DRIVES FOR AUTOMATION

CDA3000

Order Catalogue

The drive solution, controlled from 0.37 kW to 90 kW

The fast track to your order

LUST

CDA3000 Order Catalogue

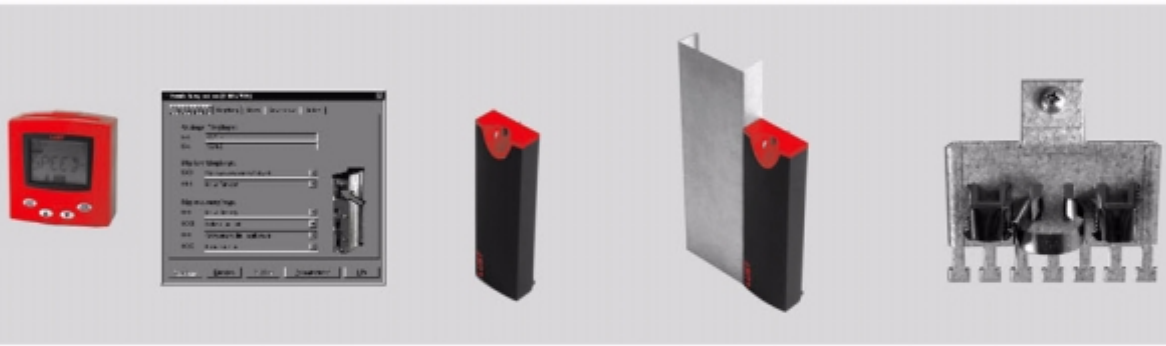
ID no.: 0840.24 B.2-00

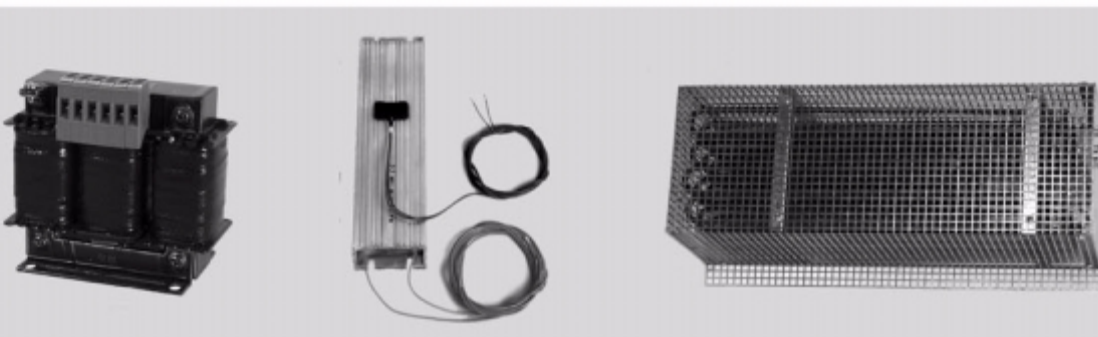
Date: February 2001

CDA3000

The following double-page spread provides an overview of the contents of the CDA3000 sales catalogue.

Please also take the time to read the first section, the »System summary«.
It provides information in concise form on the performance capability of the CDA3000 drive system. It also details the links between the individual inverter modules, accessorycomponents and order codes.





System summary

Inverter modules

Accessories for inverter modules

User and communication modules

Supplementary components

LUST

Inverter drive system

Experience and vision

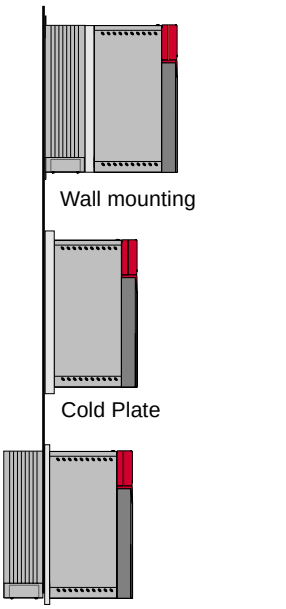
The CDA 3000 is the result of years of practical experience in drive technology for automation of machinery and plant. This inverter system is fit for the Millennium and for the ever shortening innovation cycles in the automation of machinery.

Founded on tradition

We have continued our long-standing tradition of setting new control standards in drive technology as well as creating the key design environment to deliver future-oriented flexibility in machinery and plant.

Fit for the future

The inverter module is the central unit in the system and is the information carrier for the various operator control and communication modules. All modules are standalone components with all necessary certifications, and are tested in terms of connectivity. The interfaces to the docking modules are open for the new automation design concepts of the future.



Staying cool

Inverters need to stay cool if the power components are to be fully utilized. It is only when the modular cooling concept is operational that freedom of choice is created for the specified fitting conditions. The decision on whether to choose a cold plate or place a heat sink inside or outside the compartment can be made specific to each given situation.

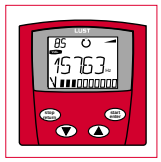
More momentum – automatically

Mature new technologies produce functional improvements with reliable specifications. With the Sensorless Flux Control (SFC) from LUST, for example, attributes such as higher output torques, dynamic disturbance correction and a wide speed manipulating range can be safely and reproducibly attained.

The whole setup is child's play, with automatic identification of the motor and self-adjustment of all control loops. The concept of »plug & play» is put into daily practice with the CDA3000.

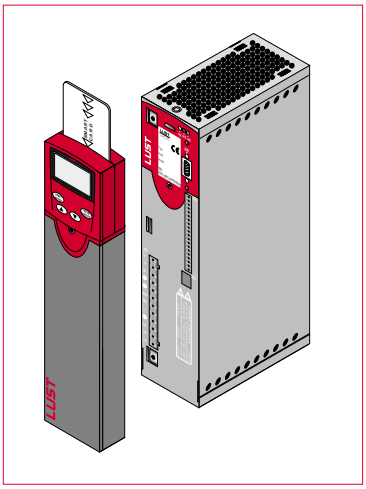
Quick and easy

The new inverter system is designed so that, despite the expanded functions and extensive system components, users are still able to configure and run their optimum drive solution more easily and quickly.



The extensive Project Planning Handbook provides comprehensive information and assistance to the user. The KEYPAD and the DRIVEMANAGER PC-based user software provide user-friendly setting and analysis tools for all LUST drive controllers. Their position as groundbreaking technology is evidenced by their stability and their didactic sophistication.

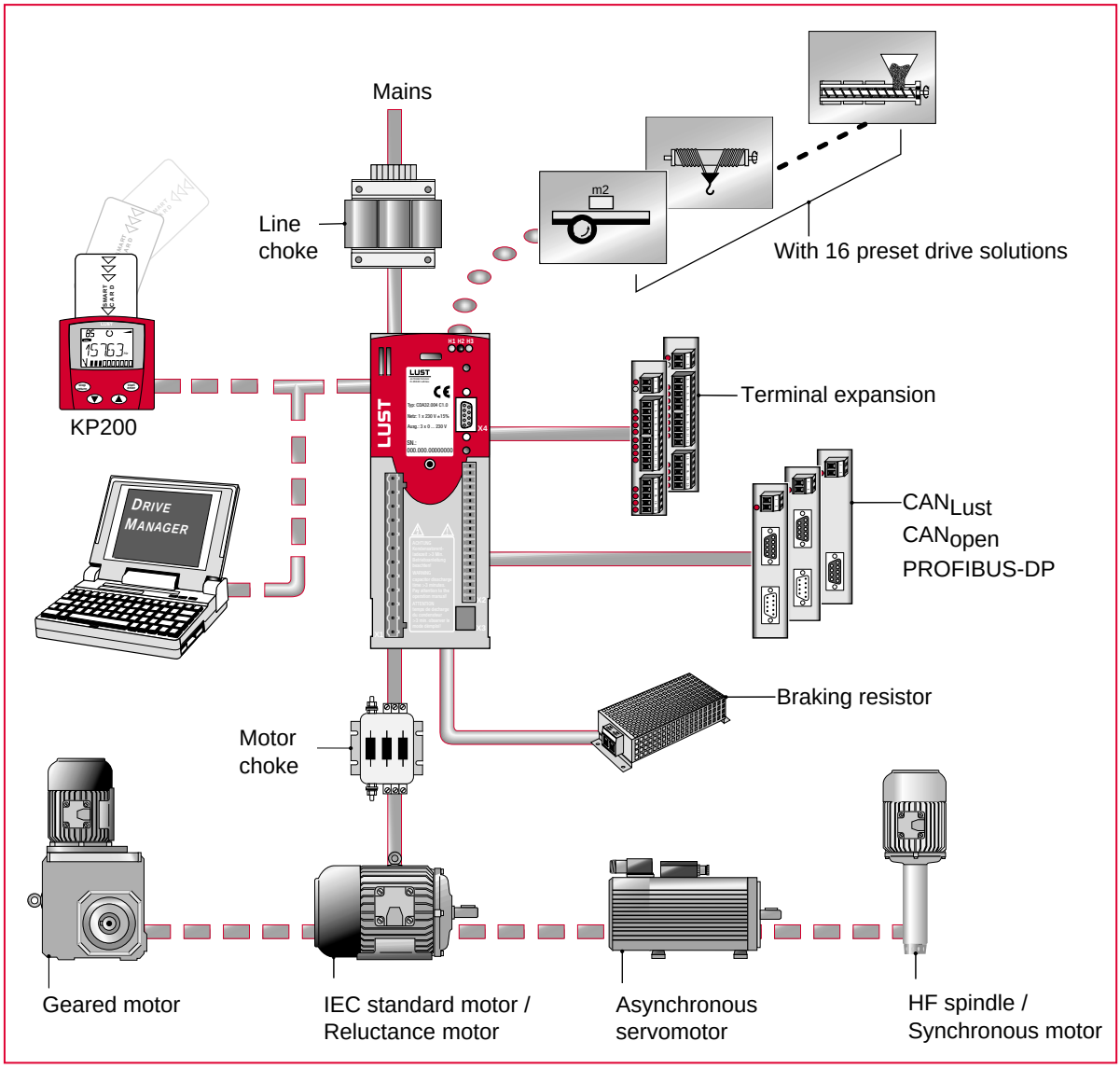
Preset solutions for traction drive, lifting and rotational drives highlight only the key relevant parameters. The underlying complexity can only be guessed at.



EMC with assurance

All devices from 375 W to 90 kW have a sheet-steel housing with an aluminium/zinc surface. With this, the housing offers a high degree of protection against interference impacting on the immediate vicinity. To reduce the interference emission the radio interference suppression filters are integrated in the inverter module (to 7.5 kW). This reduces the labour commitment and cost of the overall installation substantially.

The system architecture for the flexible solutions of the future.



Features

Inverter modules for 230 V systems:

Inverter module	Rec. 4-pin standard motor [kW]	Device rated power [kVA]	Rated current [A]	Peak current [A]	Size [BG]	Dimensions [mm] Width x height x depth
CDA32.003,Cx.x	0.375	1.0	2.4 A	4.3[1)]	BG1	70 x 193 x 152.5
CDA32.004,Cx.x	0.75	1.7	4.0 A	7.2[1)]	BG1	70 x 193 x 152.5
CDA32.006,Cx.x	1.1	2.3	5.5 A	9.9[1)]	BG2	70 x 218 x 177.5
CDA32.008,Cx.x	1.5	3.0	7.1 A	12.8[1)]	BG2	70 x 218 x 177.5

Mains voltage 1 x 230 V -20 % +15 %
Cooling air temperature (1000 m above MSL) 45 °C at power stage switching frequency 4 kHz
Rotating field frequency 0 ... 1600 Hz

1) 1.8 x IN for 30 s

Inverter modules for 400/460 V systems:

Inverter module	Rec. 4-pin standard motor [kW]	Device rated power [kVA]	Rated current [A]	Peak current [A]	Size [BG]	Dimensions [mm] Width x height x depth
CDA34.003,Cx.x	0.75	1.6	2.2	4.0[1)]	BG2	70 x 218 x 177.5
CDA34.005,Cx.x	1.5	3.0	4.1	7.4[1)]	BG2	70 x 218 x 177.5
CDA34.006,Cx.x	2.2	4.2	5.7	10.3[1)]	BG2	70 x 218 x 177.5
CDA34.008,Wx.x	3.0	5.7	7.8	14[1)]	BG3	70 x 303 x 250.5
CDA34.010,Wx.x	4.0	7.3	10	18[1)]	BG3	70 x 303 x 250.5
CDA34.014,Wx.x	5.5	10.2	14	25[1)]	BG4	120 x 303 x 250.5
CDA34.017,Wx.x	7.5	12.4	17	31[1)]	BG4	120 x 303 x 250.5
CDA34.024,Wx.x	11	17.5	24	43[1)]	BG5	170 x 303 x 250.5
CDA34.032,Wx.x	15	23.3	32	58[1)]	BG5	170 x 303 x 250.5
CDA34.045,Wx.x	22	32.8	45	68[2)]	BG6	250 x 345 x325
CDA34.060,Wx.x	30	43.8	60	90[2)]	BG6	250 x 345 x325
CDA34.072,Wx.x	37	52.5	72	108[2)]	BG6	250 x 345 x325
CDA34.090,Wx.x	45	65.6	90	135[2)]	BG7	300 x 550 x 305
CDA34.110,Wx.x	55	80	110	165[2)]	BG7	300 x 550 x 305
CDA34.143,Wx.x	75	104	143	214[2)]	BG8	412 x 500 x 362
CDA34.170,Wx.x	90	124	170	255[2)]	BG8	412 x 500 x 362

Mains voltage 3 x 460 V -25 % +10 %
Cooling air temperature (1000 m above MSL) 45 °C at power stage switching frequency 4 kHz
Rotating field frequency 0 ... 1600 Hz (0.37 to 15 kW)
Rotating field frequency 0 ... 400 Hz (22 to 90 kW)

1) 1.8 x IN for 30 s
2) 1.5 x IN for 60 s

Acceptance tests/ Ambient conditions

CE mark

The inverter modules[1)] meet the requirements of the Low Voltage Directive 73/23/EEC and of the EMC Directive 89/336/EEC.

The inverter modules[1)] thus meet the requirements for installation in a machine or plant under the terms of the Machinery Directive 89/392/EEC.

The CDA3000 inverter modules[1)] are assigned the CE mark accordingly. The CE mark on the name plate signifies conformance with the above directives.

We will be pleased to issue a Declaration of Conformityon request.

Ambient conditions

cUL approbation

The cUL approbation is in preparation for the entire CDA3000 inverter series[1)] (0.37 kW to 90 kW). This cUL approbation is equivalent to UL and CSA approbation.

EMC acceptance tests

All inverter modules[1)] have a sheet-steel housing with an aluminium/zinc surface in order to enhance interference resistance (to EN61800-3, environments 1 and 2).

To limit line-bound interference emission to the permissible level, all inverter modules to 7.5 kW are fitted with integrated mains filters. This complies with:

Radio interference grade A (with 25 m motor cable)
Radio interference grade B (with 10 m motor cable)

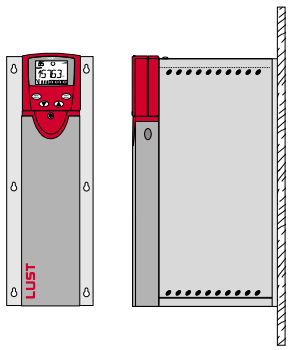
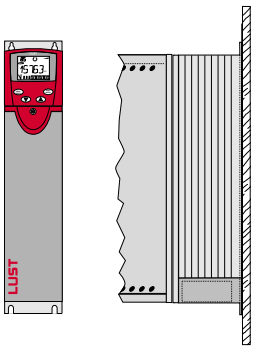
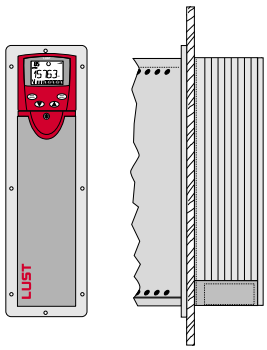
For all inverter modules of 11 kW and above there is a comprehensive range of external mains filters (see »Supplementary components»).

Feature		Inverter module	User and communication module and KP200
Temperature range	in operation	-10 ...45 ° C (BG1 ... BG5) 0 ... 40 ° C (BG6 ... BG8) with power reduction to 55 ° C	-10 ... 55 °C
	in storage	-25 ... +55 °C	
	in transit	-25 ... +70 °C	
Relative air humidity		15 ... 85 %, Condensation is not permitted	
Mechanical strength to IEC 68-2-6	in stationary use	Vibration: 0.075 mm in frequency range 10 ... 58 Hz Shock: 9.8 m/s^2 in frequency range >58 ... 500 Hz	
	in transit	Vibration: 3.5 mm in frequency range 5 ... 9 Hz Shock: 9.8 m/s^2 in frequency range >9 ... 500 Hz	
Protection	Device	IP20 (NEMA 1)	
	Cooling method	Cold Plate IP20 Push-through heat sink IP54 (3 ...15 kW) Push-through heat sink IP20 (22 ...37 kW)	Convection IP20
Touch protection		VBG 4	
Power reduction		See section 3, Project Planning Handbook	None
Mounting height		to 1000 m above MSL, over 1000 m above MSL with power reduction, max. 2000 m above MSL	

1) Also applies to user and communication module

Cooling method

The base module of the inverter offers three different mounting and cooling methods (example size 3)

Cold plate	Wall mounting	Push-through heat sink
		

Size	Output	Inverter module	Cold plate	Wall mounting	Push-through heat sink
BG1	0.375 kW 0.75 kW	CDA32.003 CDA32.004	YES	YES[1)]	NO
BG2	1.1 kW 1.5 kW 0.75 kW 1.5 kW	CDA32.006 CDA32.008 CDA34.003 CDA34.005	YES	YES[1)]	NO
BG2	2.2 kW	CDA34.006	YES	YES	NO
BG3	3.0 kW 4.0 kW	CDA34.008 CDA34.010	YES	YES	YES
BG4	5.5 kW 7.5 kW	CDA34.014 CDA34.017	YES	YES	YES
BG5	11 kW 15 kW	CDA34.024 CDA34.032	YES	YES	YES
BG6	22 kW 30 kW 37 kW	CDA34.045 CDA34.060 CDA34.072	NO	YES	YES
BG7	45 kW 55 kW	CDA34.090 CDA34.110	NO	YES	NO
BG8	75 kW 90 kW	CDA34.143 CDA34.170	NO	YES	NO

1) Corresponds to cold plate with accessorie heat sink HS3X.xxx, not in design wall mounting CDA3..., Wx.x

Motor control method

During commissioning of the inverter module three different control methods can be selected.

The necessary identification of the motor is provided automatically by the inverter module based on the »plug & play» concept. Allcontrol loops are also optimized in the process.

Voltage Frequency Control (VFC)

With the VFC the voltage of the motor is changed proportional to the output frequency of the inverter module. This method is particularly suitable for reluctance, synchronous and special motors.

Sensorless Flux Control (SFC)

The new control method SFC, which is usable for asynchronous motors, calculates the rotor speed and the current angle of the rotor from the electrical variables. Based on the calculated information, the currents for torque generation can be fed into the motor in an efficient way. In this way, outstanding control characteristics are attained without the use of a cost-intensive encoder.

Field-Oriented Regulation (FOR)

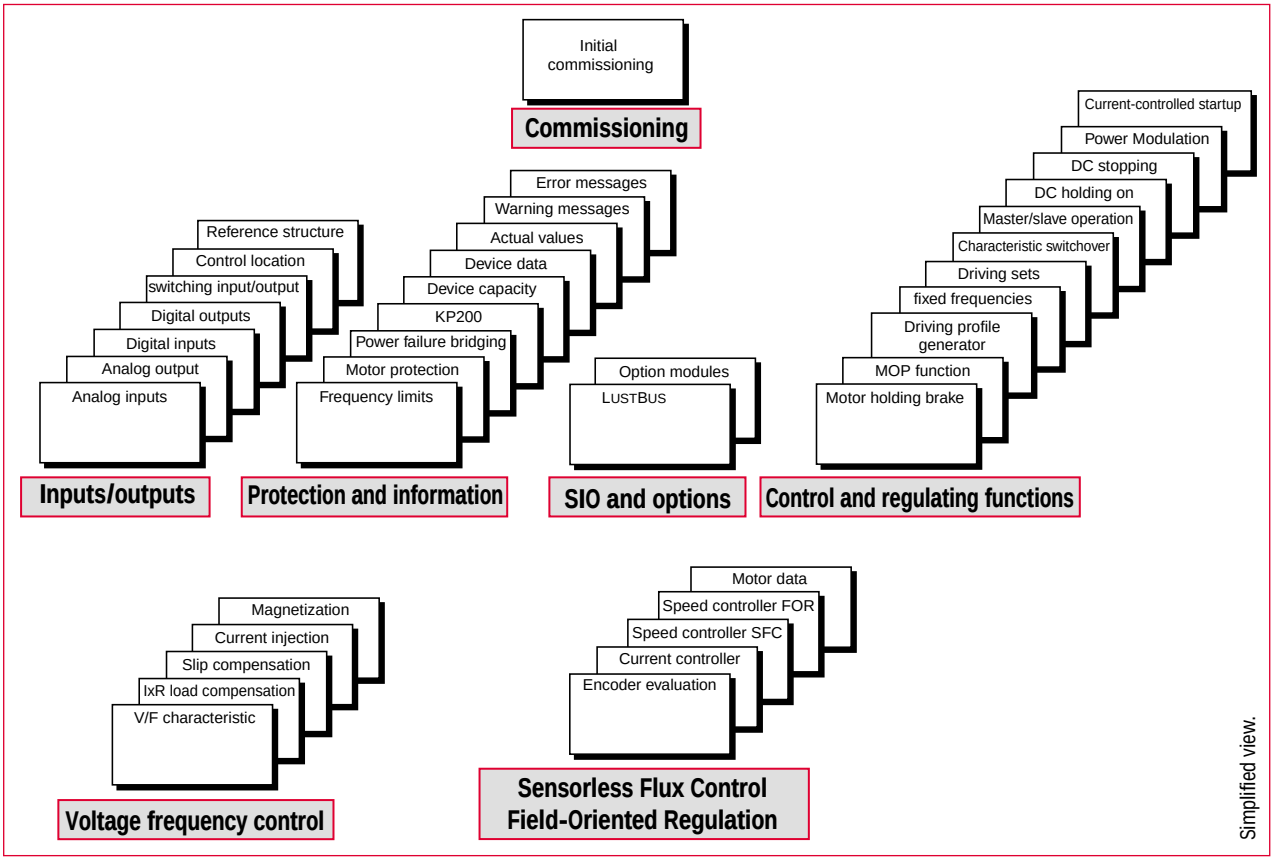
With FOR the rotor and speed positions are determined with an encoder. Based on these measurements, the flow- and torque-generating currents can always be fed into the motor in an optimum mutual alignment. This produces maximum dynamics and smooth running.

Properties	VFC Voltage Frequency Control	SFC Sensorless Flux Control	FOR Field-Oriented Regulation
Torque rise time	20-30 ms	<2 ms	< 2ms
Dynamic disturbance correction	NO	YES	YES
Standstill torque	NO	NO	YES
Acceleration torque[1)]	$1.2 \cdot M_{Nom}$	$1.8 \cdot M_{Nom}$	$2 \cdot M_{Nom}$
Current usage of inverter	60%	90%	100%
Anti-chopping protection	limited	YES	YES
Speed manipulating range $M = M_{Nom}$	1:20	1:50	1:10000
Static speed accuracy	typically 1 to 5%[2)]	typically 0.5%[2)]	quartz accurate[2)]
Frequency resolution	0.01 Hz	0.0625 Hz	2^{-16} Hz
Motor principle	asynchronous synchronous reluctance	asynchronous	asynchronous

[1)] $I_{Inverter} = 2 \cdot I_{Motor}$ [2)] referred to nominal speed

Software functions/ Subject areas

For ease of handling, the parameters of the CDA3000 inverter module are assembled into parameter groups. The parameter groups are termed subject areas, and permit function-oriented operation. The following survey is only a choice, with no claim to be complete.



Commissioning

Subject area	Function	Effect
Initial commissioning	Automatic adaptation of the inverter module to the application and to the motor. All control loops are independently optimized.	Quick commissioning of the inverter module.

Inputs/outputs

Subject area	Function	Effect
Analog inputs	Free scaling of the analog inputs	Adaptation of the internal processing of the analog input signals of the inverter module to the process variables.
Analog outputs	Selection and free scaling of the actual values for delivery at the analog output.	Adaptation of the output variable to the process. Rapid diagnosis and monitoring of actual values with the aid of a simple voltmeter.
Digital inputs	Flexible function assignment of all digital inputs.	The control terminal strip can be adapted by means of parameter setting to a fixed wiring configuration.
Digital outputs	Flexible function assignment of all digital outputs.	The control terminal strip can be adapted by means of parameter setting to a fixed wiring configuration.
Switching input/output	The frequency reference can be set via a clock signal. A clock signal proportional to the output frequency is delivered.	Adaptation of the internal processing of the clock input signal to the process signals.
Control location	Definition of the source from which the control commands (e.g. Start) are delivered, by parameter-based switchover.	The inverter module can be controlled from various positions.
Reference structure	Influencing of the internal processing of reference values.	For special requirements, the internal configuration of the references can be changed.

Protection and information

Subject area	Function	Effect
Frequency limits	Limiting of the output frequency	The application is protected against overspeed
Motor protection	Monitoring of the motor temperature by an integral motor circuit-breaker and a thermos-witch or thermistor evaluation circuit.	The motor is protected against thermalde-struction.
Power failure bridging	After a mains power failure the inverter module is fed by the rotational energy of the motor.	A brief interruption of mains power merely results in a reduction in motor speed, which is increased back to the original level when the power is restored.
KP200	Password setting for the user levels and defini-tion of the permanently visible actual value.	Protection of the inverter module against unauthorized access. An actual value relevant to the process can be read from the KEYPAD.
Device capacity utilization	Storage of the max. current in the phases: acceleration, stationary operation anddeceler-ation.	Good verifiability of the inverter dimensioning and helpful diagnosis in case of faults in the drive system.
Device data	Delivery of all data of the inverter module.	Unique identification of the inverter module and the device software.
Actual values	Display of all information of importance for the drive system.	Rapid diagnosis and monitoring of the drive system.
Warning messages	When a definable limit is exceeded for various actual values a warning is delivered.	An imminent fault in the drive system is sig-nalled at an early stage, so that appropriate countermeasures can be initiated.
Error messages	Display of faults in the drive system with detailed information on the cause.	Quick localization of the cause of the error.

SIO and options

Subject area	Function	Effect
LUSTBUS	Parameter setting of the diagnostic interface.	Adaptation of the inverter module interface to a PC.
Option modules	Parameter setting of the option modules, e.g. CAN bus address.	The option modules are adapted to the process.

Control and regulating functions

Subject area	Function	Effect
Motor holding brake	Actuation of a motor holding brake when the frequency falls below a definable limit.	Safe standstill even when the inverter is inactive.
MOP function	Facility to increase or reduce the reference value with two digital inputs.	By way of buttons the motor speed can be very easily adapted to the process.
Driving profile generator	Setting of the acceleration anddeceleration times and of the ramp shape (linear, sinusoidal).	Balancing of the motor dynamics to the application
Fixed frequencies	Fixed reference speed are selected by digital inputs	Preprogrammed reference speed are simply selected by external switches
Driving sets	Facility of parameter setting of eight fixed frequencies with associated acceleration and deceleration ramps.	Digital selection of fixed frequencies with variable dynamic.
Characteristic switchover	Online switchover of the V/Fcharacteristic parameters, positioning set parameters and speed control parameters.	Adaptation of the motor to various load situations.
Master/ Slave operation	Speed coupling of several inverter modules with adjustable transmission ratio.	Mechanical transmissions can be replaced as long as no angular synchronicity is required.
DC holding on	Supply of a direct current to the motor, causing it to brake.	To stop motors no braking resistor is required.
DC stopping	Shutdown of the motor after braking with direct current.	Rotation caused by the motor load is braked.
Power modulation	Setting of the switching frequency of the inverter power stage.	Optimization of the drive system in terms of power loss, smooth running andnoise.
Current-controlled startup	Reduction in dynamics of acceleration and braking operations when a definable current limit is reached, with a reduction in output frequency in stationaryoperation.	Acceleration and braking operations canbe executed with max. dynamics without risk of current overload shut-off. In stationary operation the motor is protected against tipping over.

Voltage frequency control

Subject area	Function	Effect
V/F characteristic	Adaptation of the inverter module to the motor and to the load characteristic of the application.	The motor generates the optimum torque for the application.
I x R load compensation	Automatic adaptation of the V/F characteristic to the load situation. Compensation for the voltage drop on the stator resistor of the motor.	In case of load surges a higher torque is provided and the motor heats up less.
Slip compensation	Increase in output frequency proportional to the loading on the motor.	The slip of the motor is compensated and the speed thereby kept constant independent of the load.
Current injection	Up to a limit frequency an adjustable current is injected into the motor.	Increase in starting torque
Magnetization	Prior to acceleration of the motor a starting current is injected into the motor.	After the motor has started the full torque is immediately available.

Sensorless Flux Control / Field-Oriented Regulation

Subject area	Function	Effect
Encoder evaluation	Input of the encoder data.	Adaptation of the inverter module to the encoder of the motor.
Current controller	Setting of the current control loop	Optimum current usage of the motor and prevention of current overload shut-offs.
Speed controller SFC	Setting of the speed control loop for the Sensorless Flux Control	Very smooth running and good dynamics of the drive without encoder evaluation.
Speed controller FOR	Setting of the speed control loop for the Field-Oriented Regulation.	Very smooth running and good dynamics of the drive with encoder evaluation.

Preset drive solutions

Application data sets

Application data sets are devicedefaults to handle a wide variety of movement tasks.

Loading an application data set into the RAM automatically configures the inverter module. All functions and the inputs and outputs for the signal processing are adjusted automatically to the desired movement solution.

In addition, an assistance parameter can be applied to adapt further,
so that 16 preset drive solutions are available.

Use of the application data sets simplifies and speeds up commissioning of the inverter module, and so the movement solution.

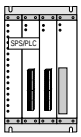
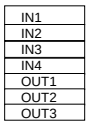
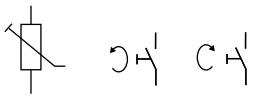
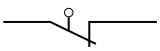
User data sets

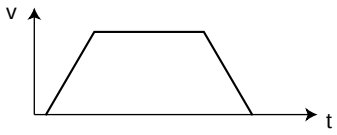
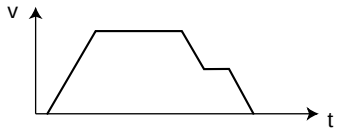
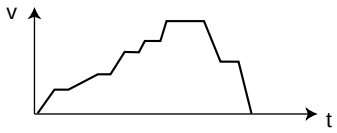
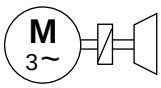
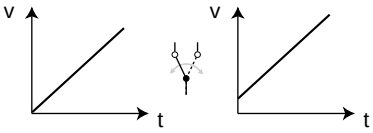
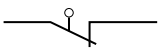
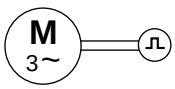
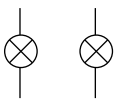
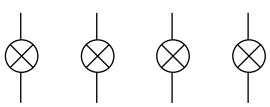
User data sets are free data memories for the user. As standard it is possible to store four complete device setups, and thus four drive solutions, in one inverter module.

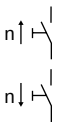
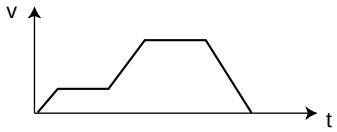
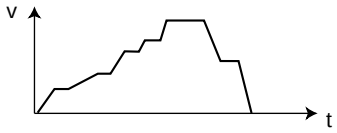
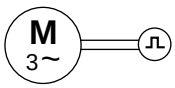
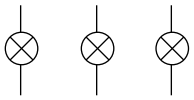
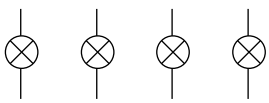
The four device settings are selected by way of terminals, a bus or parameters.

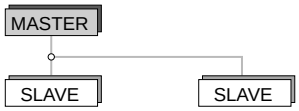
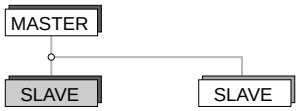
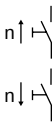
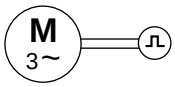
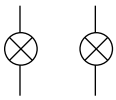
➢ **One storage device for four drive solutions**

The following survey is only a choice, with no claim to be complete.

Application data set, field bus operation		**Preset**		
Function		**1**	**2**	**3**
	Reference input and control via PLC	✔	✔	✔
	Read and write digital inputs and outputs over the BUS	✔	in part	in part
	Manual mode independent of BUS		✔	✔
	Limit switch evaluation			✔

Application data set, positioning and lifting drive		Preset				
Function		**1**	**2**	**3**	**4**	**5**
	Quick jog positioning profile	✔	✔	✔	✔	✔
	Quick jog/slow jog positioning profile	✔	✔	✔		✔
	Table sets with fixed frequencies and ramps					✔
	Motor brake actuation	✔	✔	✔	✔	✔
	Characteristic switchover for load adaptation		✔			
	User data set switchover		✔	✔	✔	✔
	Limit switch evaluation			✔		✔
	Encoder evaluation				✔	✔
	Messages: • Ready to start • Speed reached	✔	✔	✔	✔	✔
	Warnings: • Inverter module overloaded • 80% of IN reached • Motor overloaded • Ambient temperature too high					✔

Application data set, rotational drive		Preset			
Function		**1**	**2**	**3**	**4**
	Speed input 0 ... 10 V	✔	✔	✔	✔
	Speed correction 0 ... 10 V		✔	✔	
	Speed change via keys - MOP function -	✔			
	Selection of two fixed frequencies.				✔
	Table sets with fixed frequencies and ramps			✔	
	User data set switchover			✔	
	Encoder evaluation		✔	✔	
	Messages: • Reference reached • Standstill • Ready to start	✔	✔	✔	✔
	Warnings: • Inverter module overloaded • 80% of IN reached • Motor overloaded • Ambient temperature too high			✔	

Application data set, Master/Slave operation		Preset			
Function		**1**	**2**	**3**	**4**
	Inverter module is master	✔	✔		
	Inverter module is slave			✔	✔
	Speed change via keys -MOP function-	✔		✔	
	Encoder evaluation		✔		✔
	Messages: • Standstill • Ready to start	✔	✔	✔	✔

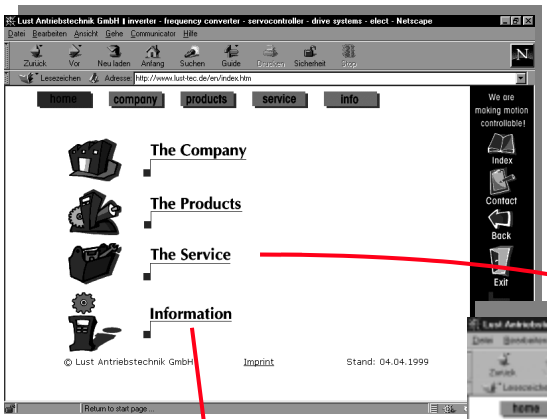
More information

LUST on the Internet _ _ _

Lust Antriebstechnik offers extensive information resources on the Internet. Whether you need more technical details on our products or information on project planning, or want to contact our nearest agency - just visit our website.

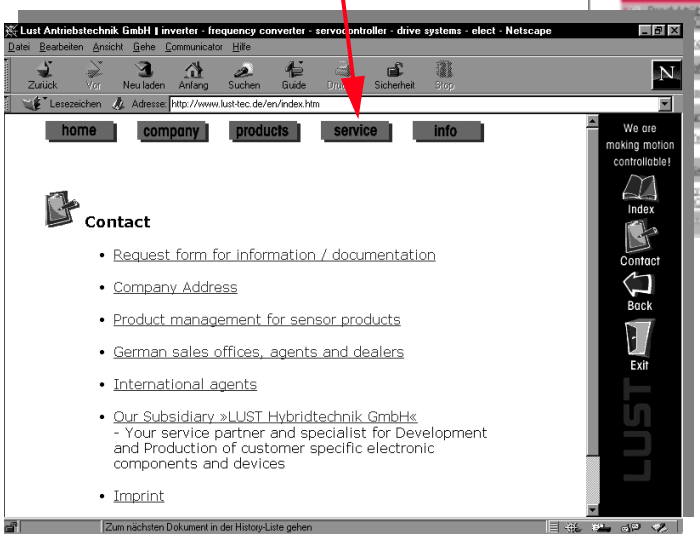
http://www.lust-tec.de

You will of course also find interesting information about our company and more good reasons to choose LUST products.



Technical information to download

Agents



Service Hotline

If you do experience faults or other problems with the drive unit, our specialists at the LUST Service Center will be glad to help.

You can reach us:

Mon.-Thur.:	8 a.m. - 5 p.m.	Tel. 06441/966-136, Fax -211
Fri.:	8 a.m. - 4 p.m.	Tel. 06441/966-136, Fax -211
e-mail:	service@lust-tec.de	

At a glance

for complex movement tasks

Inverter power stages	0.37 kW 0.75 kW	1.1 kW 1.5 kW	0.75 kW 1.5 kW 2.2 kW	3.0 kW 4.0 kW	5.5 kW 7.5 kW	11 kW 15 kW	22 kW 30 kW 37 kW	45 kW 55 kW	75 kW 90 kW
Mains voltage	1 x 208, 230, 240 V		3 x 400, 440, 460 V						
Rated current [A]	2.4/4	5.5/7.1	2.2/4.1/ 5.7	7.8/10	14/17	24/32	45/60/72	90/110	143/170
Output current	1.8 times rated current for 30 s						1.5 times rated current for 60 s		
Dimensions W x H x D [mm]	70 x 193 x 152	70 x 218 x 177	70 x 218 x 177	70 x 303 x 250	120 x 303 x 250	170 x 303 x 250	250 x 345 x 325	300 x 550 x 305	412 x 500 x 362

Servocontroller types	MC7402	MC7404	MC7408	MC7412	MC7416	MC7432	MC7464
Mains voltage [V]	3 x 400, 440, 460 V						
Rated current [A] (400 V/ 460 V)	2	4	8/6.5	12	16/14	32/32	64
Pulse current for 10 s	2 times rated current						1.5 times rated current
Dimensions W x H x D [mm]	330 x 69 x 260	330 x 69 x 260	347 x 69 x 260	360 x 142 x 260	360 x 142 x 260	440 x 190 x 290	440 x 285 x 290

Servomotors Preferred types	M_0 [Nm]	M_N [Nm]	P_N [kW]	I_0 [A]	I_N [A]	n_N, n_{max} [rpm]	J_L [kgcm^2]	m [kg]
PSM-M4-20R86-4	1	0.8	0.5	1.6	1.7	6000	0.45	1.8
PSM-N4-20R84-4	0.65	0.6	0.25	0.9	0.9	4000	0.22	1.5
PSM-N6-20R84-4	2.3	2.0	0.83	2.4	2.0	4000	0.57	2.9
PSM-03-20R83-4	2.8	2.3	0.72	1.8	1.5	3000	5.3	4.2
PSM-04-20R83-4	4.8	4.1	1.3	3.7	3.2	3000	7.4	5.3
PSM-13-20R83-4	7.5	5.6	1.7	5.1	3.8	3000	11.7	10.1
PSM-23-20R83-0	15.5	11.2	3.5	10.1	7.3	3000	28	15.5
ASM-12-20R23-0	2	1.7	0.54	2.1	1.8	3000/12000	3.7	7.5
ASM-22-20R23-0	5.6	4.7	1.5	4.7	3.9	3000/12000	14.4	13.2
ASM-25-20R22-0	15	13	2.7	7.7	6.6	2000/8000	38.4	24
ASM-32-20R21-0	20	17	2.7	8.2	6.8	1500/8000	90	33
ASM-34-20R21-0	42	35	5.5	15.1	12.6	1500/8000	209	56.6
ASM-43-20R21-0	85	70	11	37	30.4	1500/8000	960	135

Planetary gearbox PLE	1 stage	2 stages	3 stages
Torque [Nm]	0.8 to 80		
Transmission i =	3, 4, 5, 8	9, 12, 15, 16, 20, 25, 32, 40, 64	60, 80, 100, 120, 160, 200, 256, 320, 512

We reserve the right to make technical changes.

Order form

Inverter Drive System CDA3000

Date: _____

Sender

Company _____

Street/P.O. Box _____

Zip code/City _____

Phone _____

Fax _____

E-mail address _____

Delivery address

_____

_____

_____

Buyer/Name: _____

Customer No.: _____

Date of Delivery: _____

Project: _____

Inverter modules

Page	Order Description	Piece	Gross Price	Net Price

Accessories for inverter modules

Page	Article		Description	Piece	Gross Price	Net Price
3-2	KEYPAD		KP200			
3-3	SMARTCARD		SC			
3-4	DRIVEMANAGER		DRIVEMANAGER			
3-5	Connecting cable		CC D-SUB __ __ __			
3-6	Terminal cover		TB __			
3-7	EMC-	Shield connection	ST0 __			
		Metal clips	SMC __ __			
		Metal cable band	SMB __ __			
3-9	Heat sink		HS 3__, __ __ __			
3-10	Control terminal		CT - 01			
3-11	Operation Manual		OP - 01			

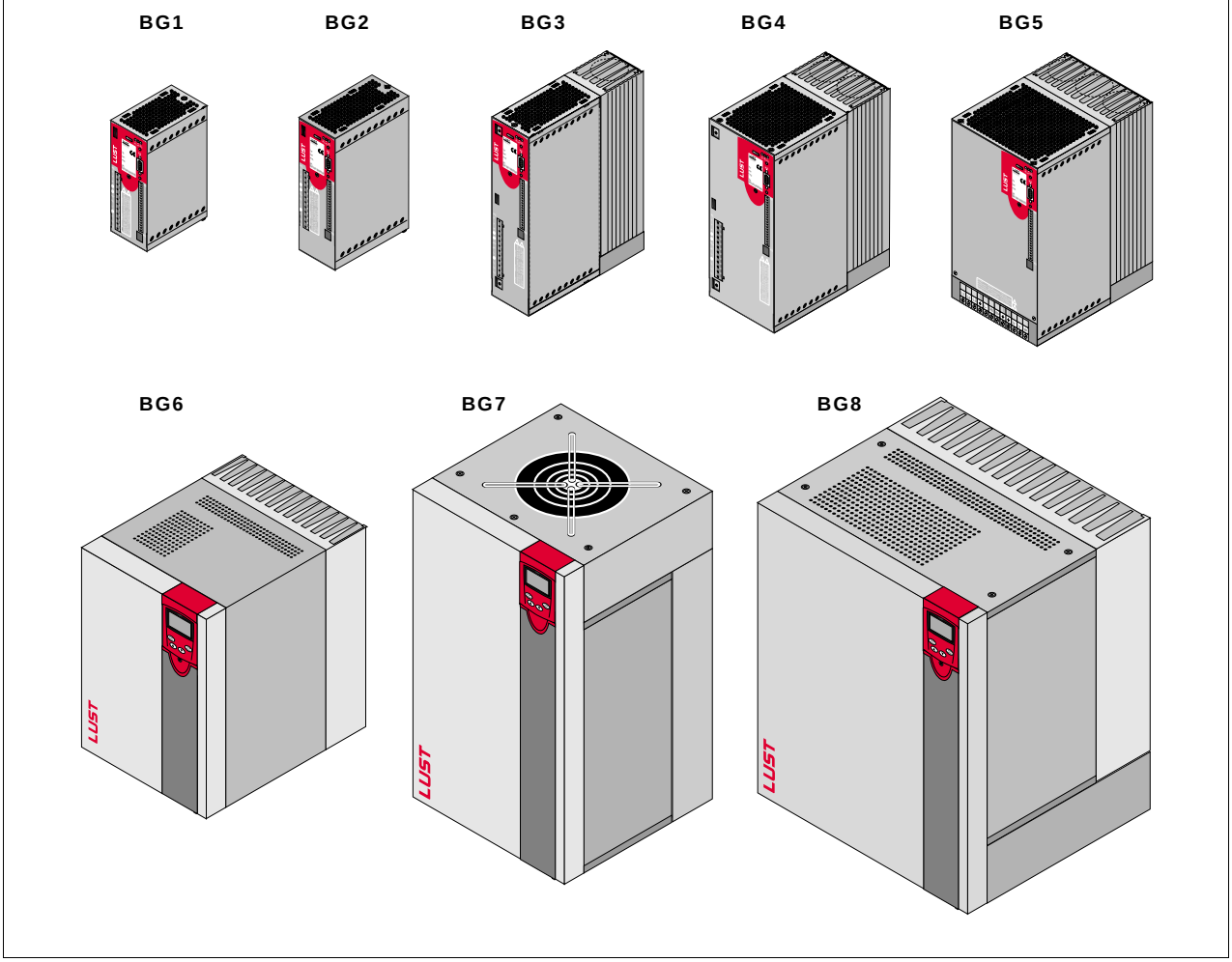
User and communication modules

Page	Article	Description	Piece	Gross Price	Net Price
4-2	User modules	UM-8I4O			
4-3	Communication modules	CM-CAN1 CM-CAN2 CM-DPV1			
4-5	Mounting package	MP-UMCM			

Supplementary components

Seite	Article	Description	Piece	Gross Price	Net Price
5-2	Line chokes	LR 3__, __ __ __			
5-5	Braking resistors	BR- __ __ __, __ __, __ __ __			
5-8	Mains filters	EMC__, __ __ __			
5-11	Paper-based user information				
		Total:			

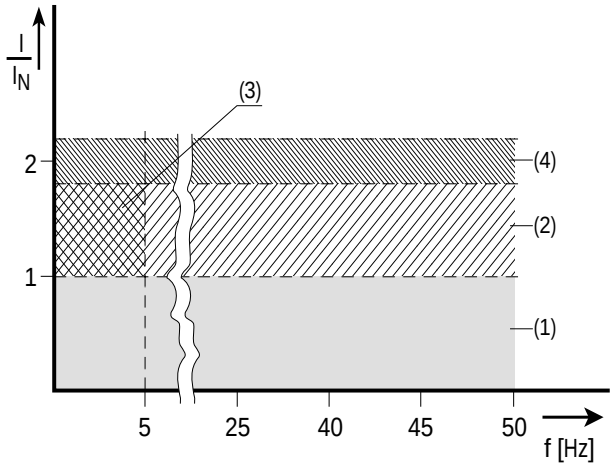
Overview of inverter modules, 0.37 to 90 kW



Inverter sizes	BG1	BG2	BG2	BG3	BG4	BG5	BG6	BG7	BG8
Inverter power stages	0.37 kW 0.75 kW	1.1 kW 1.5 kW	0.75 kW 1.5 kW 2.2 kW	3.0 kW 4.0 kW	5.5 kW 7.5 kW	11 kW 15 kW	22 kW 30 kW 37 kW	45 kW 55 kW	75 kW 90 kW
Mains voltage	1 x 208, 230, 240 V		3 x 400, 440, 460 V						
Output current	1.8 times rated current for 30 s						1.5 times rated current for 60 s		
Page	2 - 4	2 - 6	2 - 4 2 - 6	2 - 8	2 -10	2 - 12	2 - 14	2 - 16	2 - 18

Current Load Capacity of Inverter Modules

The maximum permissible inverter output current and the peak current are dependent on the mains voltage, the motor cable length, the output stage switching frequency and the ambient temperature. If the conditions change, the maximum permissible current load capacity of the inverter modules will also change. The graphs and tables below indicate which current loads are permissible under which changed conditions..



(1) Continuous operation

(2) Intermittent operation* > 5 Hz rotating field frequency

Inverter modules 0.37 to 15 kW

I/I_N = 1.8 for 30 s at 4 kHz

I/I_N = 1.8 for 30 s at 8 kHz

I/I_N = 1.8 for 30 s at 16 kHz

Inverter modules 22 to 90 kW

I/I_N = 1.5 for 60 s at 4 kHz

I/I_N = 1.5 for 60 s at 8 kHz

(3) Intermittent operation* 0 to 5 Hz rotating field frequency

Inverter modules 0.37 to 15 kW

I/I_N = 1.8 for 30 s at 4 kHz

I/I_N = 1.25-1.8 for 30 s at 8 kHz

Inverter modules 22 to 90 kW

I/I_N = 1.5 for 60 s at 4 kHz

I/I_N = 1-1.5 for 60 s at 8 kHz

(4) Pulse mode

Inverter modules 0.37 to 15 kW

I/I_N = approx. 2.2 at 4, 8, 16 kHz

Inverter modules 22 to 90 kW

I/I_N = approx. 1.8 at 4, 8 kHz

* Intermittent operation $I_N > I_{eff}$ $I_{eff} = \sqrt{\frac{1}{T} \cdot \Sigma_{i=1}^{n} I_i^2 \cdot t_i}$

Performance Chart

Inverter modules for 230 V systems

Inverter module	Rec. 4-pole standard motor [kW]	Output stage switching frequency [kHz]	Rated current [A]	Peak current for intermittent operation 0 to 5 Hz [A]	Peak current for intermittent operation > 5 Hz [A]
CDA32.003,Cx.x	0.375	4 8 16	2.4 2.4 1.8	4.3 4.3 3.2	4.3 4.3 3.2
CDA32.004,Cx.x[1)]	0.75	4 8 16	4 4 3	7.2 7.2 5.4	7.2 7.2 5.4
CDA32.006,Cx.x[1)]	1.1	4 8 16	5.5 5.5 4.3	9.9 9.9 7.7	9.9 9.9 7.7
CDA32.008,Cx.x[1)]	1.5	4 8 16	7.1 7.1 5.5	12.8 12.8 8	12.8 12.8 9.9

Peak current for 30 s in inverter modules 0.37 to 15 kW

Peak current for 60 s in inverter modules 22 to 90 kW

Cooling air temperature

45°C at output stage switching frequency 4kHz

40°C at output stage switching frequency 8, 16kHzßnote2

1) With heat sink HS3... or additional cooling surface

Mains voltage 1 x 230V -20% +15%

Motor cable length 10 m

Mounting height 1000 m above MSL

Side-by-side mounting

Inverter modules for 400/460 V systems:

Inverter module	Rec. 4-pole standard motor [kW]	Output stage switching frequency [kHz]	Rated current I_N[A] at 400 V[2)]	Rated current I_N[A] at 460 V[3)]	Peak current for intermittent operation 0 to 5 Hz [A]	Peak current for intermittent > 5 Hz [A]
CDA34.003,Cx.x	0.75	4 8 16	2.2 2.2 1.0	2.2 2.2 1.0	4 4 1.1	4 4 1.8
CDA34.005,Cx.x[1)]	1.5	4 8 16	4.1 4.1 2.4	4.1 3.6 -	7.4 7.4 4.3	7.4 7.4 4.3
CDA34.006,Cx.x[1)]	2.2	4 8 16	5.7 5.7 2.6	5.7 5.7 -	5.7 5.7 4.7	5.7 5.7 4.7
CDA34.008,Wx.x	3.0	4 8 16	7.8 7.8 5	7.8 7.8 -	14 14 7.8	14 14 9
CDA34.010,Wx.x	4.0	4 8 16	10 10 6.2	10 8.8 -	18 16.5 7.8	18 18 11
CDA34.014,Wx.x	5.5	4 8 16	14 14 6.6	14 12.2 -	25 21 9.2	25 25 11.9
CDA34.017,Wx.x	7.5	4 8 16	17 17 8	17 13.5 -	31 21.2 9.2	31 31 14.4
CDA34.024,Wx.x	11	4 8 16	24 24 15	24 24 -	43 40 22	43 43 27
CDA34.032,Wx.x	15	4 8 16	32 32 20	32 28 -	58 40 22	58 58 36
CDA34.045,Wx.x	22	4 8	45 45	45 39	68 54	68 68
CDA34.060,Wx.x	30	4 8	60 60	60 52	90 71	90 90
CDA34.072,Wx.x	37	4 8	72 72	72 62	112 78	112 112
CDA34.090,Wx.x	45	4 8	90 90	90 78	135 104	135 135
CDA34.110,Wx.x	55	4 8	110 110	110 96	165 110	165 165
CDA34.143,Wx.x	75	4 8	143 143	143 124	215 143	215 215
CDA34.170,Wx.x	90	4 8	170 170	170 147	255 212	255 255

Peak current for 30 s in inverter modules 0.37 to 15 kW
Peak current for 60 s in inverter modules 22 to 90 kW
Cooling air temperature 45°C at output stage switching frequency 4kHz
40°C at output stage switching frequency 8, 16kHz
1) With heat sink HS3... or additional cooling surface
2) Mains voltage 3 x 400V ±10%
3) Mains voltage 3 x 460V ±10%
Motor cable length 10 m
Mounting height 1000 m above MSL
Side-by-side mounting

Inverter module 0.37 to 0.7 kW (BG1 + 2)

Type CDA-32.004, C1.0

Order code

CDA3 ☐.☐☐☐, ☐x.x, ☐☐, ... ☐☐

Technical data

Cooling method

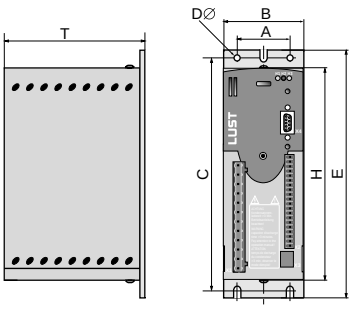
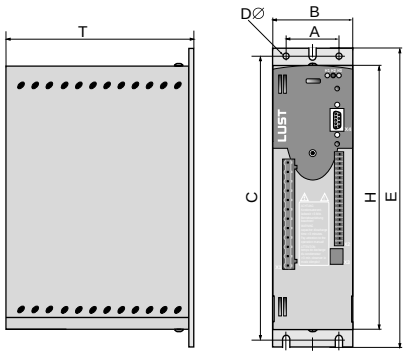
Version

For the full ordering data please refer to the following tables.

Order ref. / Tech. data	CDA32.003	CDA32.004	CDA34.003
Output, motor side			
Recommended rated power with 4-pin standard motor	0.375 kW	0.75 kW	0.75 kW
Device rated power	1.0 kVA	1.7 kVA	1.6 kVA
Voltage	3 x 0 ... 230 V	3 x 0 ... 230 V	3 x 0 ... 400/460 V[1)]
Continuous current (I_N at 4/8 kHz)	2.4 A	4.0 A	2.2 A
Peak current 1.8 x I_N for 30s	4.3 A[2)]	7.2 A[2)]	4.0 A[2)]
Rotating field frequency	0 ... 1600 Hz (>800 Hz switching frequency =16 kHz recommended)		
Switching frequency of power stage	4, **8**, 16 kHz (Factory setting = 8 kHz at 40° C cooling air temperature)		
Input, mains side			
Mains voltage	1 x 230 V -20 % +15 %	1 x 230 V -20 % +15 %	3 x 460 V -25 % +10 %
Asymmetry of mains voltage	-	-	±3 % max.
Frequency	50/60 Hz ±10 %		
Power loss 4, 8 (16) kHz	34 , 37 W	48 , 55 W	55, 70 W
Braking chopper power electronics			
Minimal ohmic resistance of an externally installed braking resistor	100 Ω	100 Ω	180 Ω

1) permissible currents at 460 V, see page 2-2 and 2-3

2) additional data, see page 2-2 and 2-3

Cooling method	CDA32.003, C x.x	CDA32.004, C x.x	CDA34.003, C x.x
Mechanism			
Protection	IP20		
Cooling air temperature	45 °C (at 4 kHz switching frequency of power stage)		
Weight	1,6 kg		2,3 kg
Mounting Method			
Individual mounting	additional cooling by means of 0.3 m² mounting plate (unvarnished)		
In-line mounting of several inverter modules	with accessories HS32.1BR		with accessories HS32.200 or HS34.2BR
Dimensions	**BG1 [mm]**		**BG2 [mm]**
W (width)	70		70
H (height)	193		218
T (depth)	120		145
A	50		50
C	205		230
E	215		240
D∅	∅ 4,8		∅ 4,8
Dimensional drawings			

Version	Properties
CDA3 ... ,T1	Cage clamp terminals

Note: For corresponding heat sinks see page 3-9.

Inverter module 1.1 to 2.2 kW (BG2)

Type CDA-34.004, C1.0

Order code

CDA3 ☐.☐☐☐, ☐x.x, ☐☐, ... ☐☐

- **Technical data**
- **Cooling method**
- **Version**

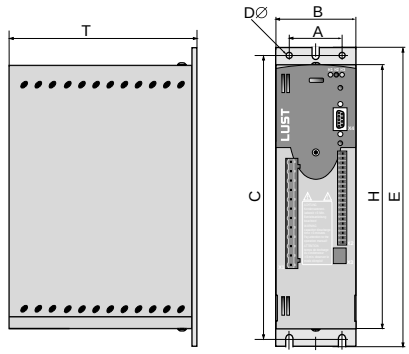
For the full ordering data please refer to the following tables.

Tech. data \ Order ref.	CDA32.006	CDA32.008	CDA34.005	CDA34.006
Output, motor side				
Recommended rated power with 4-pin standard motor	1.1 kW	1.5 kW	1.5 kW	2.2 kW
Device rated power	2.3 kVA	3.0 kVA	3.0 kVA	4.2 kVA
Voltage	3 x 0 ... 230 V	3 x 0 ... 230 V	3 x 0 ... 400/460 V[1)]	3 x 0 ... 400/460 V[1)]
Continuous current (I_N at 4/8 kHz)	5.5 A	7.1 A	4.1 A	5.7 A
Peak current 1.8 x I_N for 30s	9.9 A[2)]	12.8 A[2)]	7.4 A[2)]	10.3 A[2)]
Rotating field frequency	0 ... 1600 Hz (>800 Hz switching frequency = 16 kHz recommended)			
Switching frequency of power stage	4, **8**, 16 kHz (Factory setting = 8 kHz at 40° C cooling air temperature)			
Input, mains side				
Mains voltage	1 x 230 V -20 % +15 %	1 x 230 V -20 % +15 %	3 x 460 V -25 % +10 %	3 x 460 V -25 % +10 %
Asymmetry of mains voltage	-	-	±3 % max.	
Frequency	50/60 Hz ±10 %			
Power loss 4, 8 (16) kHz	75 / 82 W	95 / 105 W	80 / 112 W	106 / 148 W
Braking chopper power electronics				
Peak braking power with int. braking resistor (only with version CDA34 ..., Wx.x, BR)	-	-	-	1.6 kW at 360 Ω
Minimal ohmic resistance of an externally installed braking resistor	56 Ω	56 Ω	180 Ω	180 Ω

1) permissible currents at 460 V, see page 2-2 and 2-3

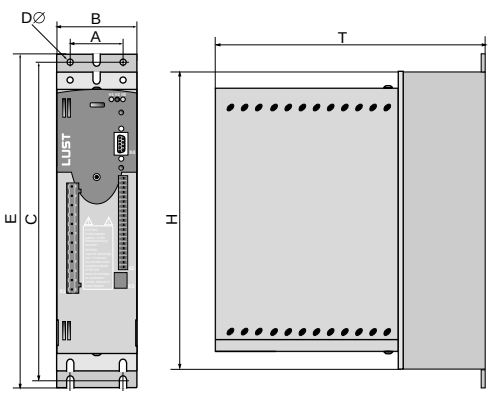
2) additional data, see page 2-2 and 2-3

Cooling method	CDA32.006, C x.x	CDA32.008, C x.x	CDA34.005, C x.x	Dimensional drawing
Mechanism				
Protection	IP20			
Cooling air temperature	45°C (at 4kHz switching frequency of power stage)			
Weight	2,3 kg			
Mounting Method				
Individual mounting	additional cooling by means of 0.3 m² mounting plate (unvarnished)			
In-line mounting of several inverter modules	with accessories HS32.200 or HS32.2BR		with accessories HS32.200 or HS34.2BR	
Dimensions	**BG2[mm]**			
W (width)	70			
H (height)	218			
T (depth)	145			
A	50			
C	230			
E	240			
D	∅ 4.8			Vertical mounting, cold plate



Version	Properties
CDA3 ... ,T1	Cage clamp terminals

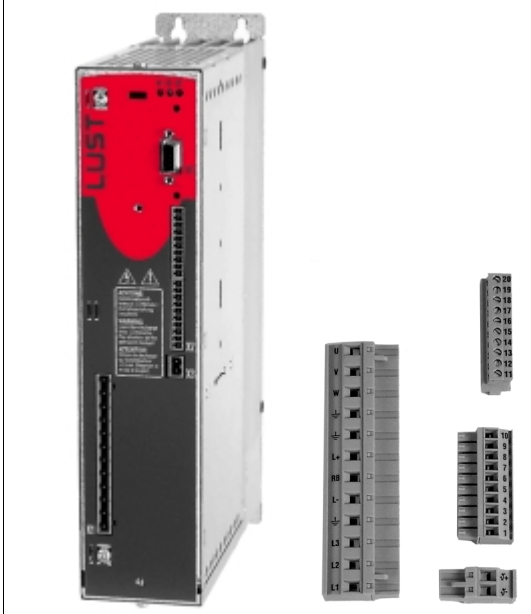
Cooling method	CDA34.006, W x.x	Dimensional drawing
Mechanism		
Protection	IP20	
Cooling air temperature	45°C (at 4kHz switching frequency of power stage)	
Weight	3,5 kg	
Dimensions	**BG2[mm]**	
W (width)	70	
H (height)	240	
T (depth)	220	
A	40	
C	260	
E	270	
D	∅ 4.8	Vertical mounting, cold plate



Version	Properties
CDA3 ... ,T1	Tension cage clamp terminals
CDA34.006, Wx.x, BR	Internal braking resistor only for housings with »wall mounting« cooling method **CDA34 ..., W x.x**

Note: For corresponding heat sinks see page 3-9.

Inverter module 3.0 and 4.0 kW (BG3)



Type CDA-34.008, W1.0

Order code

CDA3 ☐.☐☐☐, ☐x.x, ☐☐, ... ☐☐

- ☐.☐☐☐ — Technical data
- ☐x.x — Cooling method
- ☐☐ — Version

For the full ordering data please refer to the following tables.

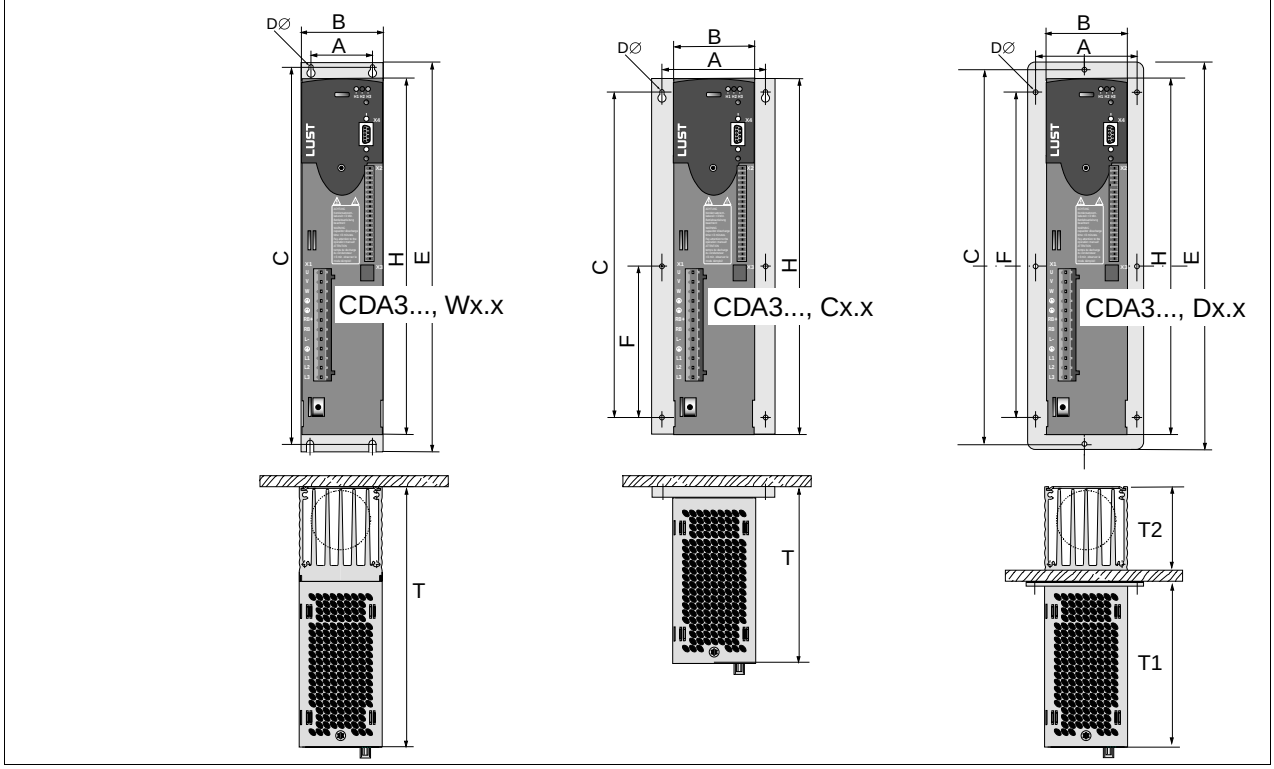
Order ref. / Tech. data	CDA34.008	CDA34.010
Output, motor side		
Recommended rated power with 4-pin standard motor	3.0 kW	4.0 kW
Device rated power (400V)	5.7 kVA	7.3 kVA
Voltage	3 x 0 ... 400/460 V[1)]	
Continuous current (I_N at 4/8 kHz)	7.8 A	10 A
Peak current 1.8 x I_N for 30 s	14 A[2)]	18 A[2)]
Rotating field frequency	0 ... 1600 Hz (>800 Hz switching frequency =16 kHz recommended)	
Switching frequency of power stage	4, **8**, 16 kHz (Factory setting = 8 kHz at 40° C cooling air temperature)	
Input, mains side		
Mains voltage	3 x 460 V -25 % +10 %	3 x 460 V -25 % +10 %
Asymmetry	±3 % max.	
Frequency	50/60 Hz ±10 %	
Power loss 4, 8 (16) kHz	135 / 162 W	172 / 207 W
Braking chopper power electronics		
Peak braking power with int. braking resistor (only with version CDA34 ..., Wx.x, BR)	6.0 kW at 90 Ω	6.0 kW at 90 Ω
Minimal ohmic resistance of an externally installed braking resistor	81 Ω	81 Ω

1) permissible currents at 460 V, see page 2-2 and 2-3

2) additional data, see page 2-2 and 2-3

	CDA34 ..., W x.x	CDA34 ..., C x.x	CDA34 ..., D x.x
Cooling method	**Wall mounting**	**Cold plate**	**Push-through heat sink**
Mounting type	Vertical mounting with unhindered air flow	Vertical mounting on backing plate or cooling profile	Vertical assembly, heat sink pushed through backing plate
Protection	IP20	IP20	IP20 (device) IP54 (heat sink side)
Cooling air temperature	45°C (at 4 kHz switching frequency of power stage)		
Weight	4,4 kg	3,2 kg	4,6 kg
Dimensions	**BG3 [mm]**	**BG3 [mm]**	**BG3 [mm]**
W (width)	70	70 (100)	70 (110)
H (height)	300	300	300
T (depth)	218	150	T1 138 / T2 80
A	40	85	90
C	320	200	320
D	∅ 4.8	∅ 5.5	∅ 4.8
E	330	--	340
F	--	100	200

Dimensional drawings



Version	Properties
CDA34 ..., T1	Cage clamp terminals
CDA34 ..., BR	Internal braking resistor only for housings with »wall mounting« cooling method **CDA34 ..., W x.x** or »push-through heat sink«, **CDA34..., D x.x**

Note: Please note that, with the cold-plate and push-through heat sink cooling methods, special conditions for discharge of the power loss must be maintained. For more informations see CDA3000 operation manual.

Inverter module 5.5 and 7.5 kW (BG4)

Type CDA-34.014, W1.0

Order code

CDA3 ☐.☐☐☐, ☐x.x, ☐☐, ... ☐☐

- Technical data
- Cooling method
- Version

For the full ordering data please refer to the following tables.

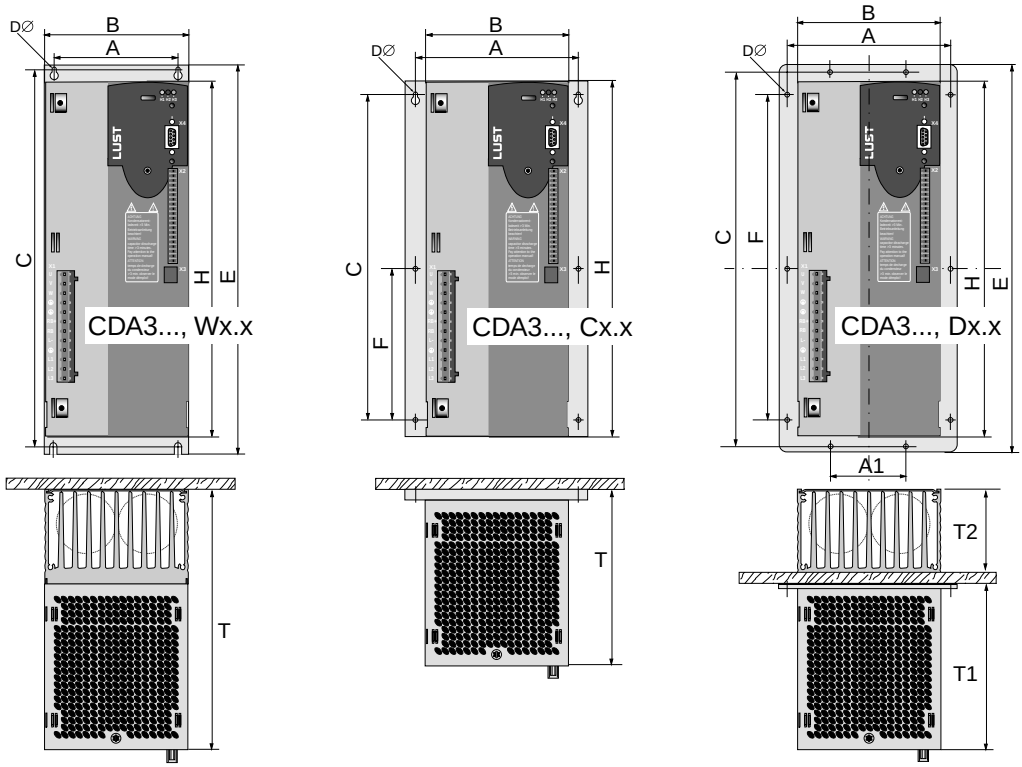
Order ref. / Tech. data	CDA34.014	CDA34.017
Output, motor side		
Recommended rated power with 4-pin standard motor	5.5 kW	7.5 kW
Device power (400 V)	10.2 kVA	12.4 kVA
Voltage	3 x 0 ... 400/460V[1)]	
continuous current (I_N at 4/8 kHz)	14 A	17 A
Peak current 1.8 x I_N for 30s	25 A[2)]	31 A[2)]
Rotating field frequency	0 ... 1600 Hz (>800 Hz switching frequency =16 kHz recommended)	
Switching frequency of power stage	4, **8**, 16kHz (Factory setting = 8 kHz at 40° C cooling air temperature)	
Input, mains side		
Mains voltage	3 x 460 V -25 % +10 %	3 x 460 V -25 % +10 %
Asymmetry of mains voltage	±3 % max.	
Frequency	50/60Hz ±10%	
Power loss 4, 8 (16) kHz	210 / 268 W	225 / 325 W
Braking chopper power electronics		
Peak braking power with int. braking resistor (only with version CDA3 ...,Wx.x, BR)	6.0 kW at 90 Ω	6.0 kW at 90 Ω
Minimal ohmic resistance of an externally installed braking resistor	47 Ω	47 Ω

1) permissible currents at 460 V, see page 2-2 and 2-3

2) additional data, see page 2-2 and 2-3

	CDA3..., W x.x	CDA3..., C x.x	CDA3..., D x.x
Cooling method	**Wall mounting**	**Cold plate**	**Push-through heat sink**
Mounting type	Vertical mounting with unhindered air flow	Vertical mounting on backing plate or cooling profile	Vertical assembly, heat sink pushed through backing plate
Protection	IP20	IP20	IP20 (device) IP54 (heat sink side)
Cooling air temperature	45°C (at 4 kHz switching frequency of power stage)		
Weight	6,5 kg	5,2 kg	6,7 kg
Dimensions	**BG4 [mm]**	**BG4 [mm]**	**BG4 [mm]**
W (width)	120	120 (150)	120 (160)
H (height)	300	300	300
T (depth)	218	150	T1 138 / T2 80
A	80	135	A 140 , A1 80
C	320	200	320
D	∅ 4.8	∅ 5.5	∅ 4.8
E	330	--	340
F	--	100	200

Dimensional drawings



Version	Properties
CDA34..., T1	Cage clamp terminals
CDA34 ..., BR	Internal braking resistor only for housings with »wall mounting« cooling method **CDA34 ..., W x.x** or »push-through heat sink«, **CDA34..., D x.x**

Note: Please note that, with the cold-plate and push-through heat sink cooling methods, special conditions for discharge of the power loss must be maintained. For more informations see CDA3000 operation manual.

Inverter module 11 and 15 kW (BG5)

Type CDA-34.024, C1.0

Order code

CDA3 ☐.☐☐☐, ☐x.x, ☐☐, ... ☐☐

- **Technical data**
- **Cooling method**
- **Version**

For the full ordering data please refer to the following tables.

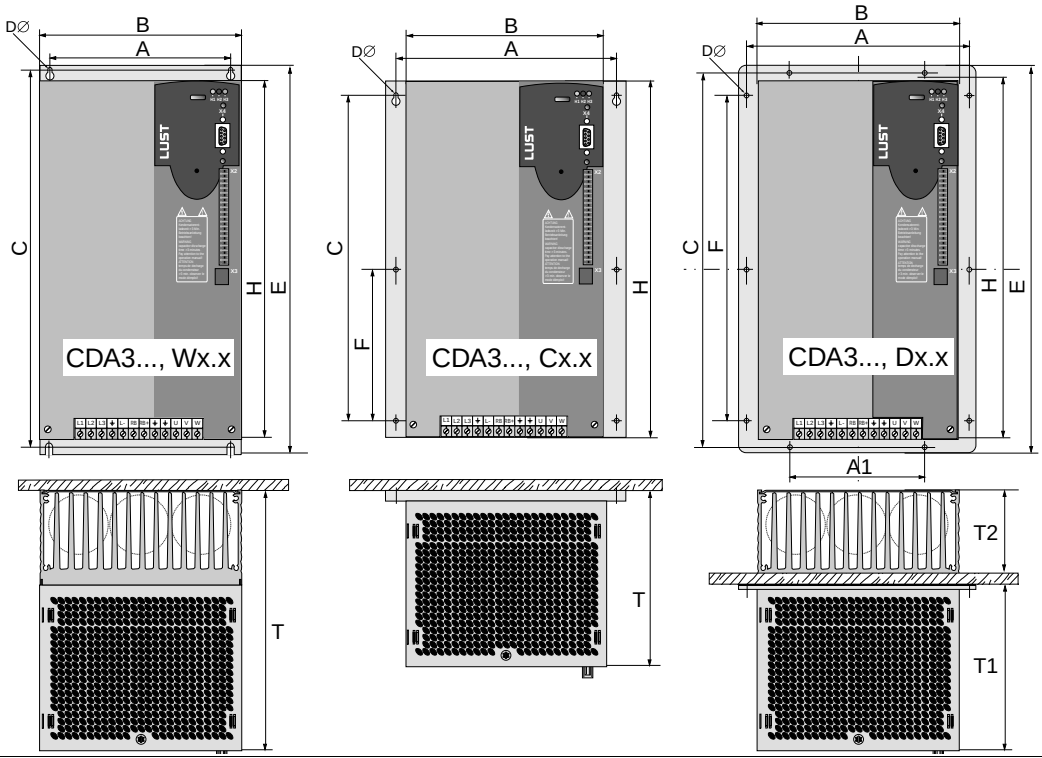
Order ref. / Tech. data	CDA34.024	CDA34.032
Output, motor side		
Recommended rated power with 4-pin standard motor	11 kW	15 kW
Device power (400 V)	17.5 kVA	23.3 kVA
Voltage	3 x 0 ... 400/460 V[1)]	
Continuous current (I_N at 4/8 kHz)	24 A	32 A
Peak current 1.8 x I_N for 30s	43 A[2)]	58 A[2)]
Rotating field frequency	0 ... 1600 Hz (>800 Hz switching frequency =16 kHz recommended)	
Switching frequency of power stage	4, **8**, 16 kHz (Factory setting = 8 kHz at 40° C cooling air tempeature)	
Input, mains side		
Mains voltage	3 x 460 V -25 % +10 %	3 x 460 V -25 % +10 %
Asymmetry of mains voltage	±3 % max.	
Frequency	50/60 Hz ±10 %	
Power loss 4, 8 (16) kHz	315 / 400 W	400 / 510 W
Braking chopper power electronics		
Peak braking power with int. braking resistor (only with version CDA3 ...,Wx.x, BR)	6.0 kW at 90 Ω	6.0 kW at 90 Ω
Minimal ohmic resistance of an externally installed braking resistor	22 Ω	22 Ω

1) permissible currents at 460 V, see page 2-2 and 2-3

2) additional data, see page 2-2 and 2-3

	CDA3 ..., W x.x	CDA3 ..., C x.x	CDA3 ..., D x.x
Cooling method	**Wall mounting**	**Cold plate**	**Push-through heat sink**
Mounting type	Vertical mounting with unhindered air flow	Vertical mounting on backing plate or cooling profile	Vertical assembly, heat sink pushed through backing plate
Protection	IP20	IP20	IP20 (device) IP54 (heat sink side)
Cooling air temperature	45°C (at 4 kHz switching frequency of power stage)		
Weight	7,2 kg	6,4 kg	7,4 kg
Dimensions	**BG5 [mm]**	**BG5 [mm]**	**BG5 [mm]**
W (width)	170	170 (200)	170 (210)
H (height)	300	300	300
T (depth)	218	150	T1 138 / T2 135
A	130	185	A 190 , A1 100
C	320	200	320
D	∅ 4.8	∅ 5.5	∅ 4.8
E	330	--	340
F	--	100	200

Dimensional drawings



Version	Properties
CDA34 ..., T1	Cage clamp terminals
CDA34 ..., BR	Internal braking resistor only for housings with »wall mounting« cooling method **CDA34 ..., W x.x** or »push-through heat sink«, **CDA34..., D x.x**

Note: Please note that, with the cold-plate and push-through heat sink cooling methods, special conditions for discharge of the power loss must be maintained. For more informations see CDA3000 operation manual.

Inverter module 22, 30 and 37 kW (BG6)

Type CDA-34.045, W1.0

Order code

CDA3 ☐.☐☐☐, ☐x.x, ☐☐, ... ☐☐

- **Technical data**
- **Cooling method**
- **Version**

For the full ordering data please refer to the following tables.

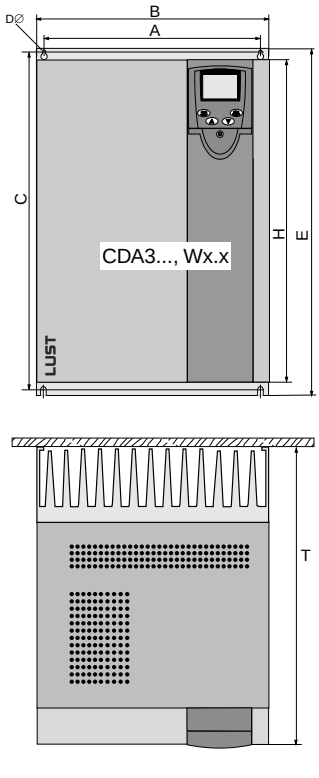
Tech. data \ Order ref.	CDA34.045	CDA34.060	CDA34.072
Output, motor side			
Recommended rated power with 4-pin standard motor	22 kW	30 kW	37 kW
Device power (400 V)	32.8 kVA	43.8 kVA	52.5 kVA
Voltage	3 x 0 ... 400/460 V[1)]		
Continuous current (I_N at 4/8 kHz)	45 A	60 A	72 A
Peak current 1.5 x I_N for 60s	68 A[2)]	90 A[2)]	108 A[2)]
Rotating field frequency	0 ... 400 Hz		
Switching frequency of power stage	**4**, 8 kHz (Factory setting = 4 kHz)		
Input, mains side			
Mains voltage	3 x 460 V -25 % +10 %	3 x 460 V -25 % +10 %	3 x 460 V -25 % +10 %
Asymmetry of mains voltage	±3 % max.		
Frequency	50/60 Hz ±10 %		
Power loss 4 , 8 kHz	777 / 933 W	1010 / 1220 W	1270 / 1530 W
Braking chopper power electronics			
Minimal ohmic resistance of an externally installed braking resistor	18 Ω	18 Ω	13 Ω

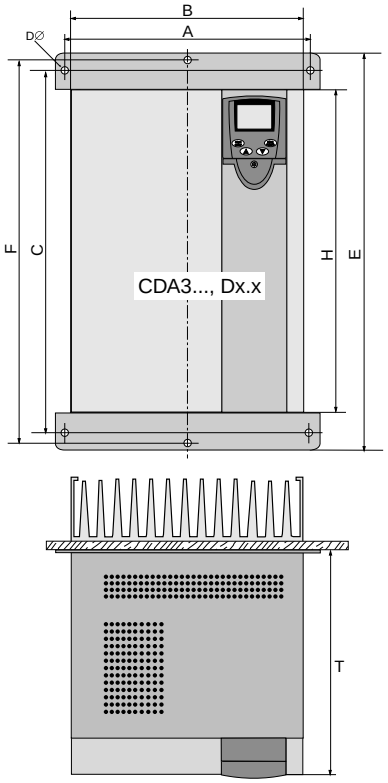
1) permissible currents at 460 V, see page 2-2 and 2-3

2) additional data, see page 2-2 and 2-3

	CDA3..., W x.x	CDA3..., D x.x
Cooling method	**Wall mounting**	**Push-through heat sink**
Mounting type	Vertical mounting with unhindered air flow	Vertical mounting, heat sink pushed through backing plate
Protection	IP20	IP20 (device) IP20 (heat sink side)
Cooling air temperature	45°C (at 4 kHz switching frequency of power stage)	
Weight	20 kg	20,5 kg
Dimensions	**BG6 [mm]**	**BG6 [mm]**
W (width)	250	250
H (height)	345	345
T (depth)	325	248
A	215	264
C	360	381
D	∅ 6.0	∅ 6.0
E	375	411

Dimensional drawings





Version	Properties
CDA34 ..., T1	Cage clamp terminals

Note: Please note that, with the push-through heat sink cooling method, special conditions for discharge of the power loss must be maintained. For more informations see CDA3000 operation manual.

Inverter module 45 and 55 kW (BG7)

Type CDA-34.090, W1.0

Order code

CDA3 ☐.☐☐☐, ☐x.x, ☐☐, ... ☐☐

- **Technical data**
- **Cooling method**
- **Version**

For the full ordering data please refer to the following tables.

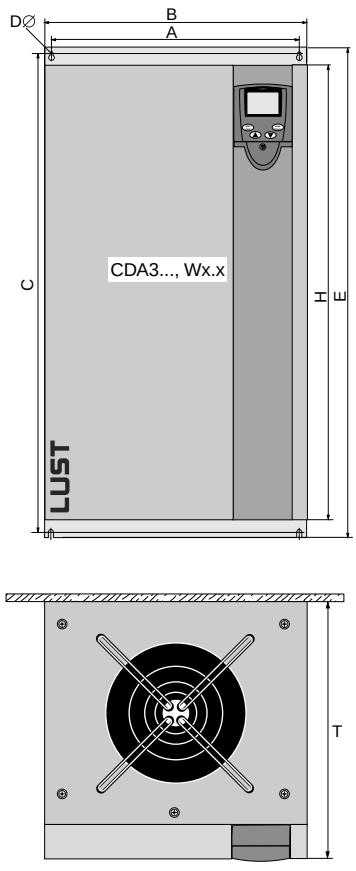
Order ref. / Tech. data	CDA34.090	CDA34.110
Output, motor side		
Recommended rated power with 4-pin standard motor	45 kW	55 kW
Device power (400 V)	65.6 kVA	80 kVA
Voltage	3 x 0 ... 400/460 V[1)]	
Continuous current (I_N at 4/8 kHz)	90 A	110 A
Peak current 1.5 x I_N for 60s	135 A[2)]	165 A[2)]
Rotating field frequency	0 ... 400 Hz	
Switching frequency of power stage	**4**, 8 kHz (Factory setting = 4 kHz)	
Input, mains side		
Mains voltage	3 x 460 V -25 % +10 %	3 x 460 V -25 % +10 %
Asymmetry of mains voltage	±3 % max.	
Frequency	50/60 Hz ±10 %	
Power loss 4, 8 kHz	1510 / 1820 W	1890 / 2290 W
Braking chopper power electronics		
Minimal ohmic resistance of an externally installed braking resistor	12 Ω	10 Ω

1) permissible currents at 460 V, see page 2-2 and 2-3

2) additional data, see page 2-2 and 2-3

	CDA34 ..., W x.x
Cooling method	**Wall mounting**
Mounting type	Vertical mounting with unhindered air flow
Protection	IP20
Cooling air temperature	45°C (at 4 kHz switching frequency of power stage)
Weight	31 kg
Dimensions	**BG7 [mm]**
W (width)	300
H (height)	550
T (depth)	305
A	265
C	555
D	∅ 9
E	600

Dimensional drawing



Version	Properties
CDA34 ..., T1	Cage clamp terminals

Inverter module 75 and 90 kW (BG8)

Type CDA-34.170, W1.0

Order code

CDA3 ☐.☐☐☐, ☐x.x, ☐☐, ... ☐☐

- **Technical data**
- **Cooling method**
- **Version**

For the full ordering data please refer to the following tables.

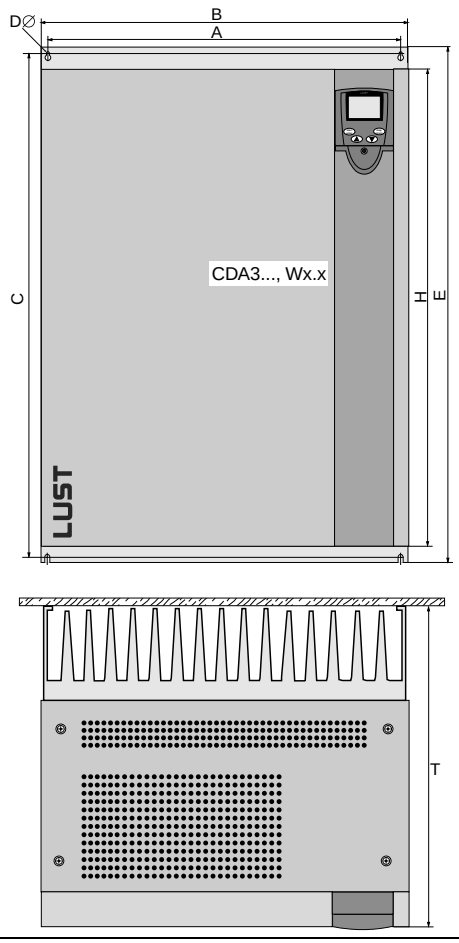
Order ref. / Tech. data	CDA34.143, Wx.x	CDA34.170, Wx.x
Output, motor side		
Recommended rated power with 4-pin standard motor	75 kW	90 kW
Device power (400 V)	104 kVA	124 kVA
Voltage	3 x 0 ... 400/460 V[1)]	
Continuous current (I_N at 4/8 kHz)	143 A	170 A
Peak current 1.5 x I_N for 60s	214 A[2)]	255 A[2)]
Rotating field frequency	0 ... 400 Hz	
Switching frequency of power stage	**4**, 8 kHz (Factory setting = 4 kHz)	
Input, mains side		
Mains voltage	3 x 460 V -25 % +10 %	3 x 460 V -25 % +10 %
Asymmetry of mains voltage	±3 % max.	
Frequency	50/60 Hz ±10 %	
Power loss 4, 8 kHz	2450 / 2970 W	2930 / 3550 W
Braking chopper power electronics		
Minimal ohmic resistance of an externally installed braking resistor	5.6 Ω	5.6 Ω

1) permissible currents at 460 V, see page 2-2 and 2-3

2) additional data, see page 2-2 and 2-3

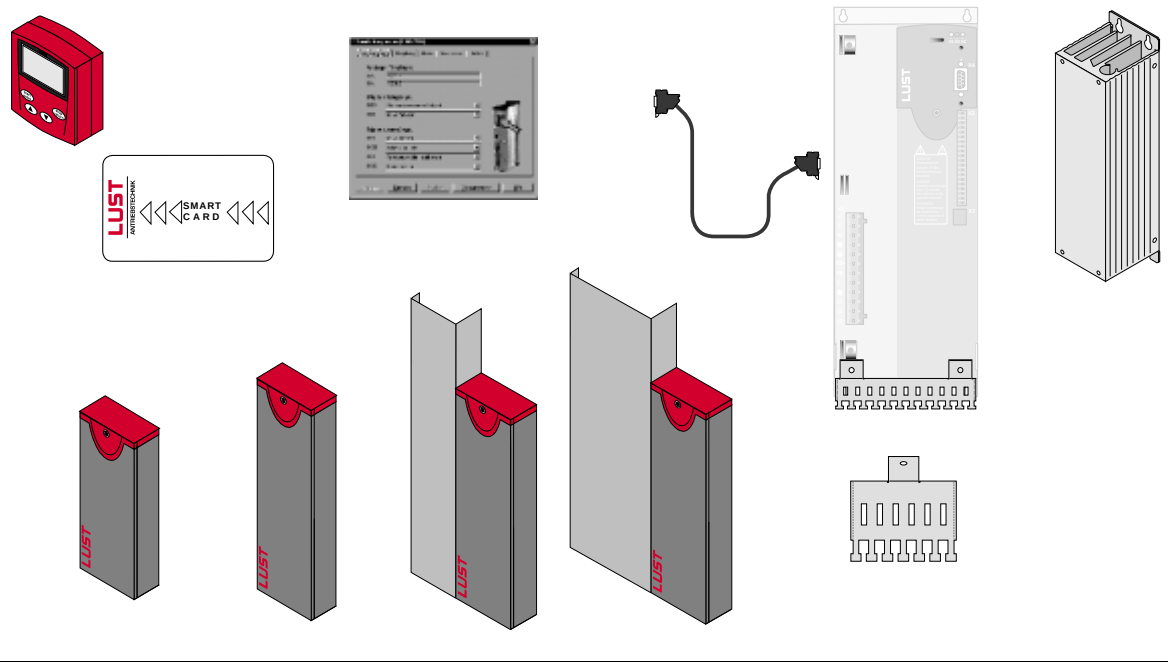
	CDA34 ..., W x.x
Cooling method	**Wall mounting**
Mounting type	Vertical mounting with unhindered air flow
Protection	IP20
Cooling air temperature	40°C
Weight	60 kg
Dimensions	**BG8 [mm]**
W (width)	412
H (height)	500
T (depth)	370
A	340
C	485
D	∅ 9
E	510

Dimensional drawing



Version	Properties
CDA34 ..., T1	Cage clamp terminals

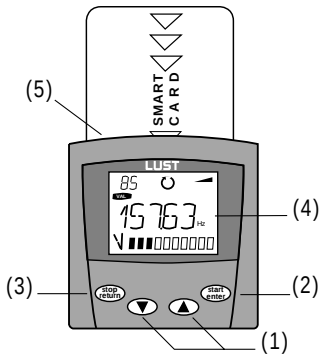
Overview of accessories for inverter module

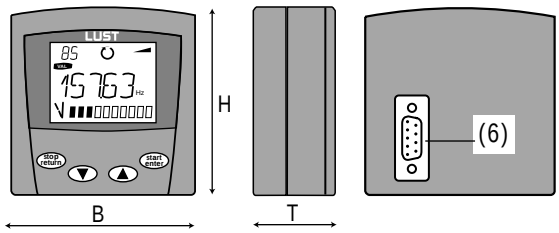


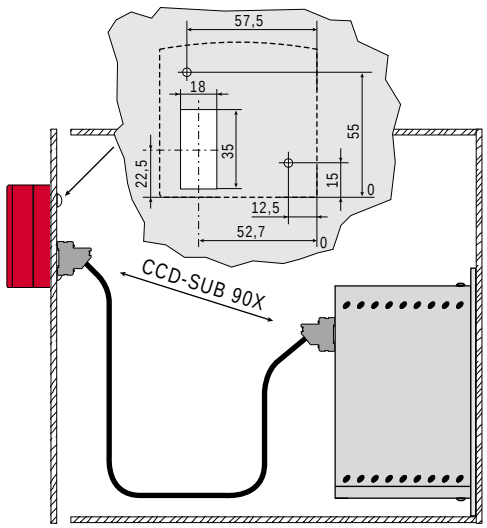
Acces-sory	Operator module	Memory card	User software	Connecting cable	Terminal cover	EMC shield connection	Heat sink for BG1 + 2
Type	KP200	SMARTCARD	DRIVEMANAGER	CCD-SUB90X	TB1 ... TB5	ST02 ... ST05 SMC50 SMB50	HS32.1BR HS32.200 HS32.2BR HS34.2BR
Page	3 - 2	3 - 3	3 - 4	3 - 5	3 -6	3 - 7 / 3 - 8	3 - 9

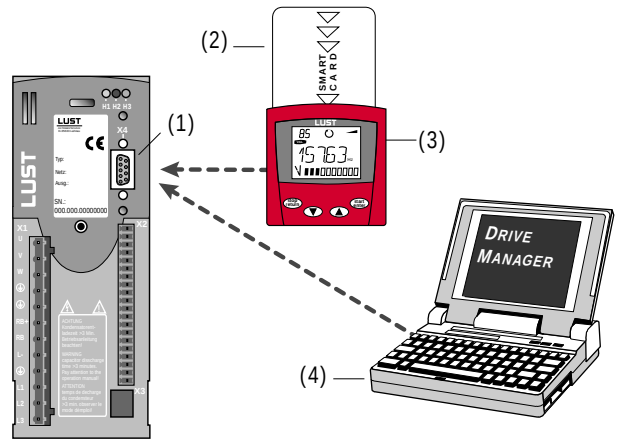
Acces-sory	Control termina	Operation Manual
Typ	CT-01	OP-01
Seite	3-10	3-11

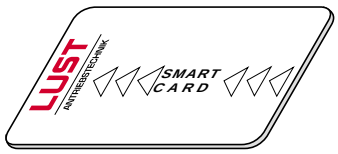
Operator module	Order code
	KP 200 KEYPAD Type 200
KP200	

Order ref. / Tech. data	KP200	Diagrams
Basic functions		
(1) Cursor keys	Move forward/back (scroll) within the menu structure	
(2) »Start/Enter« key	Start, confirm or select menu	
(3) »Stop/Return« key	Stop, cancel or quit menu	
(4) LC display	140 segments, green/red backlit	
(5) Chipcard reader	To store the device settings on the SMARTCARD	

Mechanism		
Dimensions	70 x 73 x 33mm (W x H x D)	
Weight	150 g	
Connection (RS232)		
Standard (6)	Can be plugged directly into inverter module	

Cable connection	Installation in switch cabinet door	
Connection between KP200 and inverter module CDA3000 with cable CCD-SUB90☐	Installation in the cabinet door requires two holes for fixing screws and a break-through for the connector. Please use the self-tapping screws for thermoplastics (e.g. EJOT PT screw, type K30 x 8 WN1412).	

System layout	Explanation
	(1) Terminal X4 for operator modules or PC (RS232 interface) (2) Chipcard: SMARTCARD (3) Operator module KP200 (4) PC with user software DRIVEMANAGER

SMARTCARD
SMARTCARD 

Order code
SC SMARTCARD without memory contents

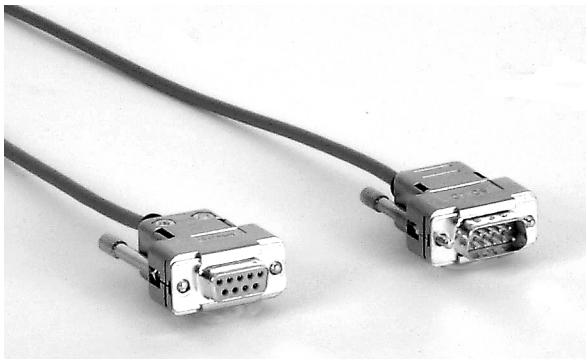
Order designation	Summary explanation
SC	Data from the inverter module can be stored and transferred easily to other inverter modules.

PC user software	Order code
	DRIVEMANAGER, X.X PC user software Software release
DRIVEMANAGER 2.3	

Order ref. / Tech. data	DRIVEMANAGER X.X
Software features	The »DRIVEMANAGER« PC user software delivers the following functions: - User-friendly subject area and parameter editor with plain text display - Status display to monitor the operation-specific actual and reference values - Direct control of the inverter by PC - User-friendly four-channel Digital Scope for real-time recording of actual values such as current curve or v/t diagram - Comparison function for problem solving, data administration and print functions
Hardware and software requirements	- PC with 80486 processor or faster - Microsoft Windows 95/98 or Windows NT - Min. 8 MB RAM, recommended 16 MB - Buffered serial interface
Supply package	- 5 floppy disks for installation of the DRIVEMANAGER USER SOFTWARE - DRIVEMANAGER USER MANUAL - 2 floppy disks with data sets for LUST-ASM and PSM motors
Languages	On installation you can choose between German or English.

Order designation	Licences
DRIVEMANAGER X.X TEST	Contains the full scope of functions and is intended for test and demo purposes. The runtime is limited to 180 days from installation.
DRIVEMANAGER X.X	Contains the full scope of functions for parameter-setting, control and monitoring. The runtime is unlimited. The software license permits simultaneous use on any number of workstations. Version 2.3 is compatible with CDA3000.

Connecting cable



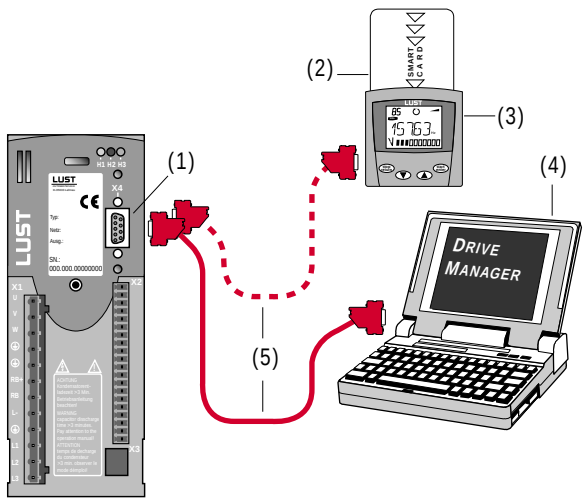
CCD-SUB 901, x.x

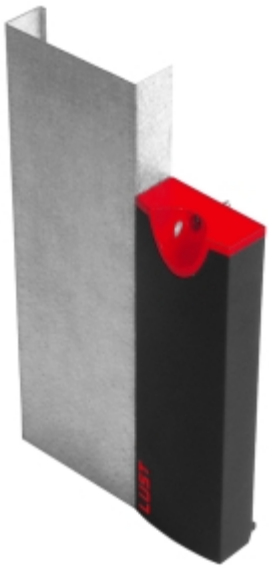
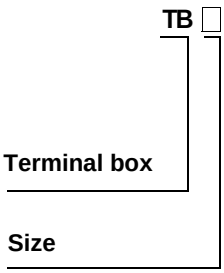
Order code

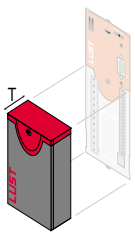
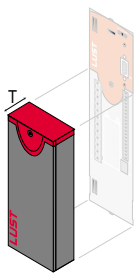
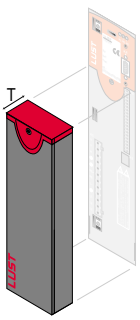
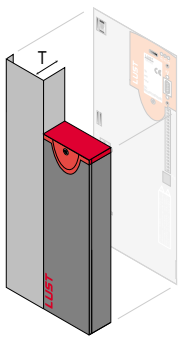
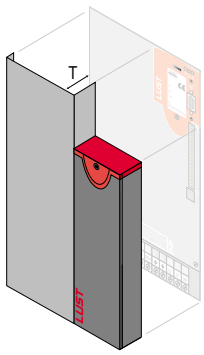
CC D-SUB□□□

- Connecting Cable
- Cable type D-SUB
- Cable length in meters

Order designation	Technical data
CCD-SUB 901	Cable for connection between inverter module and KP200 or inverter module and PC with DRIVEMANAGER, length 1 m
CCD-SUB 902	Cable for connection between inverter module and KP200 or inverter module and PC with DRIVEMANAGER, length 2 m
CCD-SUB 903	Cable for connection between inverter module and KP200 or inverter module and PC with DRIVEMANAGER, length 3 m

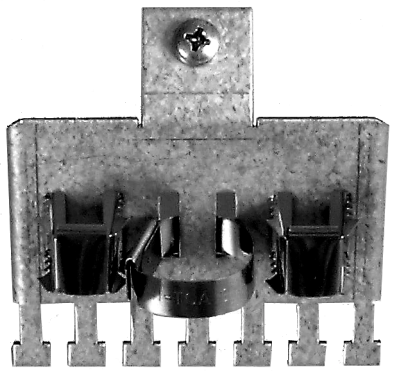
System layout	Explanation
	(1) Terminal X4 for operator module or PC, RS232 interface (2) Chipcard: SMARTCARD (3) Operator module KP200 (4) PC with user software DRIVEMANAGER (5) Connecting cable CCD-SUB90□

Terminal cover BG3	Terminal cover BG5	Order code
		
TB3	TB5	

Order ref.	TB1	TB2	TB3	TB4	TB5
Suitable for inverter module	CDA32.003 CDA32.004	CDA32.006 CDA32.008 CDA34.003 CDA34.005 CDA34.006	CDA34.008 CDA34.010	CDA34.014 CDA34.017	CDA34.024 CDA34.032
Power of inverter modules	0.37 kW 0.75 kW	1.1 kW 1.5 kW 0.75 kW 1.5 kW 2.2 kW	3.0 kW 4.0 kW	5.5 kW 7.5 kW	11.0 kW 15.0 kW
D (depth)	32.5 mm	32.5 mm	32.5 mm	32.5 mm	32.5 mm
Diagram					

Note: On inverter modules sizes 6.7.8 the terminal cover is supplied as standard.

Shield connection



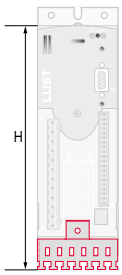
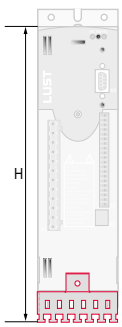
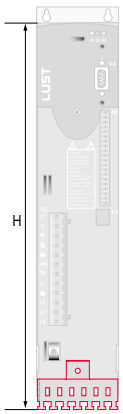
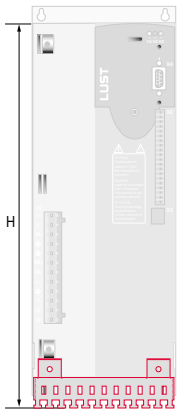
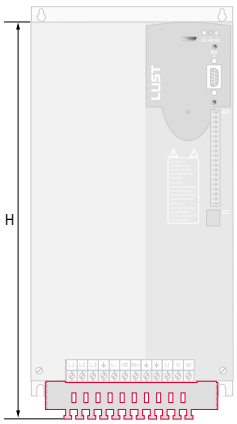
ST02 (incl. metal clips. metal cable band and screw)

Order code

ST □□

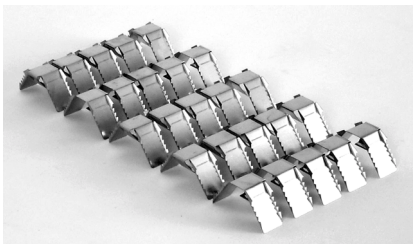
Shield Terminator

Size

Order ref. / Tech. data	ST02			ST04	ST05
Suitable for inverter module	CDA32.003 CDA32.004	CDA32.006 CDA32.008 CDA34.003 CDA34.005 CDA34.006	CDA34.008 CDA34.010	CDA34.014 CDA34.017	CDA34.024 CDA34.032
Power of inverter modules	0.37 .. 0.75 kW	0.75 .. 2.2 kW	3.0 ... 4.0 kW	5.5 ... 7.5 kW	11.0 ... 15.0 kW
H (height)	238 mm	263 mm	345 mm	345 mm	355 mm
Diagram					

Note: For inverter module sizes 6, 7, 8 (cable cross-sections > 32 mm)) we recommend the attaching the shields of the motor/mains lead directly on a shielding rail in the switch cabinet.

Metal clips



SMC50

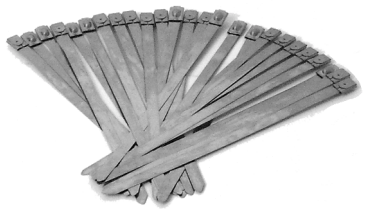
Order code

SMC□□

- Shield Metal Clip
- 360° contacts
- Quantity of Packing unit

Order designation	Packing unit	Suitable for EMC shield connection	Usable for cable shield diameter	Material
SMC50	Pack of 50	ST xx	< 12mm	Spring steel

Metal cable band



SMB50

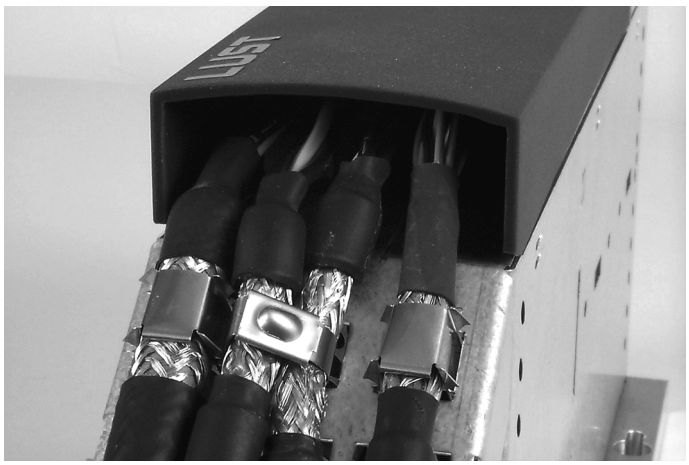
Order code

SMB□□

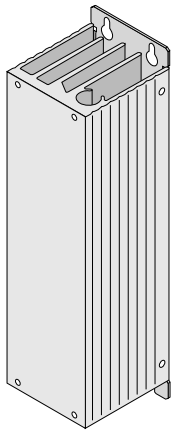
- Shield Metal Band
- 360° contacts
- Quantity of Packing unit

Order designation	Packing unit	Suitable for EMC shield connection	Usable for cable shield diameter	Material
SMB50	Pack of 50	ST xx	> 12mm	Stainless steel

System layout



Heat sink / braking resistor for BG1 + BG2



HS3X.xxx

Order code

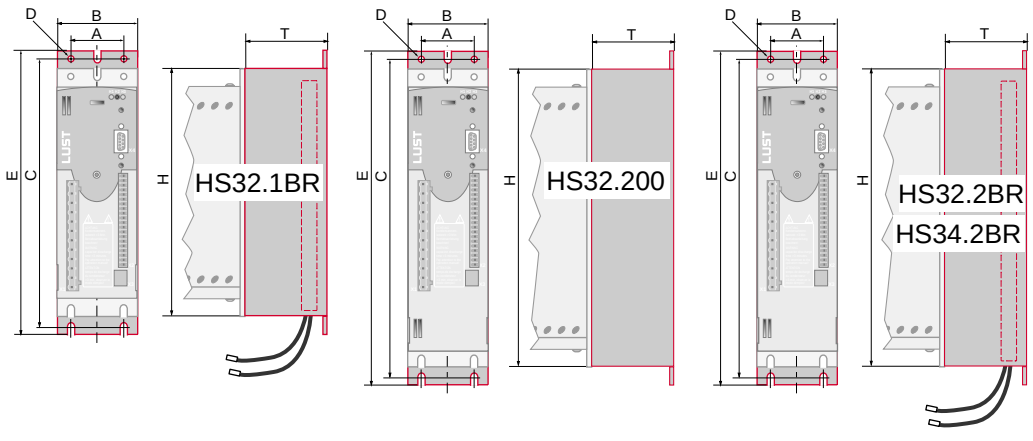
HS 3□.□□

- Heat Sink
- Series and voltage
- Size
- Braking resistor

Tech. data \ Order ref.	HS32.1BR	HS32.200	HS32.2BR	HS34.2BR
Suitable for inverter module	CDA32.003 CDA32.004	CDA32.006 CDA32.008 CDA34.005	CDA32.006 CDA32.008	CDA34.003 CDA34.005
Braking resistor	162 Ω	-	90 Ω	360 Ω
Peak braking power	0.9 kW	-	1.7 kW	1.6 kW
Continuous braking power when mounted on the inverter module	40 W	-	5 W	5 W
Heat removal capacity when the heat sink is mounted externally	40 W	85 W	85 W	85 W

Order ref.	Description \ Dimensions	W (width) [mm]	H (height) [mm]	T (depth) [mm]	A [mm]	C [mm]	D [mm]	E [mm]
HS32.1BR	Heat sink with integr. braking resistor (230 V system)	70	215	75	40	235	∅ 4.8	245
HS34.200	Heat sink	70	240	75	40	260	∅ 4.8	270
HS32.2BR	Heat sink with integr. braking resistor (230 V system)							
HS34.2BR	Heat sink with integr. braking resistor (460 V system)							

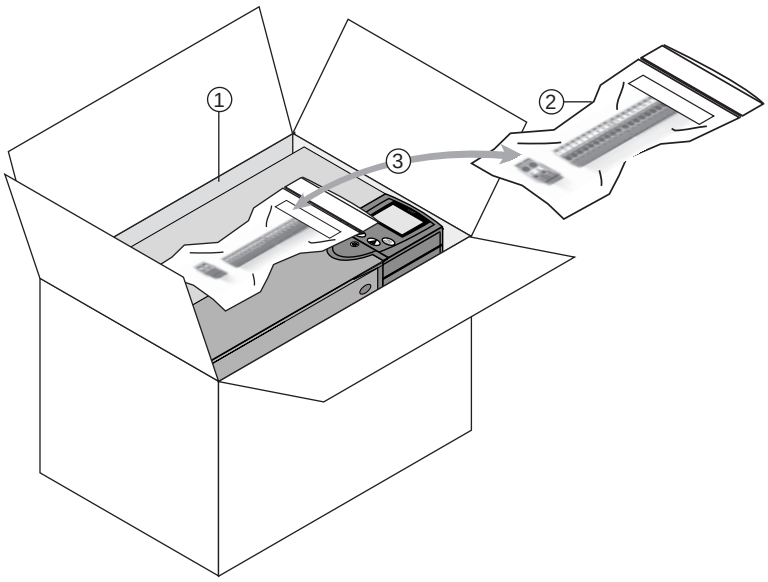
Dimensional drawings



Control terminal	Control terminal
	
0927.0014	0927.0015

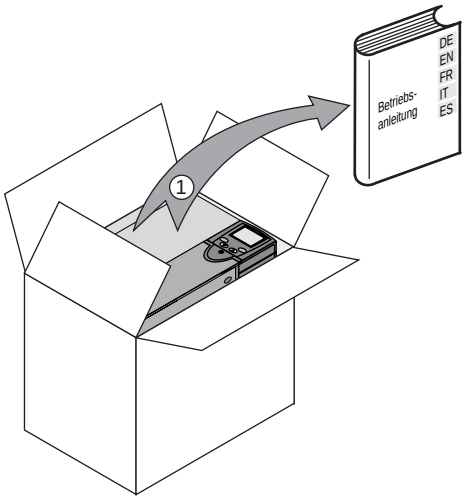
Order code
CT - □□ Control Terminal Control Terminal

Order ref.	Tech Data
CT - 01	**The screw-type control terminals are replaced by tension spring control terminals.** **Important**: Orders for accessory CT-01 must always be referenced to an "inverter module" order item. Example: Item 1 Inverter module CDA34 ... Item 2 Accessory CT-01 for inverter module item 1
0927.0014	**Replacement: Tension spring control terminals**
0927.0015	**Replacement: Screw-type control terminals**

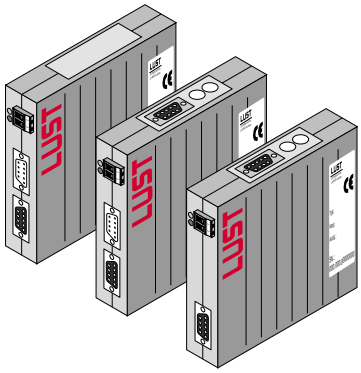
CT - 01 system layout	Explanatory notes
	(1) Packing unit: screw-type control terminals (standard) (2) Packing unit: tension spring control terminals (3) Item 1 is replaced by item 2 => CT-01

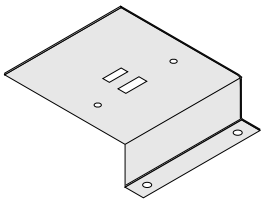
Operation Manual	Order code
	OP - □□ Operation Manual Logistik Service
OP-01 ID. Nr. 0840.00B.2	

Order ref.	Tech. Data
OP-01	**The inverter module is shipped without operating instructions.** **Important:** With OP-01 orders the duty of instruction in respect of the inverter module is transferred to the orderers. The orderers are responsible for ensuring that their customers are provided with all information, in particular instructions relating to safety in handling and operation, in suitable form and in the appropriate language. Orders for OP-01 logistics must always be referenced to an "inverter module" order item. Example: Item 1 Inverter module CDA34 ... Item 2 OP-01 logistics for inverter module item 1

OP - 01 system layout	Explanatory notes
	(1) Inverter module is shipped without operating-instructions.

Overview of user and communication modules





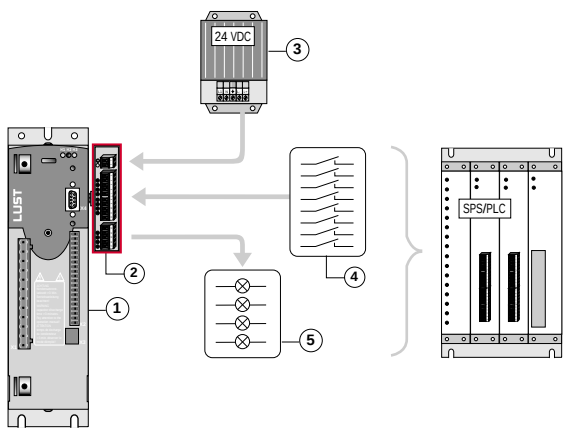
Contents

	User modules	Communication modules	Mounting package
Type	UM-8I4O	CM-CAN1 CM-CAN2 CM-DPV1	MP-UMCM
Page	4 - 2	4 - 3	4 - 5

User module	Order code
	UM - □□□□ User Module Properties 8 I 4 O (e.g.) Terminal expansion by 4 outputs Terminal expansion by 8 inputs
UM-8I4O	

Order designation	Summary explanation
UM-8I4O	Terminal expansion by eight inputs and four outputs, function of inputs/outputs programmable

Technical data	UM-8I4Q		
Voltage supply	24 VDC ±20 %		
Current consumption	0.6 A		
Eight inputs	Input voltage for signal »0«		from 0 to 5 V
	Input voltage for signal »1«		>15 V
	Input current with signal »1«		3.5 mA to 7.0 mA (6 mA at 24 VDC)
Four outputs	Output current	Permissible range with signal »1«	min. 5 mA max. 0.5 A
		Mean	125 mA
		Total current	0.5 A
		Short-circuit current per output	max. 1.2 A short-time
Dimensions (W x H x D)	28 x 90 x 90 [mm]		

System layout, UM-8I4O	Explanation
	(1) Inverter module CDA3000 (2) User module UM-8I4O (3) External power pack 24 VDC (4) Eight control inputs (programmable) (5) Four control outputs (programmable)

Communication module

CM-CAN1, CM-CAN2, CM-DPV1

Order code

CM - □□□□

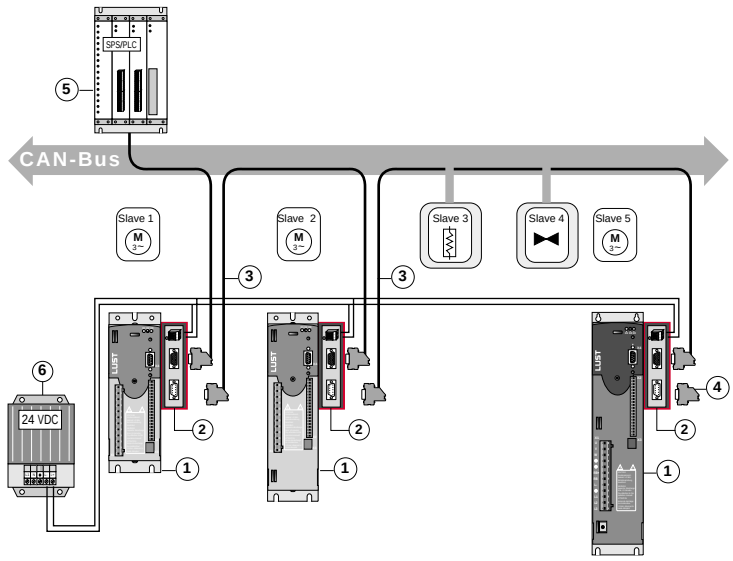
Communication Module

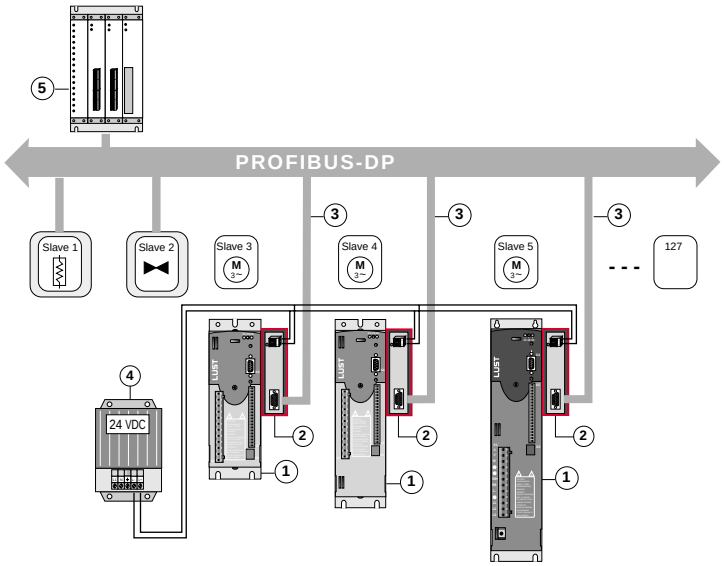
Bus and/or protocol

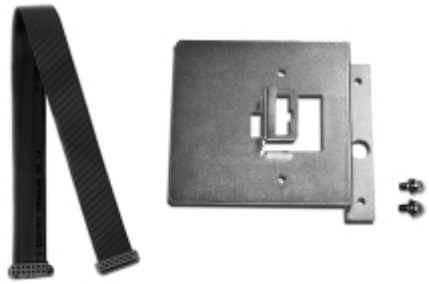
Order designation	Summary explanation
CM-CAN1	Communication module for CAN bus with CANLust data transfer protocol
CM-CAN2	Communication module for CAN bus with CANopen data transfer protocol
CM-DPV1	Communication module for PROFIBUS-DPV1 without CD-ROM
CM-DPV1 + GSD	Communication module for PROFIBUS-DPV1 with CD-ROM (the CD-ROM includes the GSD[1)] file and the manual in PDF file format).

1) GSD file = device master data of the module, required only when more than one module is ordered.

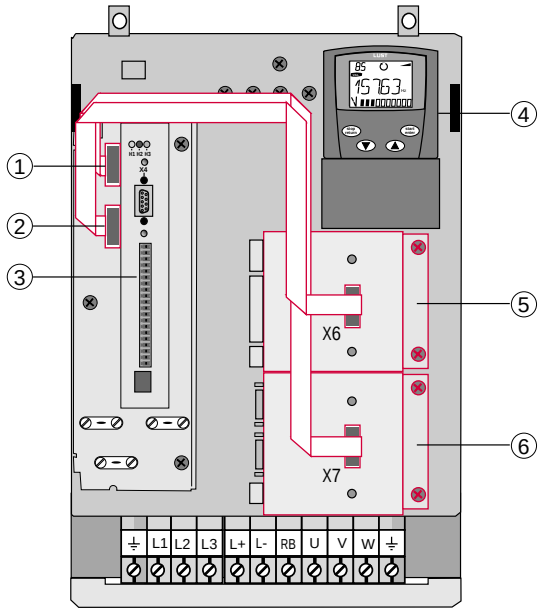
Technical data	CM-CAN1	CM-CAN2	CM-DPV1
Standardization	ISO 11898	ISO 11898	EN 50170
Communication	CiA/ DS102	CiA/ DS301	Directive 2.084
Device profile	DRIVECOM	CiA/ DS402	PROFIBUS
Transmission rate/line length	25 kBit/s to 1000 m 500 kBit/s to 100 m	20 kBit/s to 1000 m 1 MBit/s to 40 m	9,6 kBit/s to 1200 m 12 MBit/s to 100 m
Voltage supply	19 ... 29 VDC	18 ... 30 VDC	18 ... 30 VDC
Current consumption	max. 80 mA	max. 100 mA	max. 250 mA
Dimensions (W x H x D)	28 x 90 x 90 [mm]		

System layout, CAN_{LUST}/ CAN_{open}	Explanation
	(1) Inverter module CDA3000 (2) Communication module CM-CAN1 or CM-CAN2 (3) Connecting cable CCD 90x (4) Bus terminating resistor connector (5) CAN bus controller (6) Power pack (24 VDC) max. 100 stations

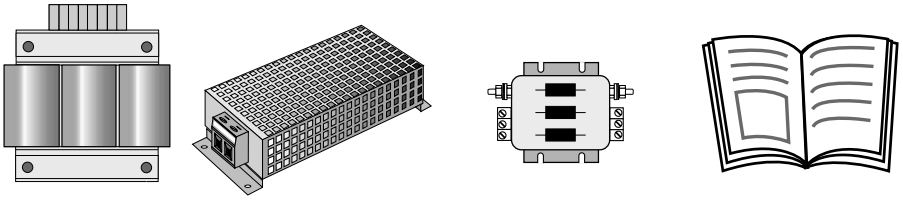
System layout, PROFIBUS-DP	Explanation
	(1) Inverter module CDA3000 (2) Communication Module CM-DPV1 (3) PROFIBUS-DP system cable (4) Power pack 24 VDC (5) DP-Master max. 127 stations

Mounting package for UMxxx and CMxxx	Order code
	MP - □□□□ Mounting Package Type
MP-UMCM	

Order designation	Summary explanation
MP-UMCM	The mounting package is used to attach the user/communication module to the inverter module sizes BG6, BG7 and BG8.

System layout	Explanation
	(1) Plug connection X7 for communication modules (2) Plug connection X6 for user modules (3) Control terminals (4) KP200 (5) Slot for user modules (e.g. UM-8I4O) (6) Slot for communication modules (e.g. CM-CAN1)
Example: Inverter module CDA-34.072,W1.0	

Overview of supplementary components



Contents

	Line chokes	Braking resistors	Mains filters	User information
Type	LR 32.4 ... LR32.8 LR34.4 ... LR34.170	BR-270.01, 540 ... BR-010.80, 541	EMC34.xxx	Paper-based
Page	5 - 2	5 - 5	5 -8	5-11

Line chokes

LR34.10

Order code

LR - 3□. □□□

Line Reactor

Series and voltage

Rated current

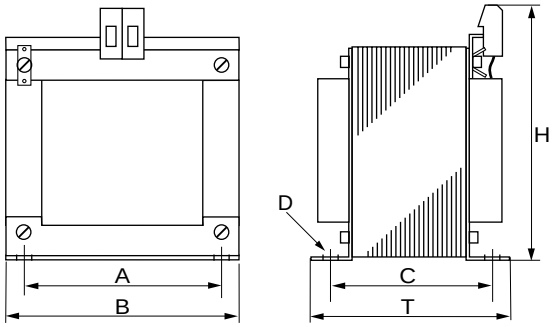
Ambient conditions	LR 32. xxx	LR 34. xxx
Rated voltage	1 x 230 V, -20 % +15 %, 50/60 Hz[1)]	3 x 460 V, -25 % +10 %, 50/60 Hz[1)]
Overload factor	1.8 x IN for 40 s	1.8 x IN for 40 s to rated current 32 A 1.5 x IN for 60 s as from rated current 45 A
Ambient temperature	typically -25° C to +45° C, with power reduction to 60° C(1,3 % / °C)	
Mounting height	1000 m, with power reduction to 4000 m (6 % / 1000 m)	
Relative air humidity	15 ... 95 %, condensation not permitted	
Storage temperature	-25° C to +70° C	
Protection	IP00, terminals VBG4	
Short-circuit voltage	UK 4 % at 230 V = 9.2 V	UK 4 % at 400 V = 9.24 V
Permissible contamination	P2 to EN 61558-1	P2 to EN 61558-1
Thermal configuration	$I_{eff} < I_N$	
Material	Only UL-listed materials are used	

1) At mains frequency 60 Hz the power loss increases by approx. 5 - 10 %

Single-phase line chokes

Tech.data / Order ref.	Suitable for inverter module	Rated current [A]	Power loss tot. [W]	Inductance [mH]	Weight [kg]	Connection [mm]
LR32.8	CDA32.003 CDA32.004	8	10	3.66	0.8	4
LR32.14	CDA32.006 CDA32.008	14	16	2.1	1.5	4
LR32.5[1)]	CDA32.003 (EN 61000-3-2)	4.5	11	9.76	0.7	4

[1)] U_k = 6% at 230V = 13,8V (according to EN 61000-3-2).

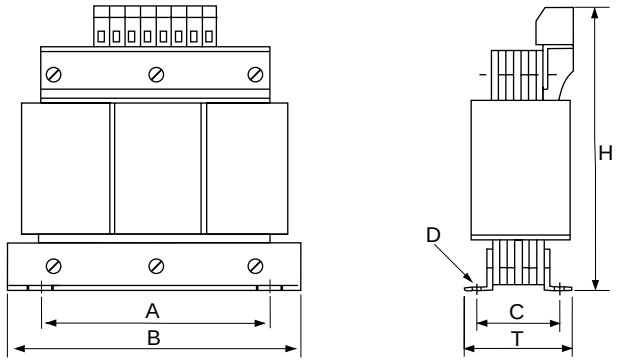
Single-phase line chokes			
Dimensions [mm]	**LR32.8**	**LR32.5**	**LR32.14**
W (width)	60	60	85
H (height)	75	75	100
T (depth)	57	57	65
A	44	44	64
C	46	46	50
D	Ø 4.8	3,6	Ø 4.8
Dimensional drawing:			

Three-phase line chokes						
Tech. data. / Order ref	**Suitable for inverter module**	**Rated current [A]**	**Power loss tot. [W]**	**Inductance [mH]**	**Weight [kg]**	**Connection [mm]**
LR34.4	CDA34.003	4.2	20	7	1.6	4
LR34.6	CDA34.005 CDA34.006	6	26.1	4.88	2.0	4
LR34.8	CDA34.008	8	29	3.66	2.4	4
LR34.10	CDA34.010	10	33	2.93	3.0	4
LR34.14	CDA34.014	14	45	2.09	3.8	4
LR34.17	CDA34.017	17	45	1.72	4.5	4
LR34.24	CDA34.024	24	50	1.22	5.8	4
LR34.32	CDA34.032	32	67	0.92	6.7	10
LR34.45	CDA34.045	45	73	0.65	8.5	10
LR34.60	CDA34.060	60	85	0.49	10.0	10
LR34.72	CDA34.072	72	111	0.41	14.0	16
LR34.90	CDA34.090	90	135	0.33	20.0	35
LR34.110	CDA34.110	110	126	0.27	22.0	35
LR34.143	CDA34.143	143	168	0.21	28.0	70
LR34.170	CDA34.170	170	218	0.18	30.0	70

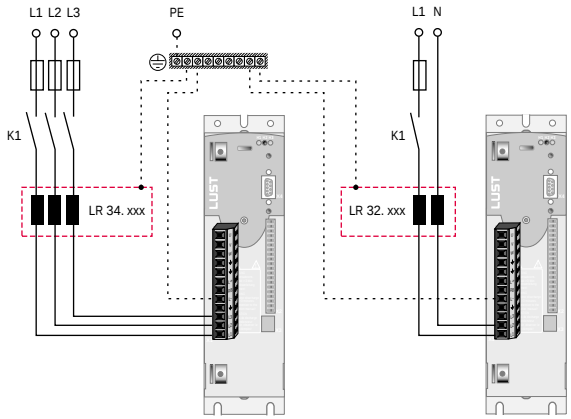
Three-phase line chokes

Dimensions [mm]	LR34.4	LR34.6	LR34.8	LR34.10	LR34.14	LR34.17	LR34.24	LR34.32	LR34.45	LR34.60	LR34.72	LR34.90	LR34.110	LR34.143	LR34.170
W (width)	100	125	125	125	155	155	155	190	190	190	230	230	230	265	300
H (height)	120	140	140	140	160	160	160	195	195	195	275	280	280	330	360
T (depth)	70	65	65	75	80	80	95	85	95	105	125	150	150	145	155
A	63	100	100	100	130	130	130	170	170	170	180	180	180	215	240
C	50	47	47	57	57	57	74	57	67	77	98	122	122	118	120
D	Ø5.8	Ø5	Ø5	Ø5	Ø8	Ø8	Ø8	Ø8	Ø8	Ø8	Ø8	Ø8	Ø8	Ø11	Ø11

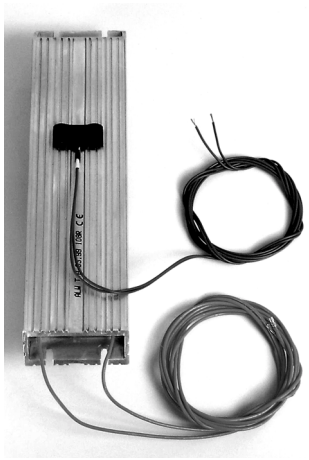
Dimensional drawing:

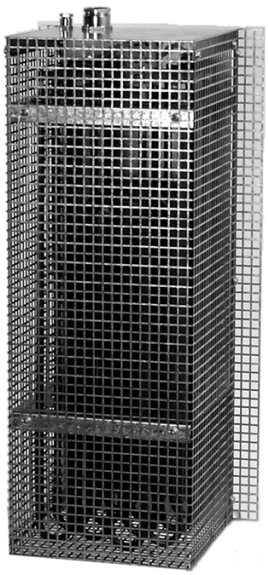


System layout



Braking resistor





BR-270.02, 540 BR-042.20, 201

Order code

BR -□□□.□□,□□□

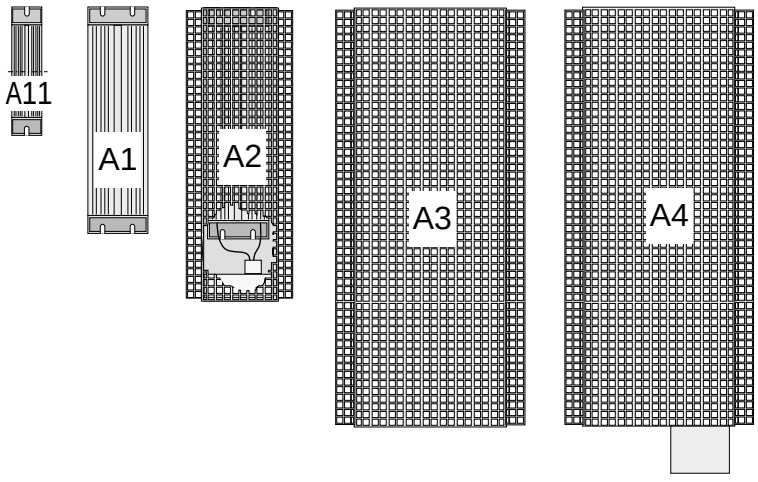
Braking res.

Ω value

Power in [W]
01 = 100 W
10 = 1 kW

Protection (IPxx)

1 = with touch protection
0 = without touch protection

Technical data	According to Diagramm A1 and A11	According to Diagramm A2	According to Diagramm A3 and A4
Surface temperature	> 200° C	< 80° C	< 80° C
Touch protection	no	yes (< 80° C)	yes (< 80° C)
Voltage	max. 800 V	max. 800 V	max. 800 V
High-voltage strength	4000 V	4000 V	1800 V
Temperature monitoring	yes	yes	yes
Acceptance tests	CE		
Connection	1 m long PTFE insulated litz wire	Ceramic terminals	Ceramic terminals
Diagramm			

Braking resistor						
Tech.data / Order ref.	Cont. braking power [W]	Resistance [Ω ±10 %]	Peak braking power [W]		Protection	diagram
			390 VDC[1)]	750 VDC[2)]		
BR-270.01, 540	35	270	560	2080	IP54	A11
BR-160.01, 540	35	160	950	3)	IP54	A11
BR-090.01, 540	35	90	1690	3)	IP54	A11
BR-110.01, 540	35	110	1380	3)	IP54	A11
BR-110.02, 540	150	110	1380	5110	IP54	A1
BR-200.02, 540	150	200	760	2810	IP54	A1
BR-270.02, 540	150	270	560	2080	IP54	A1
BR-160.02, 540	150	160	950	3500	IP54	A1
BR-110.03, 541	300	110	1380	5110	IP54	A2
BR-200.03, 541	300	200	760	2810	IP54	A2
BR-270.03, 541	300	270	560	2080	IP54	A2
BR-160.03, 541	300	160	950	3500	IP54	A2
BR-090.03, 541	300	90	1690	6250	IP54	A2
BR-090.10, 201	1000	90	1690	6250	IP20	A3
BR-090.10, 541	1000	90	1690	6250	IP54	A4
BR-042.20, 201	2000	42	-	13390	IP20	A3
BR-042.20, 541	2000	42	-	13390	IP54	A4
BR-015.60, 541	6000	15	-	37500	IP54	A4
BR-010.80, 541	8000	10	-	56250	IP54	A4

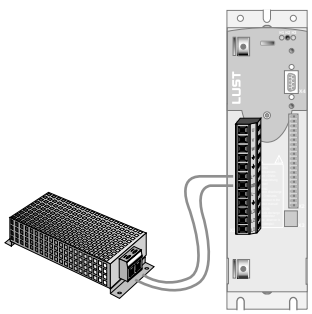
1) 1 x 230 V mains voltage -20% +15%

2) 3 x 460 V mains voltage -25% +10%

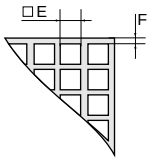
3) Not permitted for use with inverter modules with 3 x 400/460 V mains voltage.

.

System layout

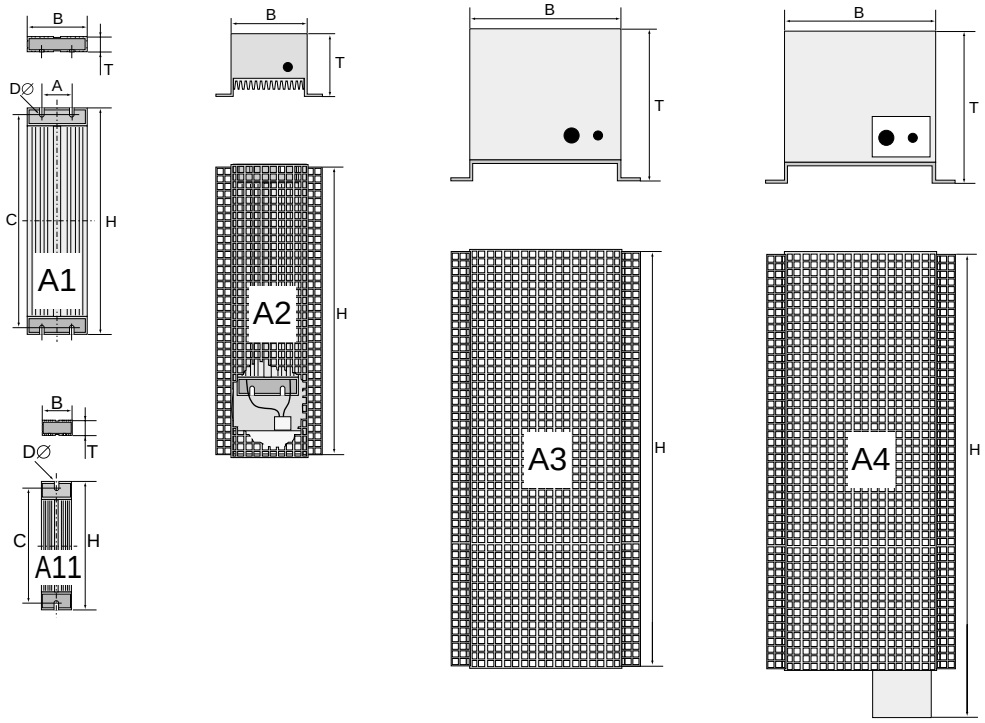


Braking resistor								
Dimensions [mm]	**BR-270.01, 540**	**BR-160.01, 540**	**BR-090.01, 540**	**BR-110.01, 540**	**BR-110.02, 540**	**BR-200.02, 540**	**BR-270.02, 540**	**BR-160.02, 540**
W (width)	40	40	40	40	80	80	80	80
H (height)	160	160	160	160	300	300	300	300
T (depth)	26	26	26	26	20	20	20	20
A	-	-	-	-	41,5	41,5	41,5	41,5
C	146	146	146	146	282	282	282	282
DØ	6,0	6,0	6,0	6,0	5,5	5,5	5,5	5,5
Corr. to diagram	A11	A11	A11	A11	A1	A1	A1	A1

Dimensions [mm]	**BR-110.03, 540**	**BR-200.03, 541*)**	**BR-270.03, 540**	**BR-160.03, 541*)**	**BR-090.03, 541*)**	**BR-090.10, 201*)**	**BR-090.10, 541*)**	**BR-042.20, 201*)**	**BR-042.20, 541*)**	**BR-015.60, 541*)**	**BR-010.80, 541*)**
W (width)	102	102	102	102	102	200	200	200	200	200	200
H (height)	400	400	400	400	400	550	605	550	605	605	605
T (depth)	80	80	80	80	80	200	200	200	200	200	200
A											
C											
DØ											
Corr. to diagram	A2	A2	A1	A2	A2	A3	A4	A3	A4	A4	A4

*) Fixing brackets are made of perforated sheet metal
Web width F = 2 mm
Grid square E = 8 mm

Dimensional drawings:



Mains filters	
	
EMC50.0	NFD50.1

Order code

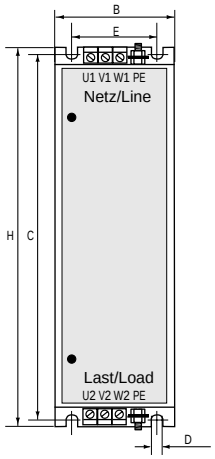
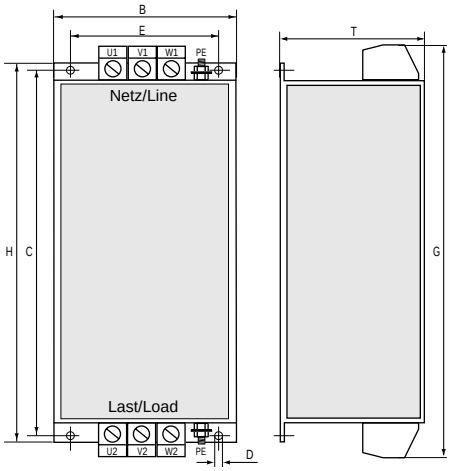
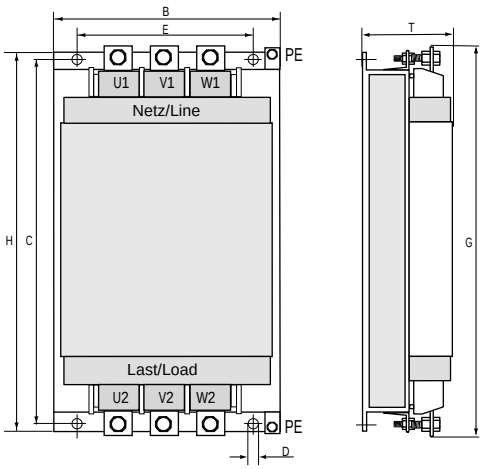
EMC □□.□

- Electro Magnetic Compatibility
- Rated current
- Version

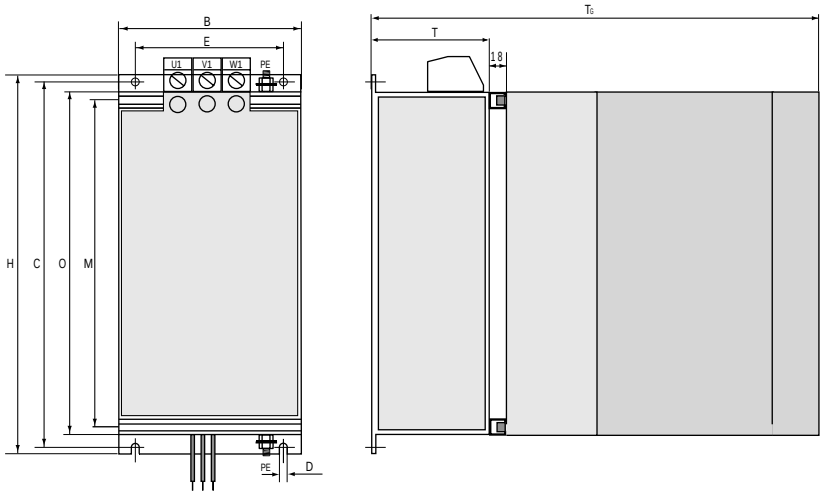
Ambient conditions	EMCxx.x	NFDxx.x
Rated Voltage	3 x 480 V, max. +10 %, 50/60 Hz	
Ambient temperature	typically-25° C bis +40° C, with power reduction bis 60° C (1,3 % / °C)	
Mounting height	1000 m, with power reduction bis 4000 m (6 % / 1000 m)	
Relative air humidity	15 ... 85 %, condensation not permitted	
Storage temperature	-25° C bis +70° C	
Transportation temperature	-40 °C bis +85 °C	
Protection	IP20, terminals VBG4	
Permissible contamination	P2 to EN 61558-1	
Material	Only UL-listed materials are used	

Three-phase mains filters

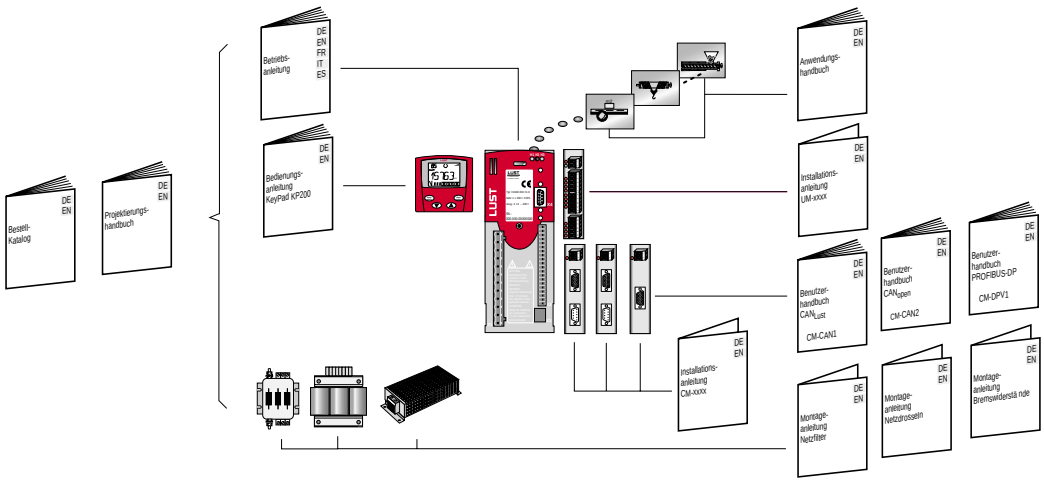
Tech. data. / Order ref	Suitable for inverter module	Rated Current [A]	Power loss tot. [W]	leakage Current [mA]	Weight [kg]	Connection [mm²]
NFD50.1	CDA34.024 CDA34.032	50	32	< 140	3.4	0,5...16, PE M5
EMC 50.0	CDA34.045	50	31	< 129	3,4	0,5...16, PE M5
EMC 63.0	CDA34.060	63	53	< 127	6,0	0,5...16, PE M6
EMC 80.0	CDA34.072	80	68	< 281	6,0	0,75...35, PE M8
EMC 100.0	CDA34.090	100	68	< 281	6,0	0,75...35, PE M8
EMC 125.0	CDA34.110	125	82	< 281	10,0	16...50, PE M10
EMC 150.0	CDA34.143	150	88	< 281	10,0	35...95, PE M10
EMC 180.0	CDA34.170	180	150	< 464	15,5	U, V, W, PE M12

Three-phase mains filters								
Dimensions [mm]	**NFD 50.1**	**EMC 50.0**	**EMC 63.0**	**EMC 80.0**	**EMC 100.0**	**EMC 125.0**	**EMC 150.0**	**EMC 180.0**
Dimensional drawing	Typ I		Typ II					Typ III
H (height)	290	290	330	325	325	345	345	490
B (width)	90	90	150	150	150	175	175	170
T (depth)	100	100	103	107	107	127	135	158
G		325	366	340	340	416	428	629
C	275	275	315	310	310	330	330	470
E	76	76	105	105	105	120	120	110
DØ	Ø 7	Ø 4,5	Ø 7	Ø 7	Ø 7	Ø 7	Ø 7	Ø 8,5
Dimensional drawing: Typ I								
Dimensional drawing: Typ II								
Dimensional drawing: Typ III								

Three-phase mains filters designed as basement						
Tech. data. / Order ref	Suitable for inverter module	Rated Current [A]	Power loss tot. [W]	leakage Current [mA]	Weight [kg]	Connection [mm²]
EMC 50.U	CDA34.045	50	31	< 129	4.5	0,5...16, PE M8
EMC 63.U	CDA34.060	63	53	< 127	8.1	0,5...16, PE M8
EMC 80.U	CDA34.072	80	68	< 281	8.2	10...25, PE M8

Three-phase mains filters designed as basement			
Dimensions [mm]	**EMC 50.U**	**EMC 63.U**	**EMC 80.U**
H (height)	430		
B (width)	250		
T (depth)	100		
T_G (total depth)	443		
C	415		
E	190		
M	365		
O	390		
DØ	Ø 7		
Dimensional Drawing:			

Paper-based user information



User information	Use/contents	Order ref.	Language
CDA3000 Order Catalogue	Short overview of the entire CDA3000 system, information on order designations and technical data.	0840.04B.2 0840.24B.2	German English
Engineering Guide CDA3000	Guide to quick and easy selection of drive solutions, comprehensive information on the layout and dimensioning of the drive system.	0840.01B.0 0840.21B.0	German English
CDA3000 Operation Manual	Guide to quick and easy initial commissioning.	0840.00B.2	German/English/ French/Italian/ Spanish
Application Manual CDA3000	Describes adaptation of the drive system to the application (software features).	0840.02B.2 0840.22B.0	German English
User Manual KEYPAD KP200	Describes operation of the CDA3000 via KEYPAD.	0840.03B.0	German/English
User Manual Communication Module CM-CAN1	Project planning, installation and commissioning of the CDA3000 on the CANLust field bus.	0916.01B.0 0916.21B.0	German English
User Manual Communication Module CM-CAN2	Project planning, installation and commissioning of the CDA3000 on the CANopen field bus.	0916.02B.0 0916.22B.0	German English
User Manual Communication Module CM-DPV1	Project planning, installation and commissioning of the CDA3000 on the PROFIBUS field bus.	0916.00B.0 0916.20B.0	German English
Installation Manual Braking Resistor	Brief description of how to install and connect the braking resistors.	0923.00B.0	German/English
Installation Manual Line Chokes	Brief description of how to install and connect the line chokes.	0925.00B.0	German/English
Installation Manual Communication Modules	Brief description of how to install and connect the communication modules.	0916.04B.0	German/English
Installation Manual User Modules	Brief description of how to install and connect the user modules.	0917.00B.0	German/English

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