Value Range	Factory Setting	Unit	Online
738-VTF	Filter time constant for voltage filtering	0 ... 6	3		

Note

- 3 is recommended as an experientially determined starting value for the filter time constant.

12 Enhanced IxR load control

The correction factor of the IxR load control can be scaled with the factor “756-IXRF1” or “757-IXRF2” for the negative voltage reduction based on the U/f characteristic. This significantly reduces the voltage of the U/f characteristic when the spindle is idling. The determined standard correction factor of the IxR load control is not affected by a drop in load.

Extract from parameters for IxR load control

Parameter	Function	Value Range	Factory Setting	Unit	Online
740-IXR1	CDS1: IxR load control On/Off	OFF, ON, ON_2	OFF		
742-IXR2	CDS2: IxR load control On/Off	OFF, ON, ON_2	OFF		
756-IXRF1	CDS1: Factor for idling speed reduction	0 ... 999	100	%	
757-IXRF2	CDS2: Factor for idling speed reduction	0 ... 999	100	%	

Notes

- The IxR load control acts depending on the “ON” parameter.
 ON: Active starting from frequency CIFMX (default: 6 Hz) throughout the control range, i.e. including with ramp-dependent acceleration.
 ON_2: Active so long as it does not leave the “setpoint-reached-window” defined by parameter “230-REF_R”. The control is therefore only active in steady-state mode.
- The IxR load control alters the current U/f characteristic by a calculated voltage difference. The voltage component of the U/f characteristic rises under load and falls accordingly when idling.
- The current in the motor is influenced by the matching of the U/f characteristic, depending on the load. The current is reduced for idling; under load it can be increased up to the maximum voltage adjustment range of the controller.
- The correction of the idling reduction (IXRFx) only operates in the setting IXRx = ON_2.



Note: Other settings of the IxR load control function are the same as for the firmware > V3.5 of the standard drive controller CDA3000.

13 Anti-hunting system

Anti-hunting works by varying the controller's setpoint value. The setpoint is influenced by a value proportional to the change in active current.

The amplitude of the oscillation by the active current can be minimised by varying the gain and application. The less the amplitude of the oscillation, the lower the hunting motion of the rotor.

Extract from anti-hunting parameters

Parameter	Function	Value Range	Factory Setting	Unit	Online
734-APGN1	CDS1: Anti-hunt gain	-19999 ... 19999	0		
737-APGN2	CDS2: Anti-hunt gain	-19999 ... 19999	0		

Notes

- Slip compensation and anti-hunting are antivalent, i.e. they are not active at the same time. When slip compensation is active, anti-hunting is inactive.
- The active areas of current injection and anti-hunting must not overlap.
- The oscillating current can be viewed on a scope with "active current after filter for slip compensation".
- A value for anti-hunting gain of between $-1000 \dots -1300$ is recommended as an entry value for optimising purposes.



Note: Other settings of the anti-hunting function are the same as for the firmware > V3.5 of the standard drive controller CDA3000.

14 Ramp-down braking

To prevent uncontrolled coasting by the motor in the event of a fault, the fault reaction “RAMP” zeroes the setpoint to 0 Hz and then disables the output stage. The ramp during the fault reaction must be matched to the application to allow the drive to follow the ramp’s setpoint.

Extract from the parameters for “controlled shutdown” in subject area 51ER Errors

Parameter	Function	Value Range	Factory Setting	Unit	Online
510-R-SIO	Reaction to SIO watchdog	RAMP, ..., RESET	HALT		
516-R-OTM	Reaction to motor overtemperature	WRN, ..., RESET	LOCK		
519-R-OLM	Reaction to I ² t motor shutdown	RAMP, ..., RESET	LOCK		
524-R-EXT	Reaction to external fault message	RAMP, ..., RESET	HALT		
525-R-USR	Reaction to fault message Special software	RAMP, ..., RESET	HALT		
526-R-OP1	Reaction to fault in the optional module Slot 1	RAMP, ..., RESET	HALT		
527-R-OP2	Reaction to fault in the optional module Slot 2	RAMP, ..., RESET	HALT		
529-R-WBK	Reaction to open circuit ISA00 at 4 ... 20 mA	RAMP, ..., RESET	HALT		
533-R-FDG	Reaction to transfer error of the setpoint coupling	RAMP, ..., RESET	HALT		
534-R-LSW	Reaction to reversed limit switches	RAMP, ..., RESET	LOCK		
535-R-PRC	Reaction to exceeding the maximum control deviation (PR)	RAMP, ..., RESET	LOCK		
536-R-FLW	Reaction to exceeding the maximum frequency deviation	RAMP, ..., RESET	LOCK		
537-R-SPL	Reaction to undershooting the frequency limit	RAMP, ..., RESET	LOCK		
547-ESTPR	Ramp during the fault reaction	0 ... 999	20	Hz/s	

Note

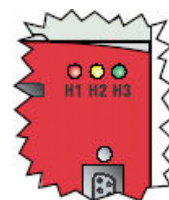
- The choice of ramp during the fault reaction must be matched to the maximum mass moment of inertia of the application to allow the drive to be stopped safely as quickly as possible.



Note:

Fault indication by red LED H1:

Please note that fault alarm **E-CPU** (flashes x1) is not a CPU (microprocessor) fault but a centralised alarm – refer to the operating instructions for further information!



15 Enhanced characteristic data sets with independent motor protection lxt

The lxt monitor protects the motor from overheating throughout its entire speed range. This is particularly important with self-ventilated motors, as the cooling provided by the fan and casing is inadequate during long periods of operation at low speed. This function can replace a motor protecting switch provided it is set correctly. The motor protection characteristic can be matched to the specific operating conditions by interpolation points.

Extract from the parameters for lxt motor protection in subject area 33MO Motor Protection

Parameter	Function	Value Range	Factory Setting	Unit	Online
330-MOPTC	Type of motor PTC evaluation	OFF, ..., PTC1	OFF		
331-MOCB1	CDS1: 2 nd current interpolation point, motor protection characteristic (based on 158-MOCNM)	0 ... 100	100	%	
332-MOCA1	CDS1: 1 st current interpolation point, motor protection characteristic (based on 158-MOCNM)	0 ... 100	100	%	
333-MOFB1	CDS1: 2nd frequency interpolation point, motor protection characteristic	0.1 ... 1700	50	Hz	
335-MOCN1	CDS1: Nominal motor current for motor protection	*)	I _N *)	A	
336-MOFN1	CDS1: Nominal motor frequency for motor protection	0.1 ... 1700	50	Hz	
337-MOCB2	CDS2: 2 nd current interpolation point, motor protection characteristic (based on 158-MOCNM)	0 ... 100	100	%	
338-MOCA2	CDS2: 1 st current interpolation point, motor protection characteristic (based on 158-MOCNM)	0 ... 100	100	%	
339-MOFB2	CDS2: 2 nd frequency interpolation point, motor protection characteristic	0.1 ... 1700	50	Hz	
342-MOCN2	CDS2: Nominal motor current for motor protection characteristic	*)	I _N *)	A	
344-MOFN2	CDS2: Nominal motor frequency for motor protection	0.1 ... 1700	50	Hz	
345-MOCM	Type of motor protection on CDS selection	MO_1, MO_2	MO_1		

*) device-dependent

Setting for 330-MOPTC

BUS	KP/DM	Function	Effect
0	OFF	Monitor turned off	
1	KTY	linear PTC (KTY84-130, tolerance band yellow)	
2	PTC	PTC threshold value (DIN 44081 / 44082)	
3	TSS	Klixon (temperature switch as NC)	
4	PTC1	PTC threshold value (DIN 44081 / 44082)	Monitoring without short-circuit detection of the connected PTC

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Note

- If the temperature exceeds fixed limits, the motor is shut down with error message E-OTM.

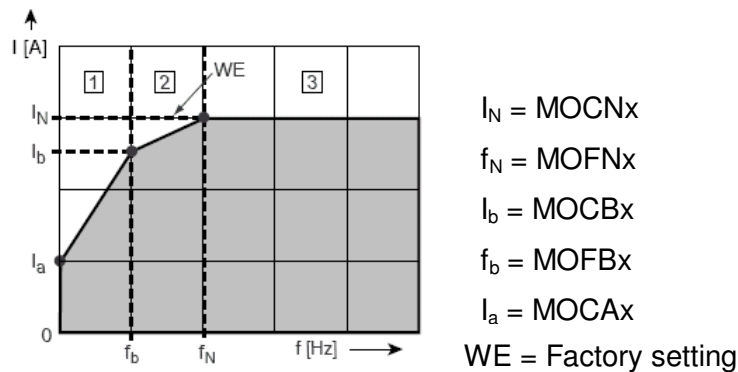
Setting for 345-MOCM

BUS	KP/DM	Function	Effect
0	MO_1	Use 1 st CDS for the motor	Motor protection of the 1 st CDS applies to both characteristic data sets (one-motor mode). Only one integrator active.
1	MO_2	Use CDS1 for the 1 st motor, CDS2 for the 2 nd motor	Separate motor protection for each characteristic data set (two-motor mode). Two integrators are active. The non-active integrator is de-integrated.

Note

- The type of motor protection during characteristic changeover can be set with the setting 345-MOCM.
- Setting the nominal motor current for the motor protection characteristic sets a shutdown value for the Ixt integrator. If the motor current exceeds the characteristic, the current is integrated up over time. If the integrator exceeds the shutdown threshold, the motor is shut down with error message E-OLM.

Setting of the motor protection characteristic per characteristic data set CDSx



Note:

Other settings of the motor protection function are the same as for the firmware > V3.5 of the standard drive controller CDA3000. Further information will be found in the current CDA3000 Applications Manual.

16 Warning threshold as a load alarm

The apparent current warning threshold can be used to signal the load on the drive controller. If the apparent current exceeds the warning threshold, then the digital output is set to signal level “high“ by setting the function selector to “WRN“.

Extract from the parameters for load warning in the subject area 50WA Warnings

Parameter	Function	Value Range	Factory Setting	Unit	Online
506-WLIS	Apparent current warning threshold	0 ... 999.95	999.95	A	✓

Note

- The hysteresis of the warning threshold is 5 % of the warning threshold value.
- The warning message can be read by field bus with the status word (bit 6) of parameter 120-WRN.

17 Design notes on “motor contactor”:

According to EN 954-1 Category 3 you must ensure that hazardous movements are prevented when working on the machine. This means that your machine must not start up unexpectedly. To achieve this, you must interrupt the power supply according to EN1037, i.e. provide electrical isolation (with a motor contactor) in the power cable between the inverter and motor.

Switching in the motor cable must take place in the de-energised condition otherwise there may be problems such as burnt contactor contacts or inverter tripping on overvoltage or overcurrent.

To guarantee current-free switching you must ensure that the contacts of the motor contactor are closed before the inverter’s output stage is enabled. In the reverse case, the contacts must remain closed until the inverter’s output stage is shut off.

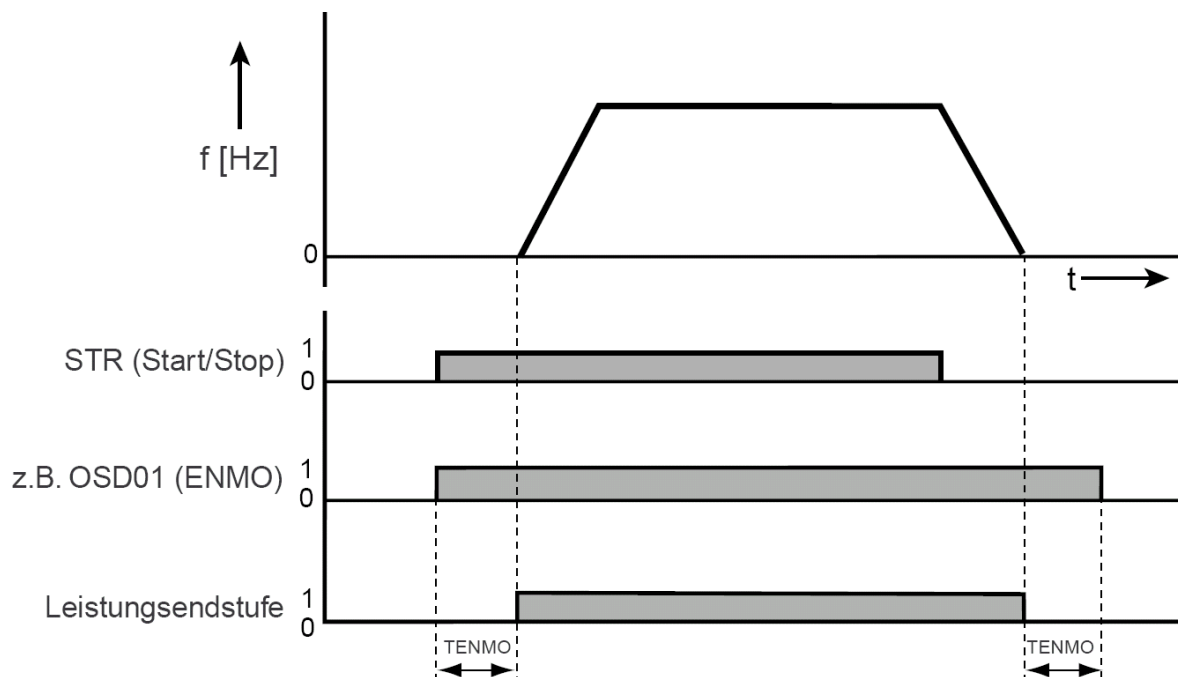
This is achieved by building suitable safety times for switching the motor contactor into the control sequence of your machine, or using the special software function of the CDA3000, HF inverter.

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Procedure for “switching motor contactor“ in subject area 240D Digital Outputs

Step	Action	Example of digital output OSD01 (connection terminal X2-16/17)
1	Set one of the inverter’s digital outputs to the function “ENMO”.	<ul style="list-style-type: none"> In subject area _240D, select parameter 241-FOS01 Set parameter 241-FOS01 to “ENMO” Save the setting
2	Set the necessary delay in parameter 247-TENMO.	<ul style="list-style-type: none"> In subject area _240D, select parameter 247-TENMO Change parameter 247-TENMO based on your application (factory setting = 300 ms) Value range = 0 ... 2000 ms

Example of digital output OSD01:



Leistungsendstufe = Power output stage



Caution: A suitable driver relay must be provided between the digital output of the inverter and the motor contactor.

18 Blocking communication with the DRIVEMANAGER

The drive controller can block communication with the DRIVEMANAGER operating software. Communication can only be enabled with a password. The communication interface X4 for the DRIVEMANAGER is blocked automatically after 10 minutes with no communication.

36KP Operating Unit KP200

Parameter	Function	Value Range	Factory Setting	Unit	Online
374-PSWDM	Password for DriveManager	0 ... 999	0		
375-APWDM	Temporary password for DriveManager	0 ... 999	0		

Notes

- When parameter 374-PSWDM is not equal 0, the password for the block on communication with the DRIVEMANAGER is activated. The password for the DRIVEMANAGER is on operating level 4.
- To enable communication with the DRIVEMANAGER, the correct password must be entered in parameter 375-APWDM in Operating Unit KP200.
- Access to individual parameters of the drive controller can also be disabled with passwords on the various operating levels of the KP200.

19 Compensation of voltage drop of a motor choke

Using motor chokes and filters effects positive to the operating characteristics of the motor. The smooth running accuracy will be improved as well and the heat input will be reduced by means of harmonic waves. This increases the lifetime of the drive and reduces for example the increasing of the motor shaft based on high heat inputs. A compensation of the voltage drop at the motor choke improves the dynamic of the drive.

70VF-VFC-characteristic line

Parameter	Function	Value range	WE	Unit	Online
745-LFIL1	CDS1: Motor filter inductance	0 ... 0.005	0	H	
746-LFTF1	CDS1: Filter time constant for motor filter compensation	0,002 ... 20	0,01	s	
747-LFIL2	CDS2: Motor filter inductance	0 ... 0.005		H	
748-LFTF2	CDS2: Filter time constant for motor filter compensation	0,002 ... 20	0,01	s	

Notes

- The motor filter compensation will be calculated from the apparent current, inductance of motor choke and rotary field frequency.
- The apparent current will be filtered with the filter constant LFTFx.
- By means of the scope-variables the compensation can be adjusted and checked:
 - IsLFiltScope1 in [A] shows apparent current filtered with 746-LFTF1
 - IsLFiltScope2 in [A] shows apparent current filtered with 748-LFTF2
 - usLFilt in [V] shows the sum of the correction



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