CDA3000

Order catalogue

Drive solutions
750 W up to 132 kW

With firmware:

Basis - for universal use

PLC - for machine sub-automation
units

**The fast track to your
order**

LUST

The drive controller with C-line technology

The particular benefits to users of LUST drive controllers lie in the expert solutions delivered for automation with electric drives and in the high level of control engineering know-how available to handle the control of a wide range of motor types. Always keeping an eye on the physics, looking to make electric drive engineering the core element of machine optimisation and automation.

It is a long-established fact in electric drives that the various control methods can complement each other effectively in handling complex automation tasks. The best solution for complex motion tasks will always depend largely on the individual requirements of the user and on the provider's experience and range of equipment. It is therefore a decided advantage if all options can be tapped easily and without changing the equipment concept or even the provider.

Our focus is on custom drive solutions with our:

- Inverter systems 0.75 kW to 132 kW
- Servo system
  - with asynchronous motors up to 425 Nm
  - with synchronous motors up to 245 Nm
- direct-drive system
  - - with hollow shaft motors up to 75 Nm
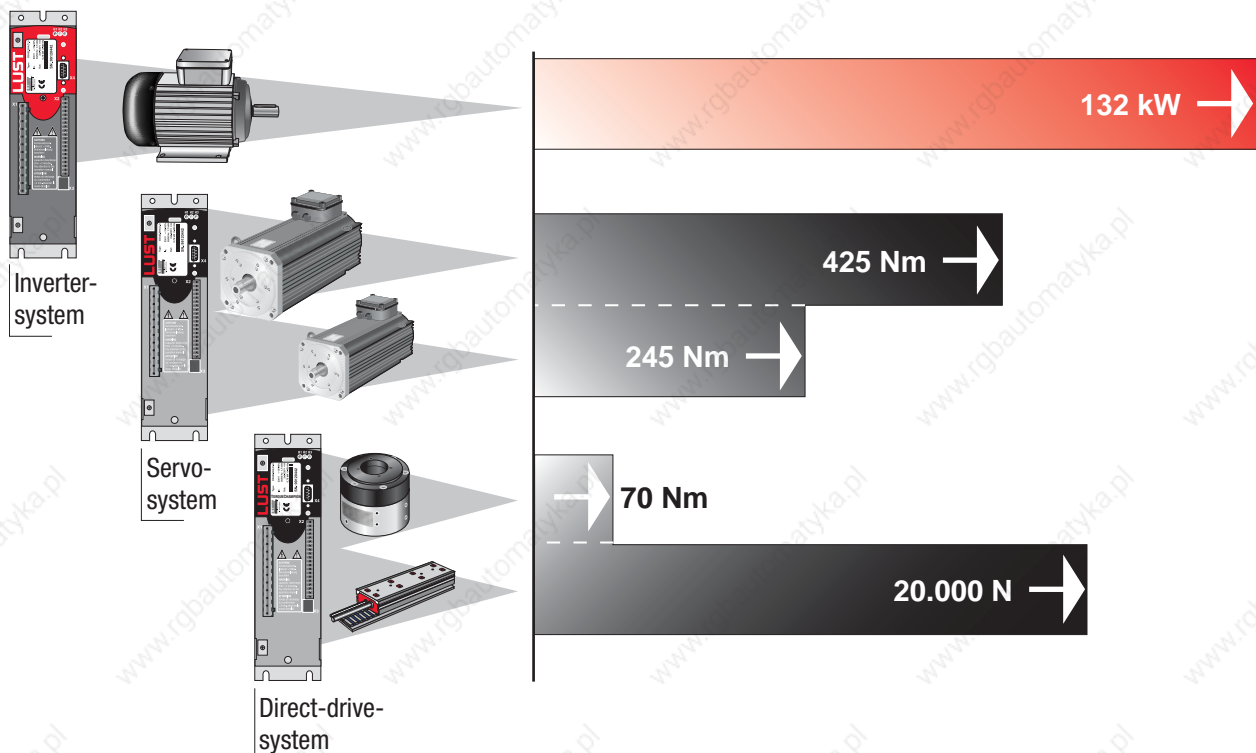 - - with linear motors up to 20,000 N

Inverters and servocontrollers based on the same concept

The C-line DRIVES are ideal for virtually any task. They include the CDE/CDB inverters with the Voltage Frequency Control (VFC) method, Field Oriented Regulation (FOR) with encoder evaluation, and Sensorless Flux Control (SFC). The CDD servocontrollers include a highly dynamic speed/torque/position control. For applications with high-torque motors there is the CTC TORQUECHAMPION for direct drives.

All C-line DRIVES drive controllers have the same basis, with a wide range of variants for specific solutions. A platform of this kind enables rapid, cost-effective response to new developments.

Common features of the C-line DRIVES :

- their design, metal enclosure and cooling method for
  - wall mounting
  - cold plate
  - push-through heat sink
- their excellent EMC performance
- their user-friendly operation with the DRIVEMANAGER PC tool
- easy serial startups with KEYPAD and Chipcard
- the modular networking concept
- the comprehensive range of accessories and complementary components

Inverter-system

Servo-system

Direct-drive-system

132 kW

425 Nm

245 Nm

70 Nm

20.000 N

Catalogue Inverter System CDA3000

LUST

System summary

Inverter modules   **2**

Accessories for inverter modules   **3**

User and communication modulesl   **4**

Supplementary components   **5**

Catalogue Inverter System CDA3000

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Inverter system CDA3000

Experience and vision

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 ever shortening innovation cycle in the automation of machinery.

Founded on tradition

We have continued our long-standing tradition of setting control standards in the drive technology as well as creating standards for the future-oriented flexibility in machinery and plant.
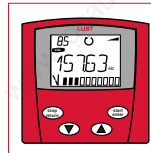
Fit for the future

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

Wall mounting

Cold plate

Push-through heat sink

Keep cool

Fully used power components require a cool inverter. The modulare cooling concept offers free selection of the given mounting method. Using cold plate or heat sink in- or outside the mounting place depends on the situation.

Automatically more torque

Mature new technologies results in functional improvements with reliable specifications. With the sensorless flux control (SFC) of LUST attributes like higher output torques, dynamic disturbance control and a wide speed manipulating range can be safely and reproducibly achieved.

Very easy setting via automatic identification of the motor and by means of self-setting of all control circuits. The motto of the CDA3000 is „Starting and run".

Fast and easy

The concept of the new inverter system is that the user can configure and commission the optimum drive solution more easily and faster, in spite of extended functions and extensive system components.

With KEYPAD and the PC-user software DRIVEMANAGER comfortable setting and analysis possibilities are available for all LUST drive controllers. They convince by their stability and didactic sophistication.

Ready-made solutions for traction, lifting and rotation drives highlight only the important parameters. The underlying complexity can only be guessed.

EMV with safety

All devices from 750 W up to 132 kW with sheet-steel housing with aluminium/zinc surface. The housing offers a high protection against interference to the direct environment. To reduce the interference RFI filters are always included in the inverter modules (up to 7.5 kW). This results in a reduction of expenditure as well as in the costs of the whole installation.

The system architecture for the flexible solutions of the future

System

Line choke

With 16 preset drive solutions

KP200

DRIVE MANAGER

Terminal expansion

CAN$_{Lust}$
CAN$_{open}$
PROFIBUS-DP

Braking resistor

Motor choke

Geared motor

IEC standard motor

Asynchronous servomotor

HF spindle
Synchronous motor

Catalogue Inverter System CDA3000

LUST

Features

Inverter modules for 230 V systems:

Inverter modules	Rec. 4-pole standard motor [kW]	Device rated power [kVA]	Rated current [A]	Peak current [A]	Size [BG]	Dimensions [mm] width x height x depth
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 %   1) 1.8 x I_N for 30 s

Cooling air temperature (1000 m above zero) 45 °C at power stage switching frequency 4 kHz

Rotating field frequency 0 ... 400 Hz

Inverter modules for 400/460 V systems:

Inverter modules	Rec. 4-pole 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,Wx.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	80.0	110	165[2]	BG7	300 x 550 x 305
CDA34.143,Wx.x	75	104.0	143	214[2]	BG8	412 x 500 x 362
CDA34.170,Wx.x	90	124.0	170	255[2]	BG8	412 x 500 x 362
CDA34.250,Wx.x	132	173.0	250	300[3]	BG8	412 x 500 x 362

Mains voltage 3 x 460 V -25 % +10 %   1) 1.8 x I_N for 30 s

Rotating field frequency 0 ... 400 Hz (0,7 to 22 kW)   2) 1.5 x I_N for 60 s

Rotating field frequency 0 ... 200 Hz (30 to 132 kW)

Acceptance tests/ Ambient conditions

CE mark

The inverter modules[1] meet the requirements of the Low Voltage Directive DIN EN 50178 and of the product norm EN 61800-3 (EMV).

The inverter modules[1] thus meet the requirements for the installation in a machine or plant under the terms of the Machinery Directive 98/37/EG.

The inverter modules CDA3000[1] are marked according to CE. The CE mark on the name plate signifies conformance with the above mentioned directives.

On request we will be pleased to issue a Declaration of Conformity.

cUL approbation

The inverter modules[1] 0,75 up to 55 kW have the cUL-approbation. For inverter modules[1] 75 up to 132 kW the cUL approbation is in preparation. This cUL approbation is equivalent to UL and CSA approbation.

EMV acceptance tests

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

To limit line-bound interference emission to the permissible level, all inverter modules up to 7.5 kW are equipped with integrated mains filters, in order to comply with EMV product norm DIN EN 61800-3:

Public Low Voltage Network:
Residence up to 10 m motor cable
Industrial Low Voltage Network:
Industry up to 25 m motor cable

Additionally an extensive product line with external mains filters for side and substructure mounting is available. For detailed information see chapter „Supplementary Components".

Feature		Inverter module	User and communication module and KP200
Operation temperature		-10 ...45 ° C (BG1 ... BG5) 0 ... 40 ° C (BG6 ... BG8) with power reduction up to 55 ° C	-10 ... 55 °C
Storage temperature		-25 ... +55 °C	
Transport temperature		-25 ... +70 °C	
Relative air humidity		15 ... 85 %, condensation is not permitted	
Mechanical strength acc. IEC 68-2-6	during stationary use	Vibration: 0.075 mm in frequency range 10 ... 58 Hz Shock: 9.8 m/s^2 in frequency range >58 ... 500 Hz	
	during transport	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)	Convection IP20
Touch protection		VBG 4	
Mounting height		up to 1000 m above MSL, over 1000 m above MSL with power reduction, max. 2000 m above MSL	

1) applies to user and communication modules, too.

Cooling methods

The basic model of the inverter offers three different
mounting and cooling methods (e.g. size 3):

Cold Plate	Wall mounting	Push-through heat sink
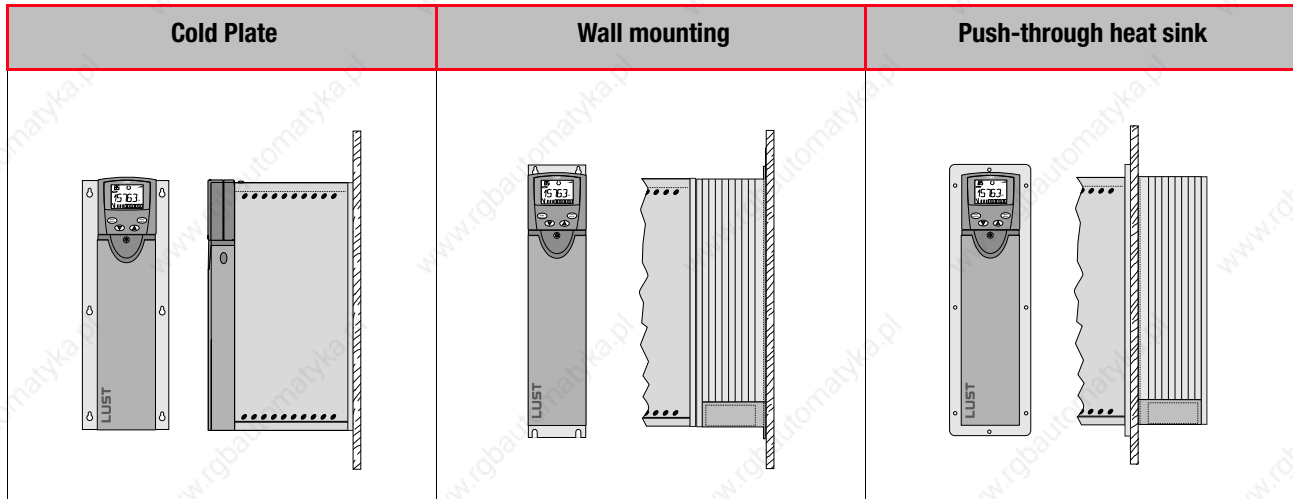
Size	Output	Inverter module	Cold Plate	Wall mounting	Push-through heat sink
BG1	0.75 kW	CDA32.004	YES	YES[1]	NO
BG2	1.1 kW 1.5 kW 0.75 kW 1.5 kW	CDA32.006 CDA32.008 CDA34.003 CDA34.005	YES	YES[1]	NO
BG2	2.2 kW	CDA34.006	YES[3]	YES	NO
BG3	3.0 kW 4.0 kW	CDA34.008 CDA34.010	YES[3]	YES	YES[2]
BG4	5.5 kW 7.5 kW	CDA34.014 CDA34.017	YES[3]	YES	YES[2]
BG5	11 kW 15 kW	CDA34.024 CDA34.032	YES[3]	YES	YES[2]
BG6	22 kW 30 kW 37 kW	CDA34.045 CDA34.060 CDA34.072	NO	YES	NO
BG7	45 kW 55 kW	CDA34.090 CDA34.110	NO	YES	NO
BG8	75 kW 90 kW 110/132 kW	CDA34.143 CDA34.170 CDA34.250	NO	YES	NO

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

2) Type of protection IP54

3) For sufficient cooling an additional active cooler is necessary.

LUST

Motor control method

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

The necessary identification of the motor is provided automatically by the inverter module based on the „start and run" concept. All control circuits are optimized in the process as well.

Voltage frequency control (VFC)

With the VFC the voltage of the motor is changed proportionally to the output frequency of the inverter module. This method is suitable for drives of pumps, fans, extruders as well as traction and lifting drives with low dynamic equipped with special motors like reluctance motors.

Sensorless Flux Control (SFC)

The new control method SFC, applicable 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 the torque formation can favourably be fed into the motor. So it is possible to attain excellent control characteristics without using an expensive encoder.

Field-Oriented Regulation (FOR)

With the FOR rotor and speed positions are calculated with one encoder. Based on those measurement variables, flux and torque can be set independently. Maximum dynamic and high speed accuracy can be reached.

Characteristics	VFC Voltage frequency control	SFC Sensorless flux control	FOR Field-oriented regulation
Torque rise time	20-30 ms	< 2 ms	< 2 ms
Dynamic disturbance correction	NO	YES	YES
Standstill torque	NO	NO	YES
Acceleration torque ($I_{Inverter} = 2 * I_{Motor}$)	$1.2 \cdot M_{Nenn}$	$1.8 \cdot M_{Nenn}$	$2 \cdot M_{Nenn}$
Current usage of inverter	60%	90%	100%
Anti-stall protection	limited	YES	YES
Speed manipulating range $M = M_{Nenn}$	1:20	1:20	1:10000
Static speed accuracy (refers to rated speed)	typically 1 to 5%	typically 0.5%	quartz accurate
Frequency resolution	0.01 Hz	0.0625 Hz	2^{-16} Hz
Motor principle	asynchronous synchronous reluctance	asynchronous	asynchronous

Easy first commissioning

With the PC-user software DRIVEMANAGER the first commissioning of the drive will be comfortable and plain. All you need to do is „click through".
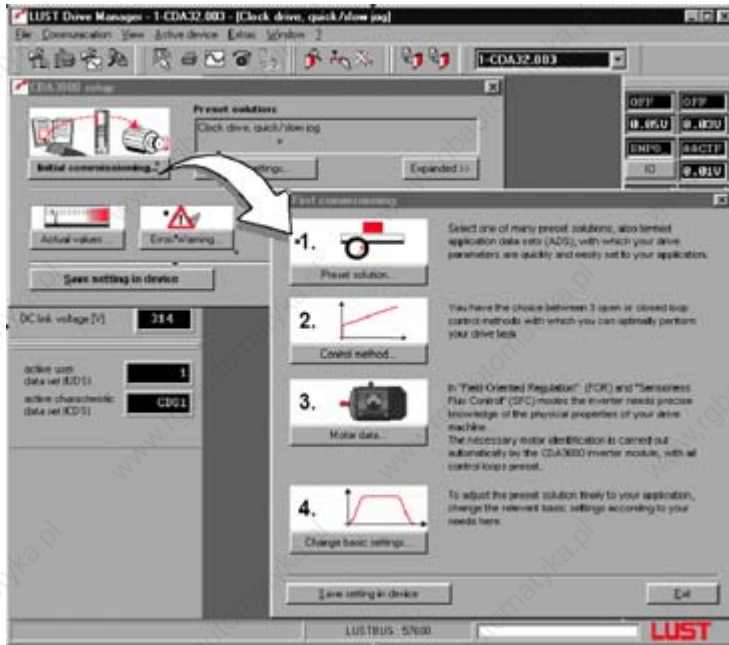
1. Preset drive solution

Opens a dialog for selecting the required ready made settings via clicking-on.
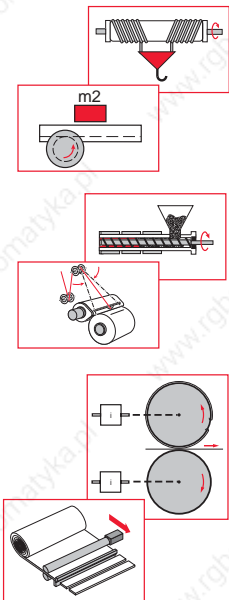
- Conveyor belt drive, rack drive, carriage drive and lifting drive

- Spindle drive, extruder, stirrer, disperser and winding drive

- Electronic gear for worm drives, pack distribution plants and master shaft replacement

- Network operation via CANopen or PROFIBUS-DP

2. Control method

Opens a dialog for selecting one of three control methods:

- Voltage frequency control
- Sensorless speed control
- Field-oriented regulation

3. Motor identification

Starts a menu, supporting you at the input of the motor plate data. The automatic identification of the connected asynchronous motor with the automatic parameter setting of the control circuits completes this step.

4. Basic setting

Starts a menu for fine-adjustment of your drive.

Basic - Firmware

Among the hardware aspects the efficiency of the device firmware will be more and more significant. Finally only the firmware has the intelligence for managing the movement tasks in machinery and plants.

The firmware of the inverter modules CDA3000 supports a number of application features, unthinkable some years ago. The application features can be activated via the graphic user interface, to solve the complete movement tasks acc. to the given situation.

Initial commissioning
Automatic motor identification and autonomous optimization of control loops

Control signals and reference values

- **Analog inputs and outputs**
- **Digital inputs and outputs**
- **Clock input/output**
- **Motor holding brake**

Protection and limits

- **Motor protection (PTC, Klixon, linear PTC)**
- **Software "device capacity utilization" analysis**
- **Warning message/fault**
- **Frequency/speed limits**
- **and others**

Application software features

Gear function

Lift mechanism function

Process controller

Synchronization to running motor

MOP function

Power failure bridging

8 additional positioning sets

Flexible reference structure

Current-controlled startup

Driving profile generator with jerk limitation

Voltage Frequency Control

- **Current injection**
- **Slip compensation**
- **6 characteristic interpolation points**

Sensorless Flux Control

- **Current controller (torque controller)**
- **Speed controller**

Field Oriented Regulation

- **Torque controller**
- **Speed controller**
- **Encoder evaluation**

Four complete user data sets can be administered, with one user data set containing two secondary characteristic data sets.

LUST

PLC-Firmware

The new PLC firmware consists of the software performance of the basic firmware and an extending PLC-user platform.

Execution of the basic firmware is possible without support of the four user data sets and motor identification via KEYPAD. Therefore we included support of the standard CAN$_{OPEN}$ protocol, in order to manage the structure of a CAN$_{OPEN}$ network via a low cost communication module CM-CAN1.
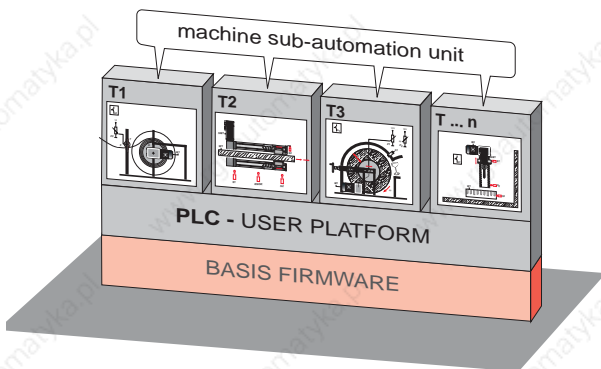
PLC-user Platform

Programming the PLC process program is line-oriented and similar to the program language BASIC. It reduces the time exposure for learning the amount of instructions. Furthermore it has the advantage that the user can read the programs without knowing the exact instruction sets.

PLC-Process Program allows

- flexible setting of control and reference information for all motor control types
- set/read analog and digital i/O's
- direct writing/reading access for all parameters
- mathematic operands (+,-,:,modulo,ABS,round)
- timer and counter functions (12 timer, 11 counter)
- using integer variables, floating point variables and flags
- easy position control

Instruction set consists of:

- Jump signals
- Subroutine call
- Set signals
- Wait signals
- Control, positioning and process signals

PLC-Editor

The PLC editor is a part of the PC-user software DRIVEMANAGER and only necessary for engineering and initial commissioning of your PLC program. The serial commissioning of inverter modules will be effected via the known DriveManager data set or the new SMARTCARD SC-XL.

The PLC-program editor offers the functions:

- Program generation
  - Editor for program generation
  - Generation of a text declaration file <project name>.txt for the variables to indicate application-specific tests in the DRIVEMANAGER
  - Syntax check of opcode
  - Renumbering line numbers
- Program handling:
  - Load/Save/Print/Regeneration of programs
  - Load/Save a program from/in a connected drive control.
  - Load/Save a program from/in DRIVEMANAGER-data sets
- Online help to PLC-Editor and to the command syntax with examples

All PLC-functions can be selected via function buttons.

New solution with PLC-firmware

The operational area of PLC-user platform for the generation of automation programs allows a number of new solutions. Solutions, supported by graduated series of Operator Panels.

Already solved machine sub-automation units are:

I/O oriented processes
Motion solution, mainly defining the sequences of the sub-automation process via I/O-signals from the working procedures. Typical applications are:

- Feed unit for drilling and lowering
- Belt and carriage drives
- Drives for doors and gates
- Pumping stations with float switch
- Lifting and rotating tables

Time-controlled processes
Motion solution, mainly defining the sequences of the sub-automation process temporarily. Typical applications are:

- Melting and mixing plants for paints
- different centrifuges and dispersers
- Mills and shredders

Regulated processes
Motion solution, to keep process sizes like torque, traction, pressure, temperature or position constant during the working procedure. It deals with sub-automation processes, like:

- Warbler or dancer control for winders
- Block protection control for shredder
- Simple positioning controls for drives of doors and gates, carriage and rotating drives
- classic pressure, temperature and flow control

Example: Drill feed unit

Process program

```
;Inputs:
;M001=Start feed
;IS01=Pre-stop opener
;IS02=Upper limit switch opener
;IS03=Lower limit switch closer
%TEXT (feed)
DEF H000 = Reference_0
DEF H001 = Timer_1
DEF M002 = Initialisation
DEF H002 = Quick-jog frequency
DEF H003 = Slow-jog frequency
DEF H004 = Waiting time
DEF H010 = Quick-jog_positive
DEF H011 = Quick-jog_negative
DEF H012 = Slow-jog_positive
DEF H013 = Slow-jog_negative
DEF M001 = Start motion

END
```
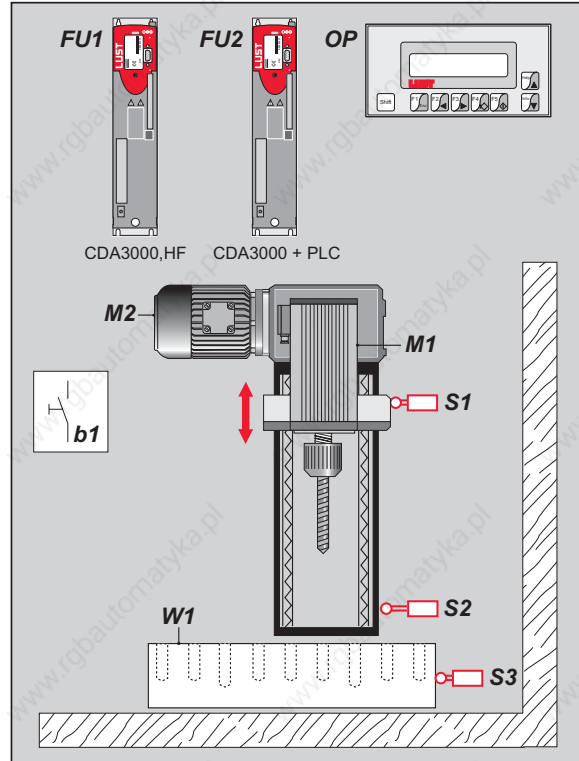

Bild: Bohrvorschubeinheit

```
; Process program for CDA-PLC
%P00
N005 SET H000=0; Reference 0
N010 SET H001=1000; Value for timer 1
N015 JMP (M002=1) N031; Jump over initialising
N020 SET H002=70; Reference feed Hz
N030 SET H003=20; Slow-jog
N031 SET H004=200; Waiting time working point
N032 SET M002=1
N040 SET H010=H002; Variable quick-jog positive
N041 SET H011=H002; Variable quick-jog negative
N042 INV H011
N050 SET H012=H003; Variable slow-jog positive
N051 SET H013=H003
N052 INV H013
N060 JMP (M001=1) N100; Start feed motion
N065 JMP (IS02=0) N040; Upper limit switch reached
N070 SET REFFRQ=H010; Move to upper limit switch
N075 JMP (IS02=1) N075; Wait for reaching limit switch
N080 SET REFFRQ=H000; Stop axis
N081 SET OS00=1; Axis in upper position
N082 SET OS01=0
N085 JMP N040; Close loop
N100 SET REFFRQ=H011; Start feed quick-jog
N105 SET OS00=0; Axis runs
N109 JMP (M001=0) N040
N110 JMP (IS01=1) N109; Control contact pre-stop
N120 SET REFFRQ=H013; Switch-over to low-jog
N129 JMP (M001=0) N040
N130 JMP (IS03=0) N129; Wait for lower limit switch
N140 SET REFFRQ=H000; Stop axis
N150 JMP (M001=0) N040
N151 SET REFFRQ=H012; Move back to pre-stop
N152 JMP (M001=0) N040
N153 JMP (IS01=0) N152
N154 WAIT H004
N155 JMP N120; Feed
N190 JMP N040

END ;End of program
```

Service

Lust Antriebstechnik offers a lot of information via internet.

Please visit our homepage - http://www.lust.tec.de - for further technical information of our products or engineering, or contact your nearest local office.

Software-Update-Service

As a part of our product maintenance function we are continuously improving the quality of the drive systems. Our software-update-service provides you with information on new releases and revisions of the various software versions.

This information, together with the latest firmware, is available for downloading on our info server.

Design-In

An important part for a common success is a professional project management, to keep the time and cost schedule. The earlier your new solution will enter the market the better. We will assist you in:

- the analysis of the requirements
- engineering and design
- working out the specification
- the analysis of the total costs
- the project management

Logistics

We are of course willing to support your logistic concept and it would be a pleasure to coordinate the following with you:

- KANBAN-concept
- KANBAN with control via webcam
- Buffer storage
- Delivery just in time
- Complete shipment of systems
- Commissioning
- Delivery of replacement parts and devices

After Sales

We will assist and support you whenever and whereever it is required. Based on our flexibility, quick reaction times, high technical know-how and a lot of application experience we offer the following services

- Commissioning on site
- Advice and Trainings
- Repair/ Service concept
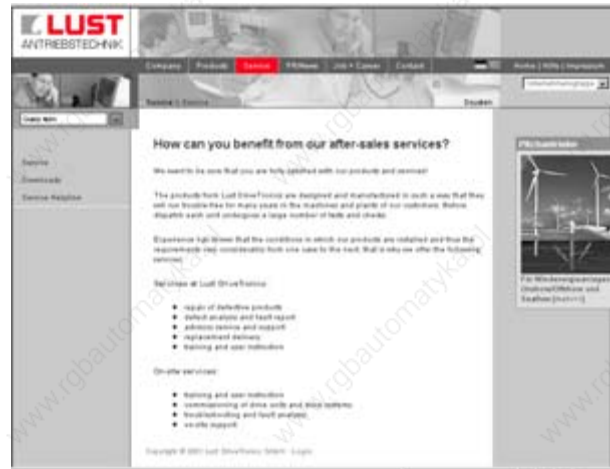
Helpline

The helpline will be glad to support you with:

- commissioning of standard products and systems by phone
- evaluation of error and diagnose indications
- localizing and clearing of reproducible failures and
- software-updates

Availability:

Mo.-Th.: 8 a.m. to 4.30 p.m.
Fr.: 8 a.m. to 4 p.m.

Fon: +49 (0) 6441/966-180
Fax: +49 (0) 6441/966-177

e-mail: helpline@lust-tec.de

Overview inverter modules 0.7 to 132 kW

BG1 *BG2* *BG3* *BG4* *BG5*
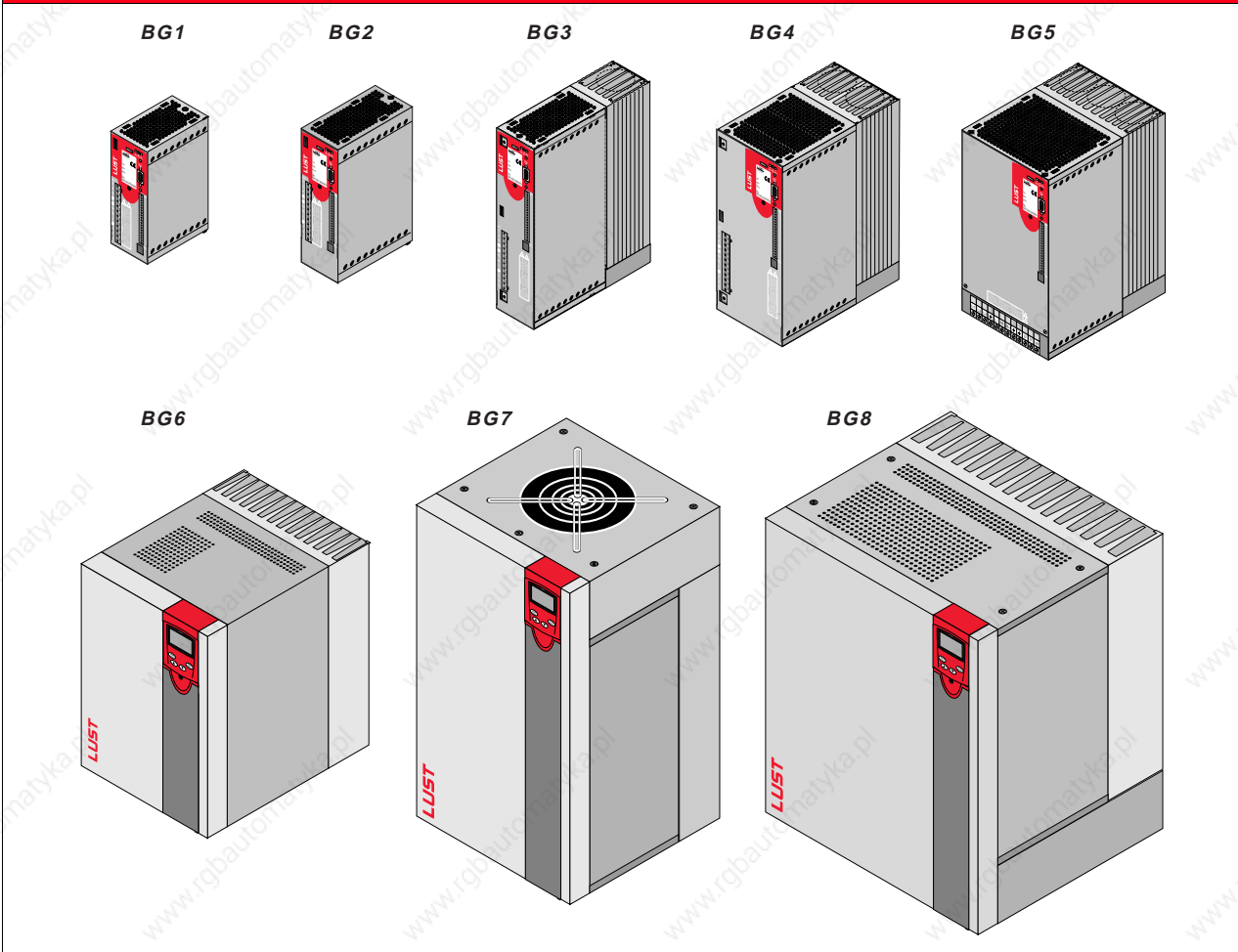
BG6 *BG7* *BG8*

Inverter series CDA3000 size	BG1	BG2	BG2	BG3	BG4	BG5	BG6	BG7	BG8
Inverter power stages	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 132 kW
Mains voltage	1 x 208, 230, 240 V	3 x 400, 440, 460 V							
Output current	1.8-fold rated current for 30 s						1.5-fold rated current for 60 s		
Basic-firmware	incl. in standard delivery								
PLC-firmware	Available on CD-ROM, see chapter „ accessories for inverter modules". Software can be load in any inverter module.								
Page	2 - 4	2 - 6	2 - 4 2 - 6	2 - 8	2 -10	2 - 12	2 - 14	2 - 16	2 - 18

System selection

Invertermodule

Accessories for Invertermodule

User- und Communicationmodule

Supplementary Componentes

Current capacity of inverter modules

The maximum allowed inverter output current and the peak current are depending on the mains voltage, the motor cable length, the power stage switching frequency and the ambient temperature. A changing of the conditions causes a changing of the maximum allowed current capacity of the inverter modules. Please find the allowed current capacities under changed conditions in the following table, shown as characteristic lines.
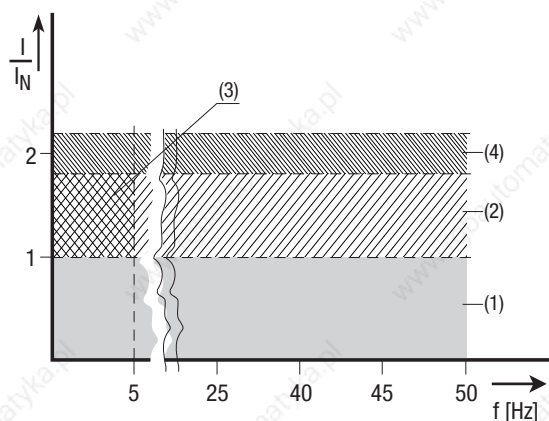
(1) **Continuous mode**

(2) **Intermittent mode* > 5 Hz rotating field frequency**
   Inverter modules 0,7 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 132 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 mode* 0 to 5 Hz rotating field frequency**
   Inverter modules 0,7 to 15 kW
   I/I_N = 1.8 für 30 s at 4 kHz
   I/I_N = 1..25-1.8 for 30 s at 8 kHz
   Inverter modules 22 to 132 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 0,7 to 15 kW
   I/I_N = approx. 2.2 at 4, 8, 16 kHz
   Inverter modules 22 to 132 kW
   I/I_N = approx. 1.8 at 4, 8 kHz

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

Features

Inverter modules for 230 V systems:

Inverter module	Rec. 4-pole standard motor [kW]	Switching frequency of power stage [kHz]	Rated current [A]	Peak curent for intermittent mode 0 to 5 Hz [A]	Peak current for intermittent mode > 5 Hz [A]
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 at inverter modules 0.7 to 15 kW

Cooling air temperature 45 °C at power stage switching frequency 4 kHz
                   40 °C at power stage switching frequency 8, 16 kHz

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

Mains voltage 1 x 230 V -20 % +15 %
Motor cable length 10 m
Mounting height 1000m above MSL
End-to-end mounting

LUST

Inverter modules for 400/460 V systems:

Inverter module	Rec. 4-pole standard motor [kW]	Switching frequency of power stage [kHz]	Rated current I_N[A] at 400 V[2]	Rated current I_N[A] at 460 V[3]	Peak current for intermittend mode 0 to 5 Hz [A]	Peak current for intermittend mode > 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 -	10.3 10.3 4.7	10.3 10.3 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
CDA34.250,Wx.x	110 132	4 4	210 250	210 250	300	300

Peak current for 30 s at inverter modules 0.37 to 15 kW
Peak current for 60 s at inverter modules 22 to 132 kW
Cooling air temperature 45 °C at power stage switching frequency 4 kHz (up to CDA34.032)
    40 °C at power stage switching frequency 8, 16 kHz (up to CDA34.032)
    40 °C at power stage switching frequency 4 kHz (from CDA34.045)
1) with heat sink HS3... or additional cooling surface

2) Mains voltage 3 x 400 V ±10 %
3) Mains voltage 3 x 460 V ±10 %
Motor cable length 10 m
Mounting height 1000m above MSL
End-to-end mounting

	CDA3 □.□□□, □x.x, □□, ... □□ **Technical data** **Cooling concept** **Version** For complete ordering data please refer to the following tables.

Type CDA-32.004, C1.0

Order code Techn. data	CDA3**2.004**	CDA3**4.003**
Output, motor side		
Recommended rated power with 4-pole standard motor	0.75 kW	0.75 kW
Device rated power	1.7 kVA	1.6 kVA
Voltage	3 x 0 ... 230 V	3 x 0 ... 400/460 V[1]
Effected rated current (I_N at 4/8 kHz)	4.0 A	2.2 A
Peak current 1,8 x I_N (4/8 kHz) for 30s	7.2 A[2]	4.0 A[2]
Rotating field frequency	0 ... 400 Hz	
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 %	3 x 460 V -25 % +10 %
Asymmetry of mains voltage	-	±3 % max.
Frequency	50/60 Hz ±10 %	
Power loss 4, 8 (16) kHz	48, 55 W	55, 70 W
Braking chopper power electronics		
Minimum ohmic resistance of an externally installed braking resistor	100 Ω	180 Ω

1) Allowed currents at 460 V are documented on page 2-2 and 2-3

2) For further data of currents see page 2-2 and 2-3

Colling method	CDA32.004, C x.x	CDA34.003, C x.x
Mechanics		
Protection type	IP20	
Cooling air temperature	45 °C (at 4 kHz switching frequeny of power stage)	
Weight	1.6 kg	2.3 kg
Mounting		
Single mounting	additional cooling via mounting plate (unvarnished) of 0.3 m²	
End-to-end mounting of multiple 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
D (depth)	120	145
A	50	50
C	205	230
E	215	240
D⌀	⌀ 4.8	⌀ 4.8
Dimensional drawings		

Note:

Invertermodule

Accessories for Invertermodule

User- und Communicationmodule

Supplementary Componentes

LUST

Inverter module 1,1 to 2,2 kW (BG2)	Order code

CDA3 □.□□□, □x.x, □□, ... □□

Technical data

Cooling method

Version

For complete ordering data please refer to the following tables.

Type CDA-34.004, C1.0

Techn. data / Order code	CDA32.006	CDA32.008	CDA34.005	CDA34.006
Output motor side				
Recommended rated power with 4-pole 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]
Effective rated 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 (4,8 kHz) for 30s	9.9 A[2]	12.8 A[2]	7.4 A[2]	10.3 A[2]
Rotating field frequency	0 ... 400 Hz			
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 internal braking resistor (only versionCDA34 ..., Wx.x, BR)	-	-	-	1,6 kW at 360 Ω
Minimum ohmic resistance of an externally installed braking resistor	56 Ω	56 Ω	180 Ω	180 Ω

1) Allowed currents at 460 V are documented on page 2-2 and 2-.

2) For further data of currents see page 2-2 and 2-3.

LUST

Cooling method	CDA32.006, C x.x	CDA32.008, C x.x	CDA34.005, C x.x	Drawing
Mechanics				
Protection type	IP20			
Cooling air temperature	45°C (at 4kHz switching frequency of power stage)			
Weight	2.3 kg			
Mounting				
Single mounting	additional cooling via switching cabinet mounting plate (unvarnished) of 0.3 m²			
End-to-end mounting of multiple inverter modules	only with accessories HS32.200 or HS32.2BR		only with accessories HS32.200 / HS34.2BR	
Dimensions	BG2 [mm]			
W (width)	70			
H (height)	218			
D (depth)	145			
A	50			
C	230			
E	240			
D	⌀ 4.8			vertical mounting, Cold Plate

Cooling method	CDA34.006, W x.x	Drawing
Mechanics		
Protection type	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	
D (depth)	220	
A	40	
C	260	
E	270	
D	⌀ 4.8	vertical mounting, Cold Plate
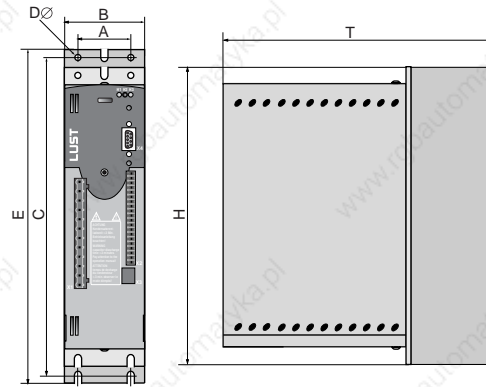
Version	Characteristics
CDA34.006,Wx.x,BR	Internal braking resistor

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

	Inverter module 3,0 and 4,0 kW (BG3)	Order code

Type CDA-34.008, W1.0

Order code

CDA3 □.□□□, □x.x, □□, ... □□

Technical
Data

Cooling method

Version

For complete ordering data please refer to the following tables.

Order code Techn. data	CDA34.008	CDA34.010
Output motor side		
Recommended rated power with 4-pole 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]	
Effective rated current (I_N at 4/8 kHz)	7.8 A	10 A
Peak current 1,8 x I_N (4 kHz) for 30 s	14 A[2]	18 A[2]
Rotating field frequency	0 ... 400 Hz	
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 internal bra- king resistor (only versionCDA34 ..., Wx.x, BR)	6.0 kW at 90 Ω	6.0 kW at 90 Ω
Minimum ohmic resistance of an externally installed braking resistor	81 Ω	81 Ω

1) Allowed currents at 460 V are documented on page 2-2 and 2-3

2) For further data of currents see page 2-2 and 2-3

	CDA34 ..., <u>W</u> x.x	CDA34 ..., <u>C</u> x.x	CDA34 ..., <u>D</u> x.x
Cooling methodt	Wall mounting	Cold Plate	Push-through heat sink
Mounting method	vertical mounting, unhindered air flow	vertical mounting on mounting plate or cooling profile section	vertical mounting, heat sink pushed through mounting plate
Protection kind	IP20	IP20	IP20 (device) IP54 (heat sink size)
Cooling air temp.	45°C (at 4 kHz switching frequency of power stage)		
Weight	4.4 kg	3.2 kg	4.6 kg
Maße	BG3 [mm]	BG3 [mm]	BG3 [mm]
W (width)	70	70 (100)	70 (110)
H (height)	300	300	300
D (depth)	218	150	T1 138, T2 80
A	40	85	90
C	320	200	320
D	$\varnothing$ 4.8	$\varnothing$ 5.5	$\varnothing$ 4.8
E	330	--	340
F	--	100	200
Drawings			

CDA3..., Wx.x
CDA3..., Cx.x
CDA3..., Dx.x

Version	Characteristics
CDA34.xxx,<u>BR</u>	Internal braking resistor only for devices with cooling method **CDA34 ...., <u>W</u>x.x** or **CDA34 ...., <u>D</u>x.x**

Note: Please note that for the cold plate and push-through heat sink cooling methods special conditions regarding the dissipation of power loss must be met. For more details see CDA3000 operation manual.

System selection

Invertermodule

Accessories for Invertermodule

User- und Communicationmodule

Supplementary Componentes

LUST

	Inverter module 5,5 and 7,5 kW (BG4)	Order code

Type CDA-34.014, W1.0

Order code

CDA3 □.□□□, □x.x, □□, ... □□

Technical Data

Cooling method

Version

For complete ordering data please refer to the following tables.

Order code / Techn. data	CDA34.014	CDA34.017
Output motor side		
Recommended rated power with 4-pole standard motor	5.5 kW	7.5 kW
Device rated power (400V)	10.2 kVA	12.4 kVA
Voltage	3 x 0 ... 400/460V[1]	
Effective rated current (I_N at 4/8 kHz)	14 A	17 A
Peak current 1,8 x I_N (4 kHz) for 30 s	25 A[2]	31 A[2]
Rotating field frequency	0 ... 400 Hz	
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	±3 % max.	
Frequency	50/60Hz ±10%	
Power loss 4, 8 (16) kHz	210, 268 W	255, 325 W
Braking chopper power electronics		
Peak braking power with internal braking resistor (only versionCDA34 ..., Wx.x, BR)	6.0 kW at 90 Ω	6.0 kW at 90 Ω
Minimum ohmic resistance of an externally installed braking resistor	47 Ω	47 Ω

1) Allowed currents at 460 V are documented on page 2-2 and 2-3.

2) For further data of currents see page 2-2 and 2-3.

LUST

	CDA3..., **W** x.x	CDA3..., **C** x.x	CDA3..., **D** x.x
Cooling method	**Wall mounting**	**Cold Plate**	**Push-through heat sink**
Mounting method	vertical mounting, unhindered air flow	vertical mounting on mounting plate or cooling profile section	vertical mounting, heat sink pushed through mounting plate
Protection kind	IP20	IP20	IP20 (device) IP54 (heat sink side)
Cooling air temp.	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
D (depth)	218	150	T1 138, T2 80
A	80	135	A 140 , A1 80
C	320	200	320
D	$\varnothing$ 4.8	$\varnothing$ 5.5	$\varnothing$ 4.8
E	330	--	340
F	--	100	200

Drawings

CDA3..., Wx.x

CDA3..., Cx.x

CDA3..., Dx.x

Version	Characteristics
CDA34.xxx,BR	Internal braking resistor only for devices with cooling method **CDA34 ...., Wx.x** or **CDA34 ...., Dx.x**

Note: Please note that for the cold plate and push-through heat sink cooling methods special conditions regarding the dissipation of power loss must be met. For more details see CDA3000 operation manual.
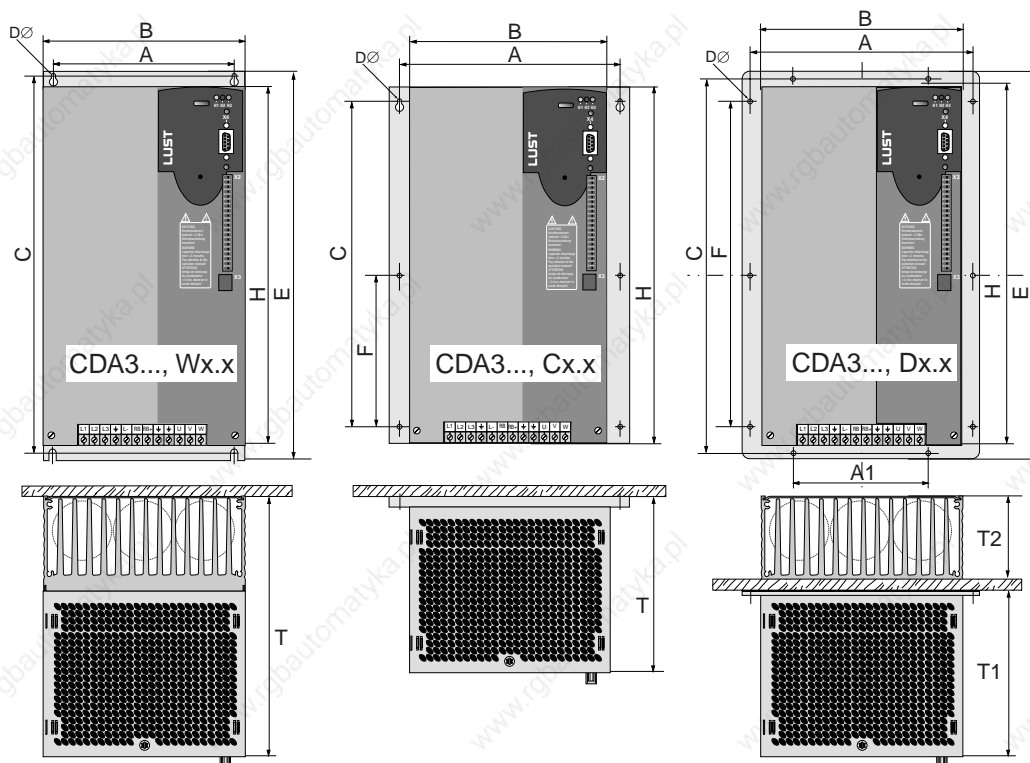
	Inverter module 11 and 15 kW (BG5)	Order code

Type CDA-34.024, C1.0

CDA3 □.□□□, □x.x, □□, ... □□

Technical Data

Cooling method

Version

For complete ordering data please refer to the following tables.

Order code / Techn. data	CDA34.024	CDA34.032
Output motor side		
Recommended rated power with 4-pole standard motor	11 kW	15 kW
Device rated power (400V)	17.5 kVA	23.3 kVA
Voltage	3 x 0 ... 400/460 V[1]	
Effective rated current (I_N at 4/8 kHz)	24 A	32 A
Peak current 1,8 x I_N (4 kHz) for 30 s	43 A[2]	58 A[2]
Rotating field frequency	0 ... 400 Hz	
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	315/ 400 W	400/ 510 W
Braking chopper power electronics		
Peak braking power with internal braking resistor (only versionCDA34 ..., Wx.x, BR)	6.0 kW at 90 Ω	6.0 kW at 90 Ω
Minimum ohmic resistance of an externally installed braking resistor	22 Ω	22 Ω

1) Allowed currents at 460 V are documented on page 2-2 and 2-3.
2) For further data of currents see page 2-2 and 2-3.

	CDA3 ..., <u>W</u> x.x	CDA3 ..., <u>C</u> x.x	CDA3 ..., <u>D</u> x.x
Cooling methodt	Wall mounting	Cold Plate	Push-through heat sink
Mounting method	vertical mounting, unhindered air flow	vertical mounting on mounting plate or cooling profile section	vertical mounting, heat sink pushed through mounting plate
Protection kind	IP20	IP20	IP20 (device) IP54 (heat sink side)
Cooling air temp.	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
D (depth)	218	150	T1 138, T2 135
A	130	185	A 190 , A1 100
C	320	200	320
D	$\varnothing$ 4.8	$\varnothing$ 5.5	$\varnothing$ 4.8
E	330	--	340
F	--	100	200

Drawings

CDA3..., Wx.x

CDA3..., Cx.x

CDA3..., Dx.x

Version	Characteristics
CDA34.xxx,<u>BR</u>	Internal braking resistor only for devices with cooling method **CDA34 ...., <u>W</u>x.x** or **CDA34 ...., <u>D</u>x.x**

Note: Please note that for the cold plate and push-through heat sink cooling methods special conditions regarding the dissipation of power loss must be met. For more details see CDA3000 operation manual.
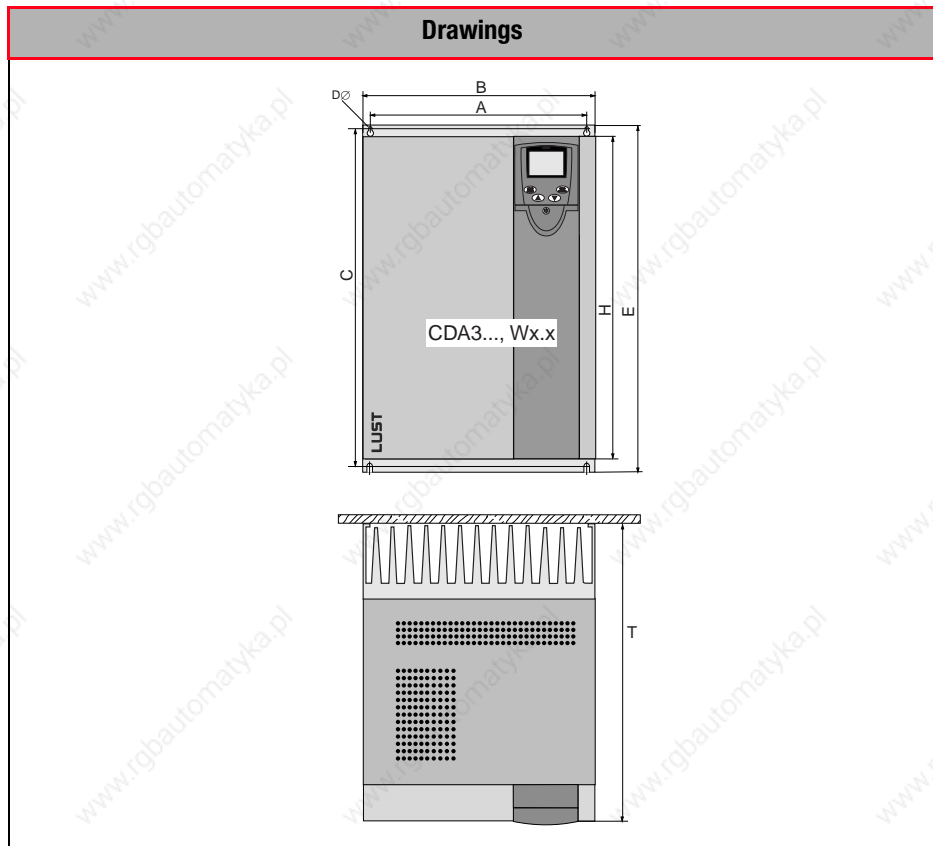
Inverter module 22, 30 and 37 kW (BG6)	Order codel

Type CDA-34.045, W1.0

CDA3 □.□□□, □x.x, □□, ... □□

Technical Data

Cooling method

Version

For complete ordering data please refer to the following tables.

Techn. data \ Order code	CDA34.045	CDA34.060[3]	CDA34.072[3]
Output motor side			
Recommended rated power with 4-pole standard motor	22 kW	30 kW	37 kW
Device rated power (400V)	32.8 kVA	43.8 kVA	52.5 kVA
Voltage	3 x 0 ... 400/460 V[1]		
Effective rated current (I_N at 4/8 kHz)	45 A	60 A	72 A
Peak current 1,8 x I_N (4 kHz) for 30 s	68 A[2]	90 A[2]	108 A[2]
Rotating field frequency	0 ... 200 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	±3 % max.		
Frequency	50/60 Hz ±10 %		
Power loss 4, 8 (16) kHz	777/ 933 W	1010/ 1220 W	1270/ 1530 W
Braking chopper power electronics			
Peak braking power with internal braking resistor (only versionCDA34 ..., Wx.x, BR)	18 Ω	18 Ω	13 Ω

1) Allowed currents at 460 V are documented on page 2-2 and 2-3

2) For further data of currents see page 2-2 and 2-3

3) Inverter modules have to be operated with line chokes, see chapter „ supplementary components"

	CDA3..., <u>W</u> x.x
Cooling method	**Wall mounting**
Mounting method	vertical mounting, unhindered air flow
Protection kind	IP20
Cooling air temperature	45°C (at 4 kHz switching frequency of power stage)
Weight	20 kg
Dimensions	**BG6 [mm]**
W (width)	250
H (height)	345
D (depth)	325
A	215
C	360
D	$\varnothing$ 6.0
E	375

Drawings

CDA3..., Wx.x

Note: Please note that for the cold plate and push-through heat sink cooling methods special conditions regarding the dissipation of power loss must be met. For more details see CDA3000 operation manual.

	Inverter module 45 and 55 kW (BG7)

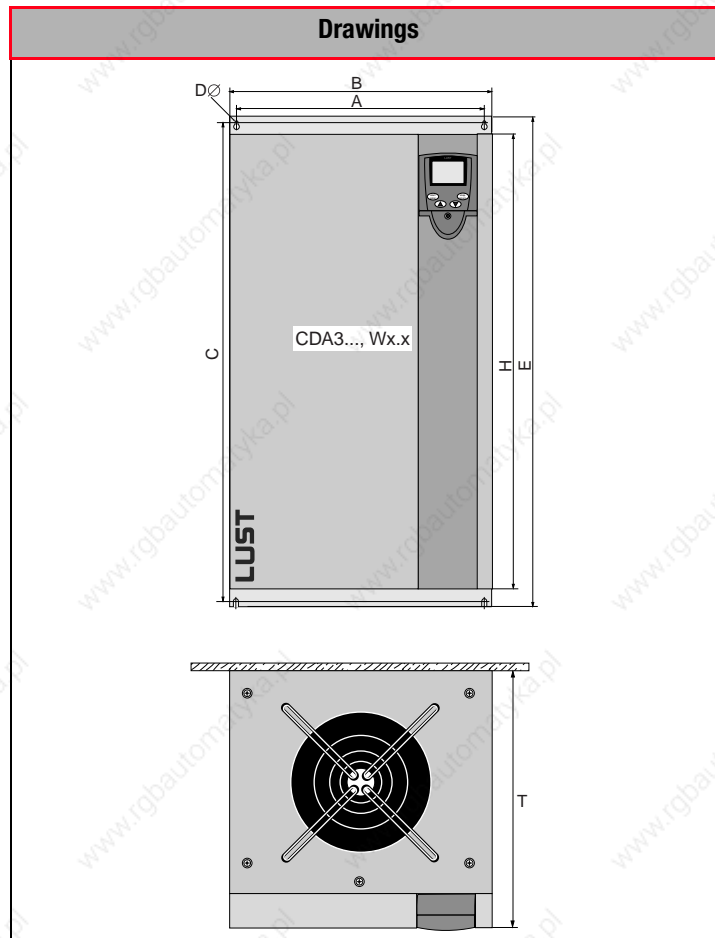Type CDA-34.090, W1.0

Order code

CDA3 ☐.☐☐☐, ☐x.x, ☐☐, ... ☐☐

Technical Data

Cooling method

Version

For complete ordering data please refer to the following tables.

Order code / Techn. data	CDA34.090[3]	CDA34.110[3]
Output motor side		
Recommended rated power with 4-pole standard motor	45 kW	55 kW
Device rated power (400V)	65.6 kVA	80 kVA
Voltage	3 x 0 ... 400/460 V[1]	
Effective rated current (I_N at 4/8 kHz)	90 A	110 A
Peak current 1,8 x I_N (4 kHz) for 30 s	135 A[2]	165 A[2]
Rotating field frequency	0 ... 200 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	±3 % max.	
Frequency	50/60 Hz ±10 %	
Power loss 4, 8 (16) kHz	1510/ 1820 W	1890/ 2290 W
Braking chopper power electronics		
Peak braking power with internal braking resistor (only versionCDA34 ..., Wx.x, BR)	12 Ω	10 Ω

1) Allowed currents at 460 V are documented on page 2-2 and 2-3.

2) For further data of currents see page 2-2 and 2-3.

3) Inverter modules have to be operated with line chokes, see chapter „ supplementary components".

LUST

	CDA34 ..., <u>W</u> x.x
Cooling method	**Wall mounting**
Mounting method	vertical mounting, unhindered air flow
Protection kind	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
D (depth)	305
A	265
C	555
D	$\varnothing$ 9
E	600

Drawings

LUST

| Inverter module 75 to 132 kW (BG8)	Order code

Type CDA-34.170, W1.0

CDA3 □.□□□, □x.x, □□, ... □□

Technical Data

Cooling method

Version

For complete ordering data please refer to the following tables.

Order code / Techn. data	CDA34.143, Wx.x[3]	CDA34.170, Wx.x[3]	CDA34.250, Wx.x[3]
Output motor side			
Recommended rated power with 4-pole standard motor	75 kW	90 kW	110/132 kW
Device rated power (400V)	104 kVA	124 kVA	145/173 kVA
Voltage	3 x 0 ... 400/460 V[1]		
Effective rated current (I_N at 4/8 kHz)	143 A	170 A	210/250 A
Peak current 1,8 x I_N (4 kHz) for 30 s	214 A[2]	255 A[2]	300 A[2]
Rotating field frequency	0 ... 200 Hz		
Switching frequency of power stage	**4** kHz (factory setting 4 kHz)		
Input mains side			
Mains voltage	3 x 460 V -25 % +10 %		
Asymmetry	±3 % max.		
Frequency	50/60 Hz ±10 %		
Power loss 4, 8 (16) kHz	2450 W 2970 W	2930W 3550 W	3405/ 4043 W -
Braking chopper power electronics			
Peak braking power with internal braking resistor (only versionCDA34 ..., Wx.x, BR)	5.6 Ω	5.6 Ω	5.6 Ω

1) Allowed currents at 460 V are documented on page 2-2 and 2-3.

2) For further data of currents see page 2-2 and 2-3.

3) Inverter modules have to be operated with line chokes, see chapter „ supplementary components".

	CDA34 ..., <u>W</u> x.x
Cooling method	**Wall mounting**
Mounting method	vertical mounting, unhindered air flow
Protection kind	IP20
Cooling air temperature	40°C
Weight	60 kg
Dimensions	**BG8 [mm]**
W (width)	412
H (height)	500
D (depth)	370
A	340
C	485
D	⌀ 9
E	510

Drawing

LUST
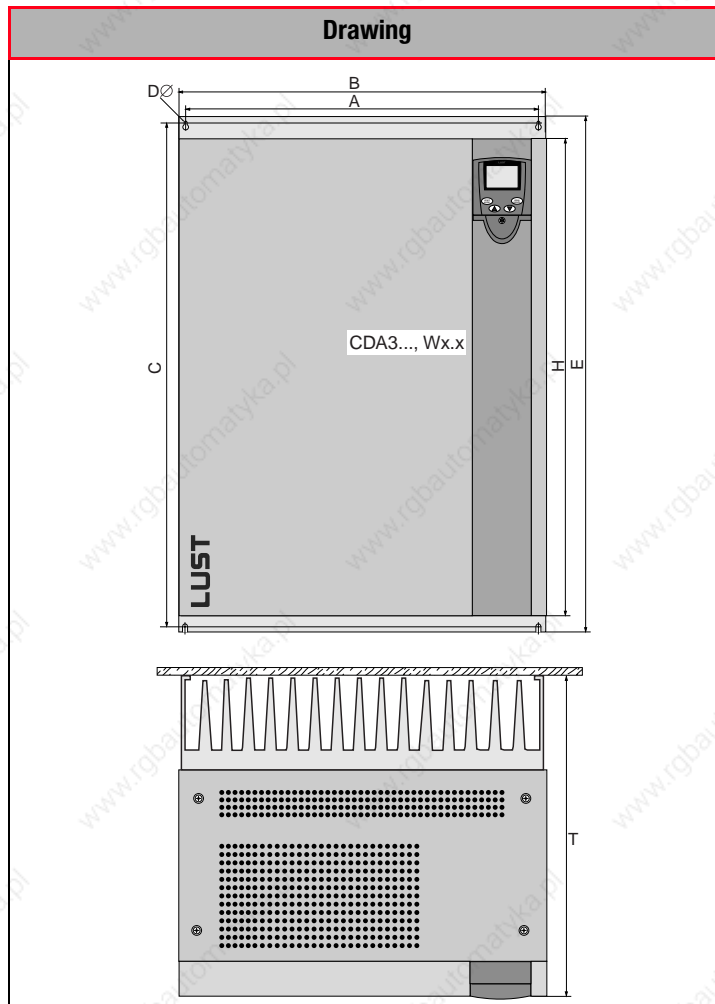
Overview of accessories for inverter module
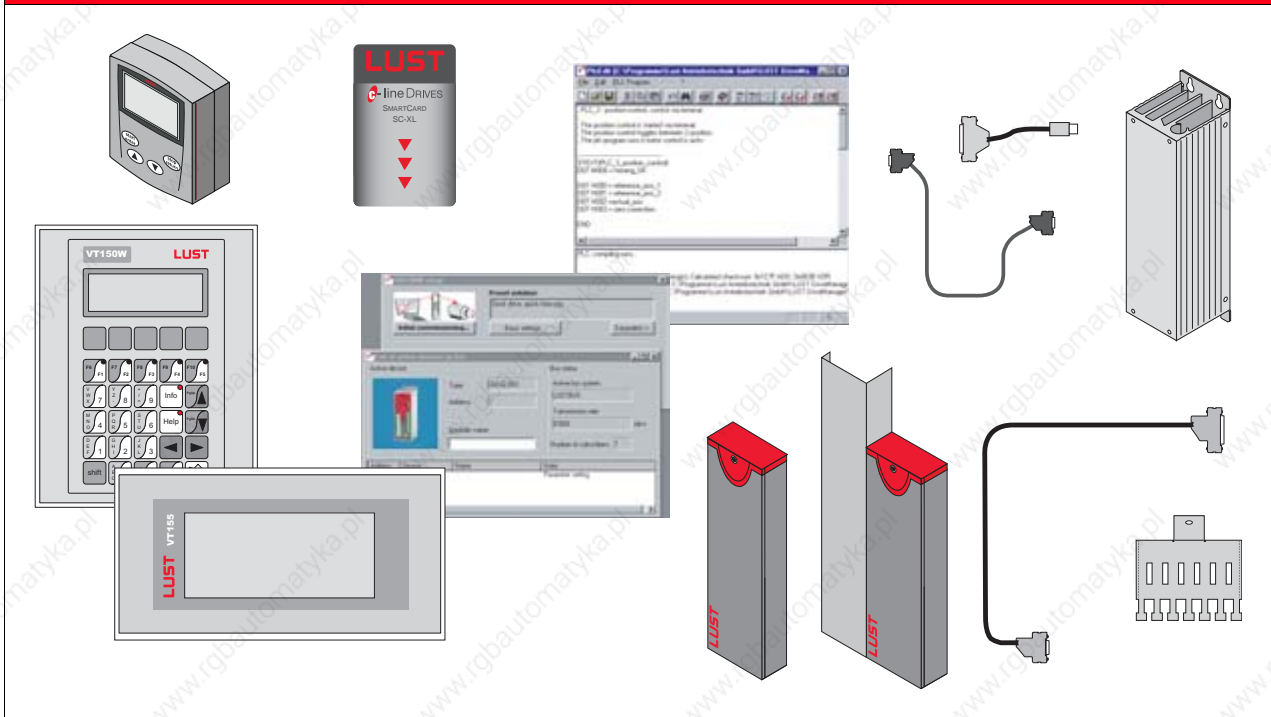
Accessory	Operator module	Memory card	Operator Panels	PLC-Programming	User software	Connecting cable	Terminal cover
Type	KP100 KP200 KP200-XL	SC SC-XL	VT050 VT150W VT155W VT505W	PLCEditor	DRIVEMANAGER	CCD-SUB90X	TB1 ... TB5
Page	3 - 2	3 - 3	3 - 4	3 - 10	3 - 11	3 - 12	3 -13

Accessory	EMV-shield connection	Heat sink for BG1 + 2
Type	ST02 ... ST05 SMC50 SMB50	HS32.1BR HS32.200 HS32.2BR HS34.2BR
Page	3 - 14	3 - 16

| Operator module	Order code
KP200 KP200-XL (Symbolic graph)	KP 200 - XX KEYPAD Type Version
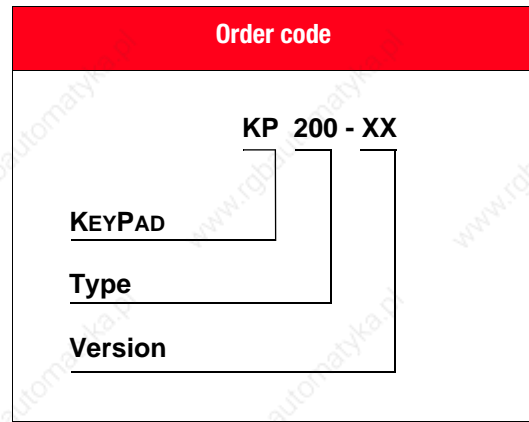
Order code	Short explanation
KP100 (w/o picture)	KEYPAD for parameter setting, actual value indication and serial commissioning of ED1200 inverter. The KEYPAD supports the SMARTCARD „SC".
KP200	KEYPAD for parameter setting, actual value indication and serial commissioning of inverter modules with firmware: „**Basis and HF**". The KEYPAD supports the SMARTCARD „SC".
KP200-XL	KEYPAD for parameter setting, actual value indication and serial commissioning of inverter modules with firmware: „**Basis, HF and PLC**". The KEYPAD supports the SMARTCARD „SC-XL".

| **Mechanic KP100** (w/o picture)	
Dimension	62 x 158 x 21 mm (W x H x D)
Weight	170 g
Mechanic KP200 und KP200-XL	
Dimension (see picture)	70 x 73 x 33 mm (W x H x D)
Weight	150 g
Connection (RS232)	
Standard (6)	can be plugged directly into inverter module
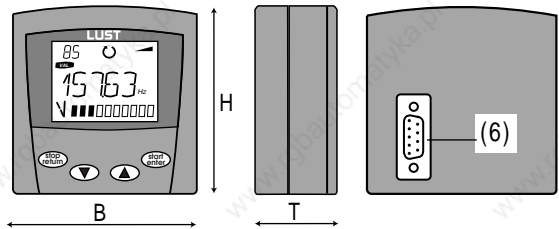
Cable connection	Installation in switching cabinet door	
Connection between KP200/ KP200-XL and inverter module CDA3000 via cable CCD-SUB90X	Mounting in the cabinet door requires two holes for the fixing screws and a breakthrough for the connector. Pleae use only self-tapping screws for thermoplastics (e.g. EJOT PT screw, Type K30 x 8 WN1412).	

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SMARTCARD

Order code
SC - XX SMARTCARD Memory version
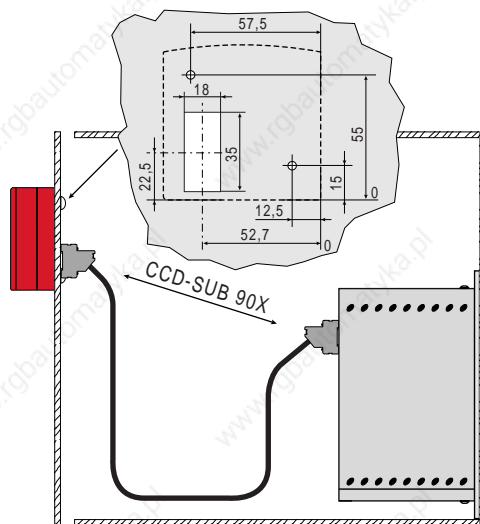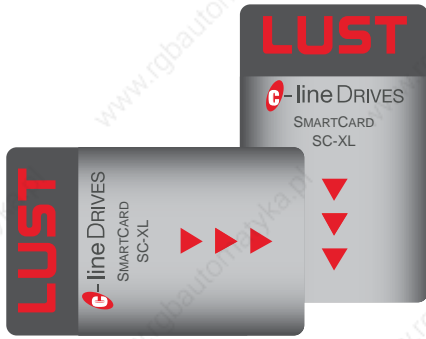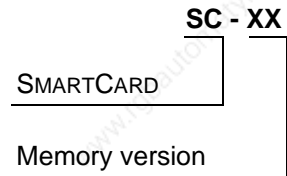
Order code	Short explanation
SC	Data of inverter modules can be saved and transfered to further inverter modules without problems. Suitable for KP100 and KP200.
SC-XL	Data set of inverter modules with firmware „PLC" can be saved and transfered to further inverter modules without problems. Suitable for KP200-XL.

System layout	Explanation
	(1) Connection X4 for operating modules or PC-connection (RS232 interface) (2) Chip card SC/ SC-XL (3) Operator module KP200/ KP200-XL (4) PC with user software DRIVEMANAGER

VT050

VT150W

Order code / Technical data	VT050	VT150W
Voltage supply	24 VDC (18 - 32 VDC)	
Power consumption at 24 VDC	5 W	15 W
Protection fuse	315 mA (Fine protection Type F)	800 mA (Fine protection Type F)
Protection kind	IP65 (Front side)	
Operating, storage and transport temperature	0 ... +50° C / -20° ... +60° C	
Humidity	0 ... 85%	
Certification/Conformity	CE, NEMA12	
Dimension (outer) W x H x D [mm]	166 x 86 x 41	148 x 188 x 41
Mounting frame W x H [mm]	157 x 77	123 x 175
Weight	0.5 kg	0.7 kg

Article code of panel:	Characteristics of panels:			Characteristics of panels:		
	VT050 000 00N			VT150W 000 00N		
	VT050 000 CNN			VT150W 000 CNN		
Display						
Type	Text LCD	●	●	Text LCD	●	●
Background lighting	LED	●	●	LED	●	●
Lines x characters	2 x 20	●	●	4 x 20	●	●
Representional format [mm]	73.5 x 11.5	●	●	70.4 x 20.8	●	●
Character matrix in text mode [Pixel]	5 x 7	●	●	5 x 7	●	●
Size of characters [mm]	3.2 x 5.5	●	●	2.95 x 4.75	●	●
Contrast adjustment	Trim Pot	●	●	Trim Pot	●	●
Character sets	ASCII, Katakana	●	●	ASCII, Katakana	●	●
Keyboard						
System-/ function-/alphanumeric keys	8 / 5 / -	●	●	9 / 5 /11	●	●
LEDs for function-/operating keys	-	●	●	5 /2	●	●

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Article code of panel:	Characteristics of panels:			Characteristics of panels:		
	VT050 000 00N			VT150W 000 00N		
	VT050 000 CNN			VT150W 000 CNN		
User memory						
Project (Flash EPROM) [kB]	256 kB	●	●	256 kB	●	●
Interfaces						
Serial port MSP, 25 pin female	RS232		●	RS232		●
Serial port ASP-8, pin female (only for programming)	RS232	●		RS232	●	
Networks						
Integrated	CAN$_{open}$	●		CAN$_{open}$	●	
Characteristics						
Project languages	4	●	●	6	●	●
Password level /Bit password	- / 8 bit	●	●	10/ 8 bit	●	●
Pages/Variables per page	127 / 8	●	●	1024 / 30	●	●
Variable format	DEC, HEX, BIN, BCD, ASCII, Floating Point	●	●	DEC, HEX, BIN, BCD, ASCII, Floating Point	●	●
Dynamic texts	Depending on size of pro-ject memory	●	●	Depending on size of pro-ject memory	●	●
ISA-Alarms/Information messages	- / 128	●	●	- / 1024	●	●
Message help (page/information message/alarms)	127/128/-	●	●	1024/1024/-	●	●
Automatic operations	16	●	●	16	●	●
Timer /time basis 100 ms)	16	●	●	16	●	●
Equations	32	●	●	32	●	●

Dimensions	VT050	VT150W
W (Width)	166 mm	148 mm
H (Height)	86 mm	188 mm
D (Depth)	41 mm	41 mm
Mounting frame A (Height)	77 mm	175 mm
Mounting frame C (Width)	157 mm	123 mm
D	4 mm	4,5 mm
E	27 mm	110 mm
Drawing		

VT155W

VT505W

Technical data / Order code	VT155W*	VT505W
Voltage supply	24 VDC (18 - 32 VDC)	
Power consumption at 24 VDC	10 W	10 W
Protection fuse	800 mA (Fine protection Type F)	
Protection kind/certification, conformity	IP65 (Front side)/ CE, NEMA1 + 2	
Operating, storage and transport temperature	0 ... +50° C / -20° ... +60° C	
Humidity	0 ... 85%	
Dimensions (outer) W x H x D [mm]	166 x 100 x 39,6	210 x 158 x 54
Mounting frame W x H [mm]	157 x 91 (91 x 157)*	198 x 148
Weight	0.5 kg	1.4 kg

* VT155W can be programmed and used in horizontal and vertical position.

Article code of panel:	Characteristics of panels:			Characteristics of panels:		
	VT155 000 00N			VT505W 000 00N		
	VT155 000 CNN			VT505W 000 CNN		
Display						
Type	Graphic-LCD, 4 grey levels STN	●	●	Graphic-LCD, 4 blue levels STN	●	●
Touch Screen	analog/ 20x8 (12x16 pixel)	●	●	Matrix 20 x 16	●	●
Background lighting	LED	●	●	CCFL-tube	●	●
Lifetime [hours]	-	●	●	15000	●	●
Resolution	240x128 pixel (4")	●	●	320 x 240 pixel (5.7")	●	●
Lines x characters	horizontal 16x40/8x20/4x10 vertical 21x30/10x15/5x7	●	●	16x40/ 8x20/ 4x10	●	●
Representional format [mm]	94.5 x 54.5	●	●	115.2 x 86.4	●	●
Character matrix in text mode [Pixel]	6x8/ 12x16/ 24x32	●	●	8x15/ 16x30/ 32x60	●	●
Size of characters [mm] x1/x2/x4	2.3x5.2/ 4.6x5.8/ 9.1x11.7	●	●	2.8x5.2/5.6x10.4/11.2x20.8	●	●
Contrast adjustment	Software	●	●	Software	●	●
Character sets	prog. sets/ TTF Windows®	●	●	prog. sets/ TTF Windows®	●	●
User memory						
Project (Text + Picture)	640 kB	●	●	640 kB	●	●
Data storage (Flash EPROM)	16 kB + 8 kB (Alarms)	●	●	16 kB	●	●
Interfaces						
Serial port MSP (25 pin female)	RS232		●	RS232	●	●
Serial port ASP, 8 pin female (only for programming)	RS232	●	●	-		-

Article code of panel:	Characteristics of panels:			Characteristics of panels:		
	VT155 000 00N			VT505W 000 00N		
	VT155 000 CNN			VT505W 000 CNN		
Networks						
Integrated	CAN_{open}	●		CAN_{open}	●	
Characteristics						
Project languages	4	●	●	4	●	●
Password level/Bit-password	10/ 8 bit	●	●	10/ 8 bit	●	●
Pages/Variables per page	64/ 32	●	●	128/ 34	●	●
Variable format	DEC, HEX, BIN, BCD, ASCII, Floating Point	●	●	DEC, HEX, BIN, BCD, ASCII, Floating Point	●	●
Dynamic texts/ picture index	depending on size of project memory	●	●	depending on size of project memory	●	●
ISA-Alarms/Information messages	256 / 256	●	●	- / 256	●	●
Message help (page/information message/alarm)	64/256/256	●	●	128/256/-	●	●
Alarm buffer	220	●	●	-	●	●
Macros (Total, commands per Macro)	1024/16	●	●	1024/16	●	●
Printed pages (Total/ Fields per page)	64/128	●	●	-	●	●
Automatic operations	16	●	●	16	●	●
Timer (time basis 100 ms)	16	●	●	16	●	●
Equations	32	●	●	32	●	●
Bar graphs per page	32	●	●	34	●	●
Buttons per page	24	●	●	24	●	●
Hardware clock	with condensator	●	●	-	●	●

Dimensions	VT155W	VT505W
W (Width)	166 mm	210 mm
H (Height)	100 mm	158 mm
D (Depth)	39,6 mm	54 mm
Mounting frame A (Height)	91 mm	148 mm
Mounting frame C (Width)	157 mm	198 mm
Mounting frame high A1	157 mm	-
Mounting frame high C1	91 mm	-
D	4 mm	6 mm
E	102 mm	86 mm
Drawing		

System selection

Invertermodule

Accessories for Invertermodule

User- und Communicationmodule

Supplementary Componentes

LUST
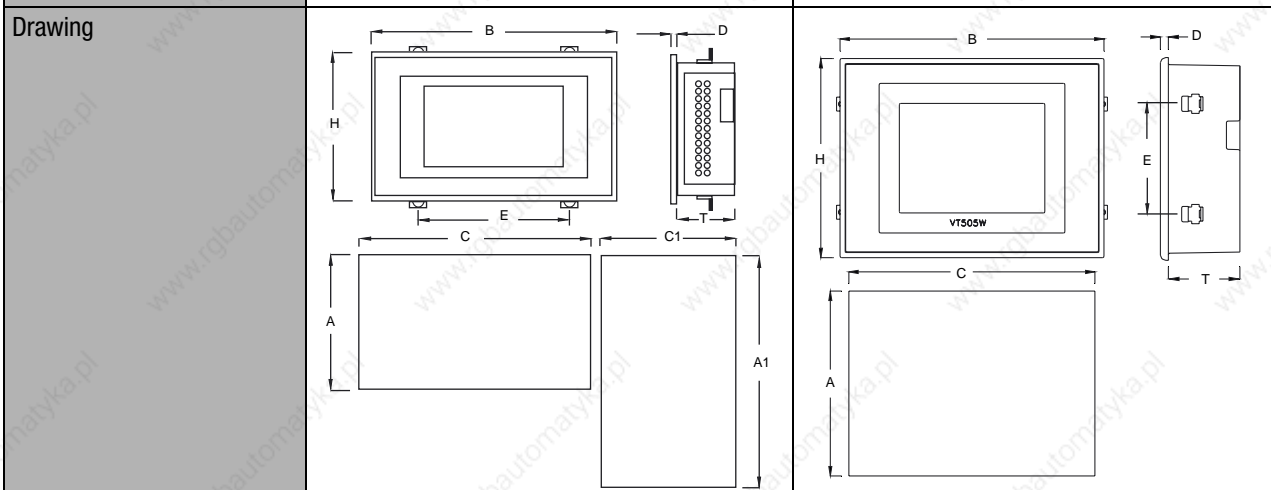
VTWINCD

VTWIN

Program software
VT-series

Order code / Techn. data	VTWIN
Software performance	The program software VTWIN offers the following functions: - Only one software for all Operator Panels - Configuration of RS232-interface - Configuration of CANopen-network - Text and graphic display free programmable - Set-up of Touch-Buttons (only VT155W and VT505W) - Project conversion of projects between the operator panels - free updates for new drivers and new functions
Hard- and software requirements	- Microsoft Windows® 95/98/ME or Windows® NT, 2000, XP - CD-ROM drive (recommended min. read 24-fold)
Supply package	- 1 CD-ROM to install VTWIN - Hard- and Software Manuals
Languages	- Selection out of five languages (German, English, French, Italian, Spanish)

Order Code	Licences
VTWIN	- Contains the full scope for parameter setting, control and monitoring. The software licence permits simultaneous use on any number of workstations. - We supply always the actual software version at time of delivery.

Cables for Operator Panels

Progming cable
CVCOM 11102

Adapter for programming cable
CVCOM 25F8M

RS-232 Interface cable to drive device OPK-RS03

Order Code	Short explanation	Use	
CVCOM 11102	Programming cable for connection between PC + Operator Panel (PC 9poles --> MSP 25poles)	necessary for all Operator Panels	
CVCOM 25F8M	Adapter for programming cable, of PC 25poles --> ASP 8poles DIN-round plug (CVCOM 11102 must be available)	necessary for	- VT050 000 CNN - VT150W 000 CNN - VT505W 000 CNN - VT155W 000 00N - VT155W 000 CNN
OPK-RS03 (Length = 3 m)	Serial RS232-interface cable to connect the Operator Panels with the drive device	suitable for	- VT050 000 00N - VT150W 000 00N - VT505W 000 00N - VT155W 000 00N
OPK-RS05 (Length = 5 m)	Serial RS232-interface cable to connect the Operator Panels with the drive device	suitable for	- VT050 000 00N - VT150W 000 00N - VT505W 000 00N - VT155W 000 00N

System layout	Explanation
	(1) Connection X4 for Operator Panel, Operating module or PC (RS232 interface) (2) Programming cable CVCOM 11102 (3) Adapter for programming cable CVCOM 25F8M (4) Operator Panel (5) Interface cable OPK-RSXX (max. 5 m) (6) PC with program software VTWIN

PLC-software package	Order code
	PLCEditor **PC User Software**

PLCEditor

Order code / Techn. data	PLC-editor

Software performance	PC-User software „PLCEditor" is a supplement to the DRIVEMANAGER:
	
	• Editor for making of PLC-process program
	• Program-Handling
	   – Load/ Save/ Print/ Regeneration of programs
	   – Load/ Save a program from/in DRIVEMANAGER data set
	   – Load/ Save a program from/in a connected drive device
	• Online-Help to the PLC-editor and to the command syntax with examples

Hard- and software requirements	- Microsoft Windows$^®$ 95/98/ME or Windows$^®$ NT, 2000, XP - Working memory (RAM) min 32 MB (recommended 64 MB) - CD-ROM drive (recommended read min. 24-fold)
Supply package	- 1 CD-ROM with PLC-program editor, PLC-program examples, - PLC-System manual as PDF (on CD-ROM) - Firmware CDA3000,PLC
Languages	- During installation selected German or English.

Order code	Licences
PLC-Editor	- Contains the full scope for programming of the PLC-firmware. The software licence permits simultaneous use on any number of workstations.

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PC-User Software	Order code

DRIVEMANAGER 3.x

Order code / Techn. data	DRIVEMANAGER 3.x
Software performance	PC-User software „DRIVEMANAGER" offers the following functions: - Can be operated via comfortable adjusting masks, so easy handling is guaranteed - Status indication to control the operation-specific actual values and references - Direct control of the inverter via PLC - Comfortable four-channel digital scope for real-time recording of actual values, like currentcurve or VFC-diagram - Comparing function to solve problems, data management and print functions.
Hard- and software requirements	- Microsoft Windows® 95/98/ME or Windows® NT, 2000, XP - Working memory (RAM) min. 32 MB (recommended 64 MB) - CD-ROM drive (recommend min. 24-fold read)
Supply package	- 1 CD-ROM to install the user software DRIVEMANANGER - Manual DRIVEMANANGER - All application manuals as well as software descriptions of the single device series as pdf-documents.
Languages	- At installation select German, English or French.

Order Code	Licences
DRIVEMANAGER 3.x TEST	- Contains the full scope of functions and is intended for test and demo purposes. The run-time is limited to 180 days from date of installation.
DRIVEMANAGER 3.x	- Contains the full scope for parameter setting, control and monitoring. Unlimited running time. The software licence permits simultaneous use on any number of workstations.
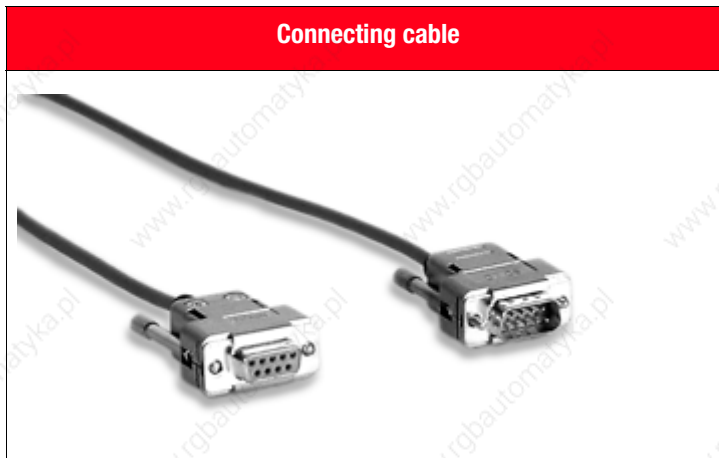
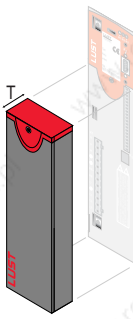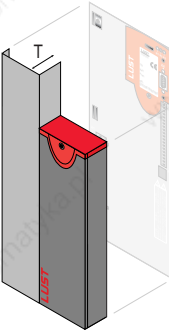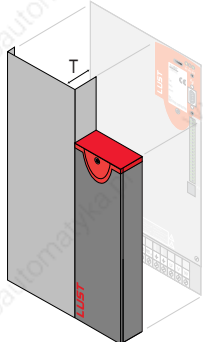| Connecting cable	Order code
CCD-SUB 90x	**CC D-SUB 9 0x** Connecting Cable Cable type D-SUB Cable length in meters
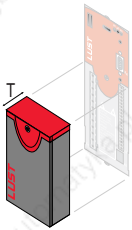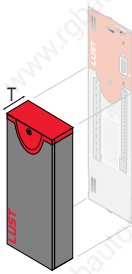
Order code	Technical data
CCD-SUB 901	Cable for the connection between inverter module and KP200 or inverter module and PC with DRIVEMANAGER, length 1 m
CCD-SUB 902	Cable for the connection between inverter module and KP200 or inverter module and PC with DRIVEMANAGER, length 2 m
CCD-SUB 903	Cable for the connection between inverter module and KP200 or inverter module and PC with DRIVEMANAGER, length 3 m

| System layout	Explanation
	(1) Connection 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-SUB90X, x.x

Terminal cover BG3	Terminal cover BG5	Order code
TB3	TB5	**TB** ☐ Terminal Box Size

Order Code	TB1	TB2	TB3	TB4	TB5
Suitable for inverter module	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 output of inverter module	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
Picture					

Hinweis: On inverter modules sizes 6, 7, 8 the terminal cover is included in delivery.

Shield connection	Order code
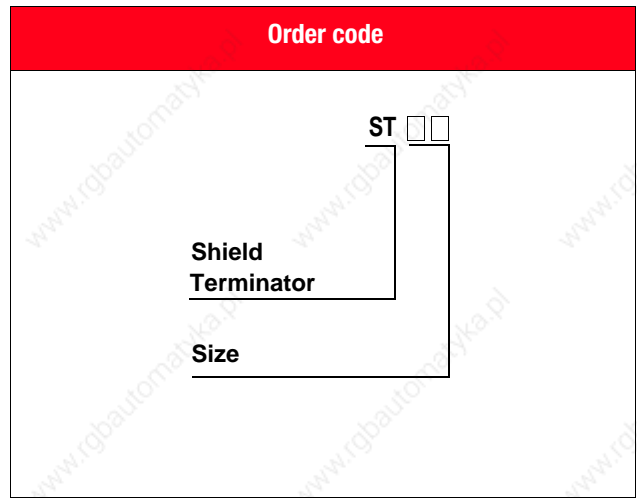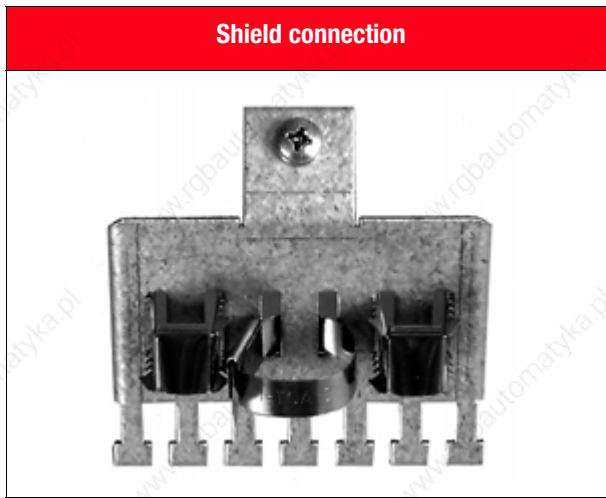
ST02 (incl. metal clips, metal cable binder and srew)

ST ☐☐

Shield
Terminator

Size

Order code / Techn. data	ST02			ST04	ST05
Suitable for inverter module	CDA32.004	CDA32.006 CDA32.008 CDA34.003 CDA34.005 CDA34.006	CDA34.008 CDA34.010	CDA34.014 CDA34.017	CDA34.024 CDA34.032
Output power of inverter module	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
Pictures					

Hinweis: For the inverter modules sizes 6,7,8 (cable cross-section >32 mm²) we recommend to connect the shields of the motor/mains lead directly to a shield rails in the cabinet.
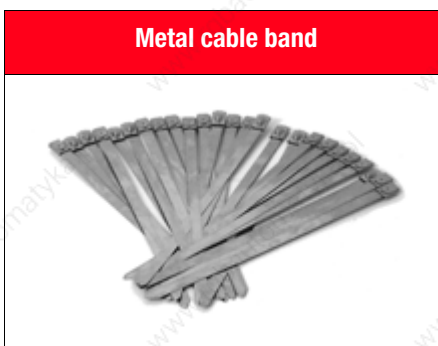
LUST

Metal clips

SMC50

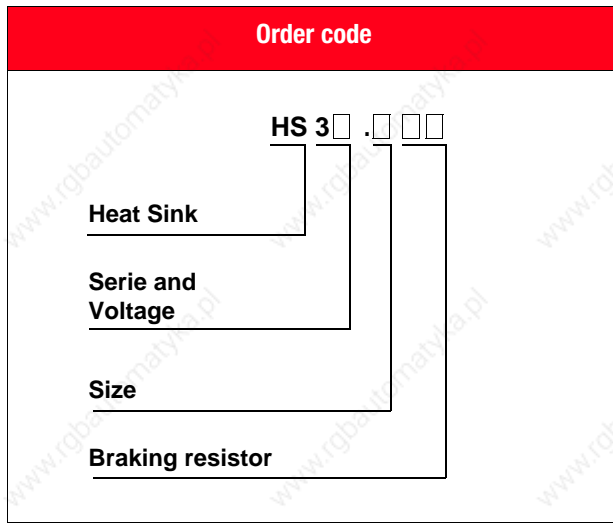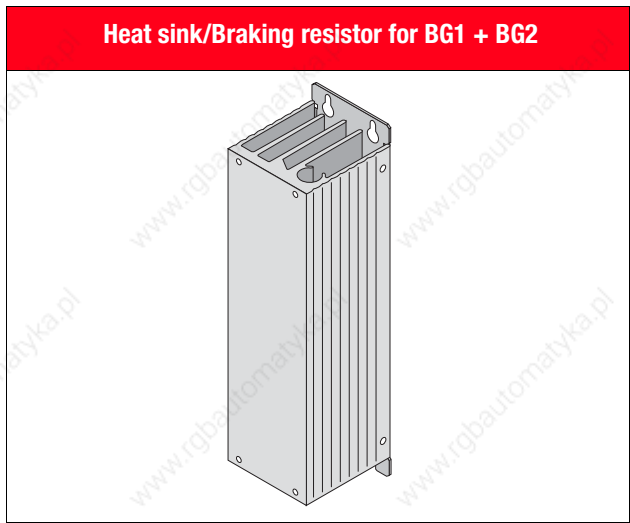| Order code |
|---|

SMC ☐☐

Shield Metal Clip

360° - contacts

Quantity of

packing unit

Order code	Packing unit	suitable for EMV-shielding	useable for cable shield diameter	Material
SMC50	50 pcs.	ST xx	< 12 mm²	spring steel

Metal cable band

SMB50

OcCode

SMB ☐☐

Shield Metal Band

360° - contacts

Quantity of

packing unit

Order code	Packing unit	suitable for EMV-shielding	useable for cable shield diameter	Material
SMB50	50 pcs.	ST xx	> 12mm²	stainless steel

System layout

LUST

Heat sink/Braking resistor for BG1 + BG2	Order code

HS3X.xxx

HS 3☐ . ☐ ☐☐

Heat Sink

Serie and Voltage

Size

Braking resistor

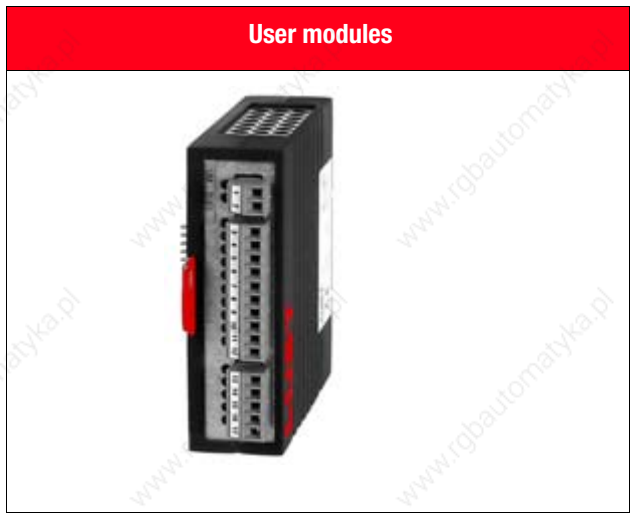| Tech. data / Order code	HS32.1BR	HS32.200	HS32.2BR	HS34.2BR
Continuous braking power at mounting on inverter module	CDA32.004 / 25 W	-	CDA32.006 / 30 W CDA32.008 / 0 W	CDA34.003 / 35 W CDA34.005 / 5 W
Braking resistor	162 Ω	-	90 Ω	360 Ω
Peak braking power	0.9 kW	-	1.7 kW	1.6 kW
Heat sink for end-to-end mounting of inverter modules	-	CDA32.006 CDA32.008 CDA34.005	-	-

Order code	Description / Dimensions	W (Width) [mm]	H (Height) [mm]	D (Depth) [mm]	A [mm]	C [mm]	D [mm]	E [mm]
HS32.1BR	Heat sink with integrated braking resistor (230 V Net)	70	215	75	40	235	⌀4.8	245
HS32.200	Heat sink	70	240	75	40	260	⌀4.8	270
HS32.2BR	Heat sink with integrated braking resistor (230 V Net)							
HS34.2BR	Heat sink with integrated braking resistor (460 V Net)							
Drawings	HS32.1BR HS32.200 HS32.2BR / HS34.2BR							

LUST
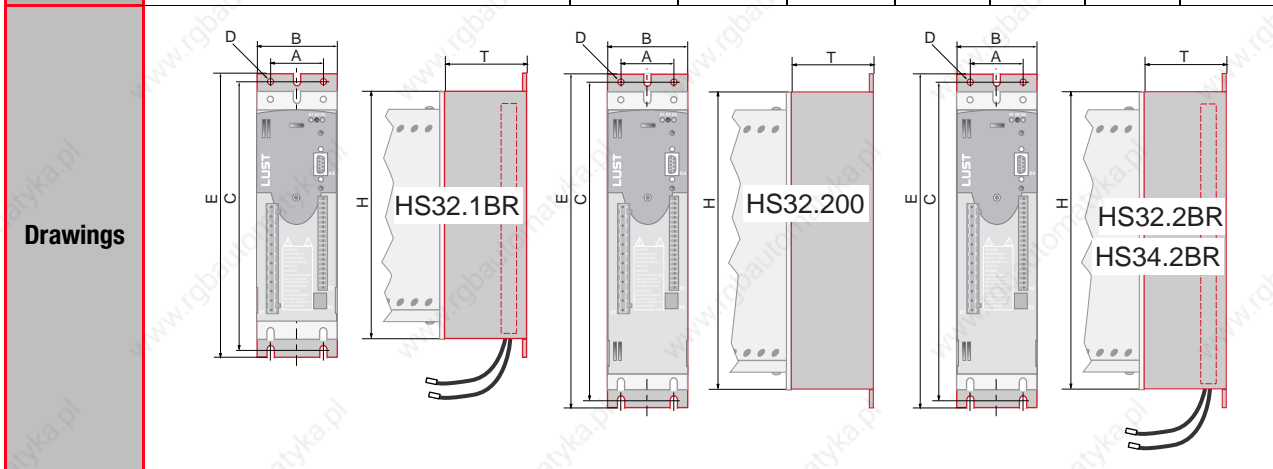
Overview user and communication modules
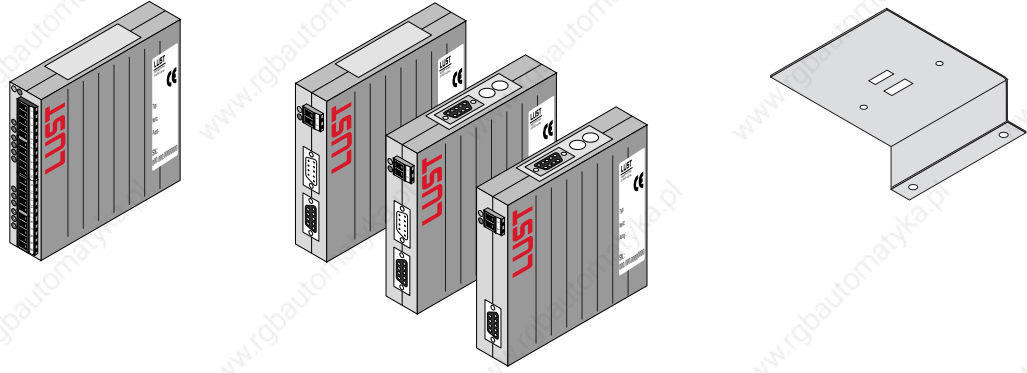
Index	User modules	Communication modules	Mounting package
Type	UM-8I4O	CM-CAN1 CM-CAN2 CM-DPV1	MP-UMCM
Page	4 - 2	4 - 3	4 -5

Invertermodule

Accessories for
Invertermodule

User- und
Communicationmodule

Supplementary
Componentes

User modules	Order code

UM - ☐☐☐☐

User Module

Characteristics

8 I 4 O (e.g.)

Terminal extension by 4 outputs

Terminal extension by 8 inputs

UM-8I4O

Order code	Short description
UM-8I4O	Terminal extension by 8 inputs and 4 outputs, programmable functions of I/O's

| Technical data	UM-8I4O	
Supply voltage	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 voltage with signal „1"	3.5 mA to 7.0 mA (6 mA at24 VDC)
Four outputs	allowed range with signal „1"	min. 5 mA max. 0.5 A
	Output current — Mean	125 mA
	Output current — Total current	0,5 A
	Output current — Short-circuit current per output	max. 1.2 A short-time
Dimensions (W x H x D)	28 x 90 x 90 [mm]	

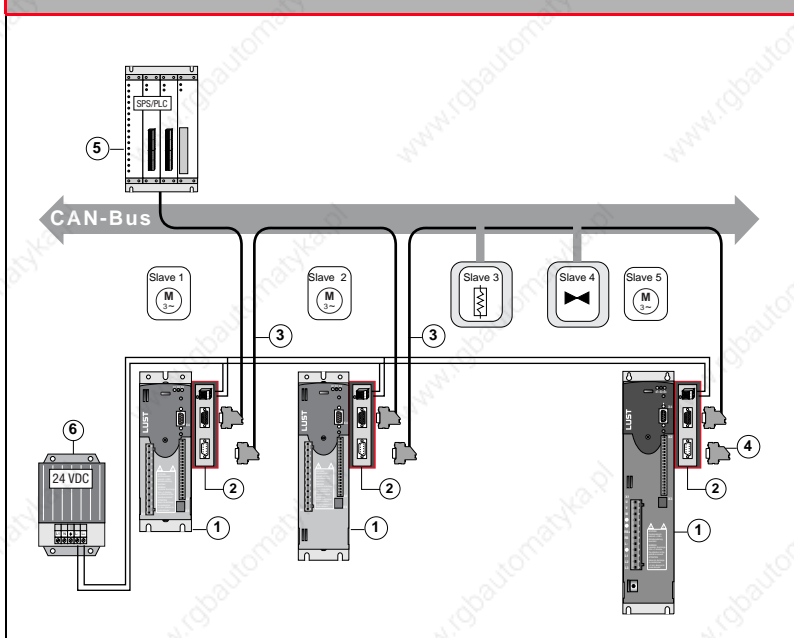| System layout UM-8I4O	Explanation
	(1) Inverter module CDA3000 (2) User module UM-8I4O (3) External power pack 24 VDC (4) Eight control inputs (programmable) (5) Four control outpus (programmable)

LUST

Communication modules	Order code
	CM - ▢▢▢▢ **Communication Module** **Bus and/or Protocol**

CM-CAN1, CM-CAN2, CM-DPV1
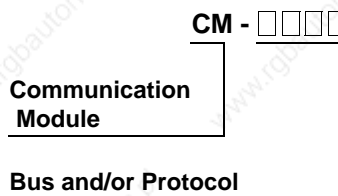
Order code	Short description
CM-CAN1	Communication module for CAN-Bus with data transfer protocol CAN$_{Lust}$
CM-CAN2	Communication module for CAN-Bus with data transfer protocol CAN$_{open}$
CM-DPV1	Communication module for PROFIBUS-DPV1 (for actual GSD-file see our homepage www.lust-tec.de)

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
Transfer rate/ cable length	25 kBit/s up to 1000 m 500 kBit/s up to 100 m	20 kBit/s up to 1000 m 1 MBit/s up to 40 m	9.6 kBit/s up to 1200 m 12 MBit/s up 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]		

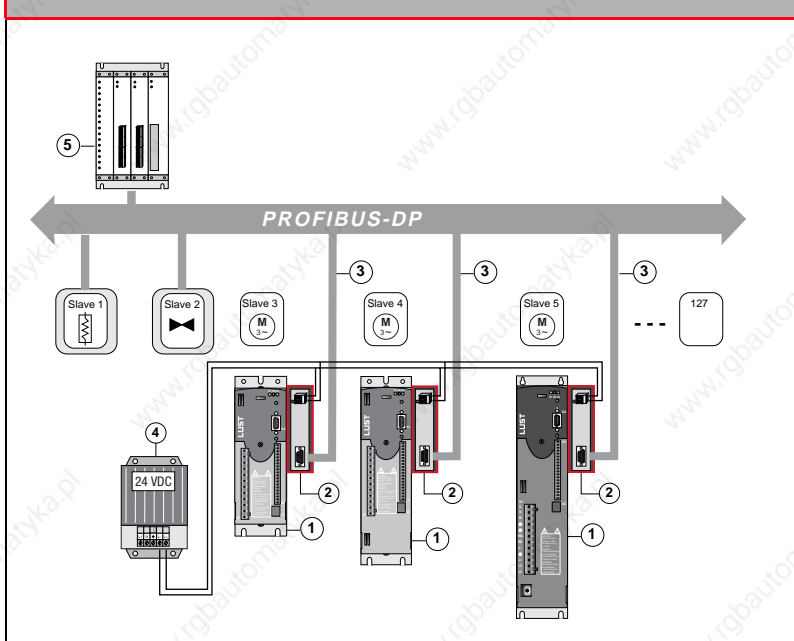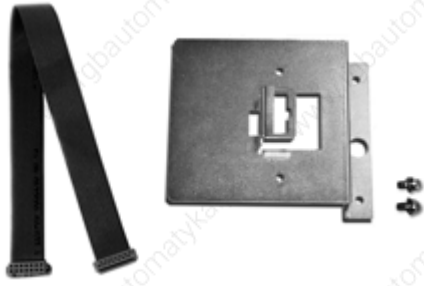| System layout CAN$_{LUST}$/ CAN$_{open}$	Explanation
	(1) Inverter module CDA3000 (2) Communication module CM-CAN1 or CM-CAN2 (3) Connecting cable CCD 90x, x.x (4) Bus termination plug (5) CAN-Bus control (6) Power pack (24 VDC) max. 100 stations

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 code	Short description
MP-UMCM	The mounting package is for fixing the user/communication module to inverter modules size BG6, BG7 and BG8.

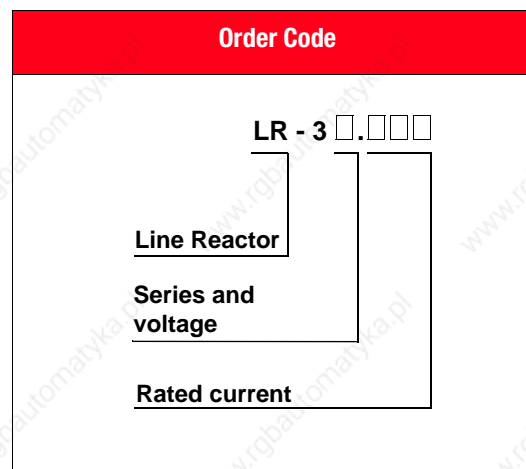| System layout	Explanation
	(1) Plug-in connection X7 (communication module) (2) Plug-in connection X6 (user module) (3) Control terminals (4) KP200 (5) Slot for user module (z.B. UM-8I4O) (6) Slot for communication module 2 (e.g. CM-CAN1)

Overview supplementary components
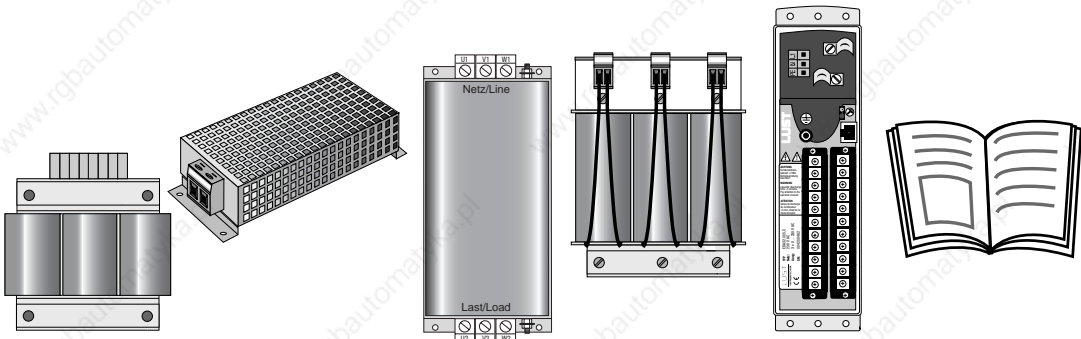
Index

	Line chokes	Braking resistors	Mains filters	Motor choke motor filter	Inverter for simple applications	User information
Type	LR 32.4 ... ... LR32.8 LR34.4 ... ... LR34.170	BR-270.01, 540 ... BR-010.80, 541	EMCxxx.X	MR34.xxx MRF34.xxx	ED1200	all paper documents
Page	5 - 2	5 - 5	5 - 8	5 - 12	5 - 16	5 - 17

Line chokes	Order Code

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 I_N for 40 s	1.8 x I_N for 40 s up to rated current of 32 A 1.5 x I_N for 60 s from rated current of 45 A
Ambient temperature	-25° C up to +45° C, with power loss up to 60° C (1,3 % / °C)	
Monting height	1000 m, with power loss up to 4000 m (6 % / 1000 m)	
Relative humidity	15 ... 95 %, condensation not permitted	
Storage temperature	-25° C up to +70° C	
Protection kind	IP00, terminals VBG4	
Short-circuit voltage	U_K 4 % at 230 V = 9,2 V	U_K 4 % at 400 V = 9,24 V
Permissible contamination	P2 according to EN 61558-1	P2 according to EN 61558-1
Thermal configuration	$I_{eff} < I_N$	
UL-Recognition	Execution LR3X.xxx-UR has the UL-Recognition for the markets in USA and Canada	

[1] at mains frequency 60 Hz the power loss increases by approx. 5 - 10 %.

Single-phase line chokes

Techn. data Order code	Suitable for inverter modules	Rated current [A]	Power loss total [W]	Inductance [mH]	Weight [kg]	Connection [mm²]
LR32.8/ LR32.8-UR	CDA32.004, ED1200	8	10	3.66	0.8	4
LR32.14/ LR32.14-UR	CDA32.006 CDA32.008	14	16	2.1	1.5	4
LR32.5/ LR32.5-UR[1]	CDA32.004, ED1200 (Recommended rated power with 4-pole stan-dard motor = 550 W)	4.5	11	9.76	0.7	4

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

LUST

Single-phase line chokes

Dimensions [mm]	LR32.8	LR32.5	LR32.14
W (Width)	60	60	85
H (Height	75	75	100
D (Depth)	57	57	65
A	44	44	64
C	46	46	50
D	Ø 4.8	3.6	Ø 4.8
Drawing:			

Three-phase line chokes

Techn. data / Order code	Suitable for inverter modules	Rated current [A]	Power loss total [W]	Inductance [mH]	Weight [kg]	Connection [mm²]
LR34.4/ LR34.4-UR	CDA34.003	4.2	20	7	1.6	4
LR34.6/ LR34.6-UR	CDA34.005 CDA34.006	6	26.1	4.88	2.0	4
LR34.8/ LR34.8-UR	CDA34.008	8	29	3,.66	2.4	4
LR34.10/ LR34.10-UR	CDA34.010	10	33	2.93	3.0	4
LR34.14/ LR34.14-UR	CDA34.014	14	45	2.09	3.8	4
LR34.17/ LR34.17-UR	CDA34.017	17	45	1.72	4.5	4
LR34.24/ LR34.24-UR	CDA34.024	24	50	1.22	5.8	4
LR34.32/ LR34.32-UR	CDA34.032	32	67	0.92	6.7	10
LR34.45/ LR34.45-UR	CDA34.045	45	73	0.65	8.5	10
LR34.60/ LR34.60-UR	CDA34.060	60	85	0.49	10.0	10
LR34.72/ LR34.72-UR	CDA34.072	72	111	0.41	14.0	16
LR34.90/ LR34.90-UR	CDA34.090	90	135	0.33	20.0	35
LR34.110/ LR34.110-UR	CDA34.110	110	126	0.27	22.0	35
LR34.143/ LR34.143-UR	CDA34.143	143	168	0.21	28.0	70
LR34.170/ LR34.170-UR	CDA34.170	170	218	0.18	30.0	70
LR34.250/ LR34.250-UR	CDA34.250	250	270	0.135	40.0	M10

Three-phase line chokes

Dimen-sions [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	LR34.250
W (Width)	100	125	125	125	155	155	155	190	190	190	230	230	230	265	300	300
H (Height	120	140	140	140	160	160	160	195	195	195	275	280	280	330	360	360
D (Depth)	70	65	65	75	80	80	95	85	95	105	125	150	150	145	155	200
A	63	100	100	100	130	130	130	170	170	170	180	180	180	215	240	240
C	50	47	47	57	57	57	74	57	67	77	98	122	122	118	120	137
DØ	5,8	5	5	5	8	8	8	8	8	8	8	8	8	11	11	11
Drawing:																

System layout
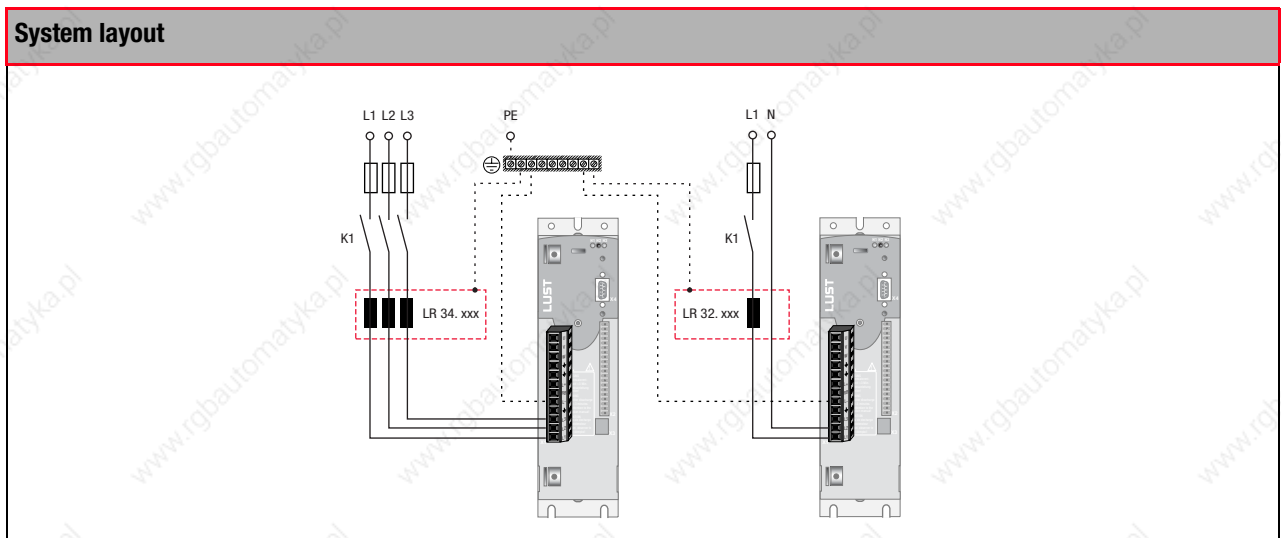
Braking resistor	Order code
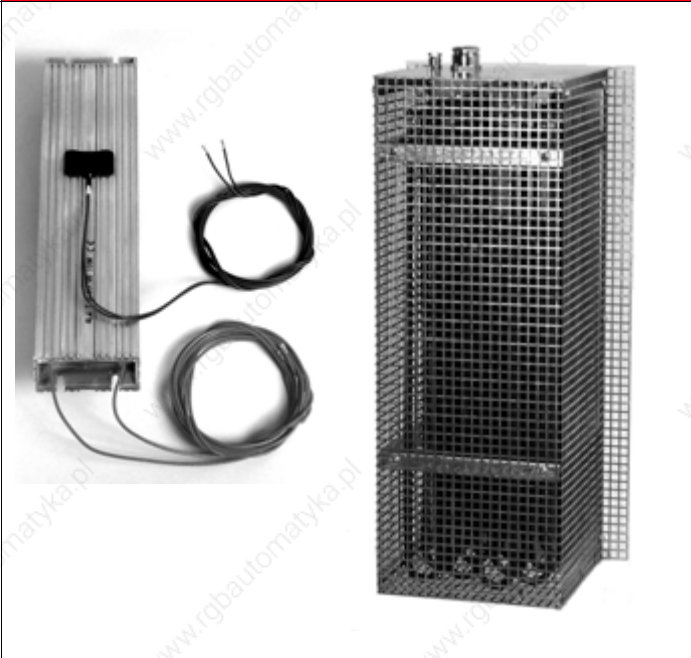
BR-270.02, 540   BR-042.20, 201

BR -☐☐☐.☐☐,☐☐☐

Braking Res.

Ω Value

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

Termination

1 = with touch protection
0 = w/o touch protection

Technical data / Design	as per diagram A1 and A11	as per diagram A2	as per diagram 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 control	yes with bimetal protector (switching capacity 0.5 A/ 230 V)		
Acceptances	CE-conform		
UL-Recognition	in preparation		no
Connection	1 m long PTFE - insulated litz wire	Ceramic terminals	Ceramic terminals
Diagrams	A11 A1 A2	A3	A4

Catalogue Inverter System CDA3000

LUST

5 - 5

Braking resistors

| Techn. data / Order code	Cont. brake power [W]	Resistor [Ω ±10 %]	Peak braking power [W]		Protecion	Diagram
			390 VDC[1]	750 VDC[2]		
BR-270.01, 540[4]	35	270	560	2080	IP23	A11
BR-160.01, 540[4]	35	160	950	[3]	IP23	A11
BR-090.01, 540[4]	35	90	1690	[3]	IP23	A11
BR-110.01, 540[4]	35	110	1380	[3]	IP23	A11
BR-110.02, 540[4]	150	110	1380	5110	IP23	A1
BR-200.02, 540[4]	150	200	760	2810	IP23	A1
BR-270.02, 540[4]	150	270	560	2080	IP23	A1
BR-160.02, 540[4]	150	160	950	3500	IP23	A1
BR-110.03, 541	300	110	1380	5110	IP23[5]	A2
BR-200.03, 541	300	200	760	2810	IP23[5]	A2
BR-270.03, 541	300	270	560	2080	IP23[5]	A2
BR-160.03, 541	300	160	950	3500	IP23[5]	A2
BR-090.03, 541	300	90	1690	6250	IP23[5]	A2
BR-090.10, 201	1000	90	1690	6250	IP20	A3
BR-090.10, 541	1000	90	1690	6250	IP23[5]	A4
BR-042.20, 201	2000	42	-	13390	IP20	A3
BR-042.20, 541	2000	42	-	13390	IP23[5]	A4
BR-015.60, 541	6000	15	-	37500	IP23[5]	A4
BR-010.80, 541	8000	10	-	56250	IP23[5]	A4

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

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

3) Not permitted for operation on inverter modules with 3 x 400/460 V mains connection.

4) The braking resistors can be operated at double continuous braking power if provided with optimum cooling.
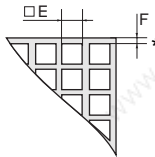
5) Adapter box in IP54

System layout

LUST
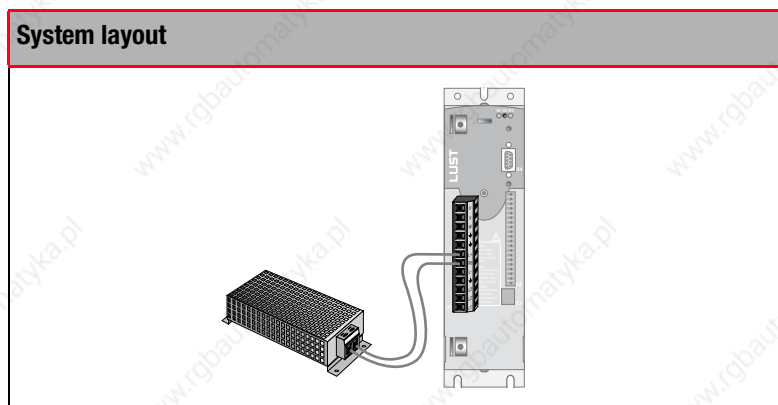
Braking resistors								
Dimension [mm]	BR-270.01, 540	BR-160.01, 540	BR-090.01, 540	BR-110.01, 540	BR-110.02, 540	BR-200.02, 540	BR-270.02, 540	BR-160.02, 540
W (Width)	40	40	40	40	80	80	80	80
H (Height	160	160	160	160	300	300	300	300
D (Depth)	26	26	26	26	20	20	20	20
A	-	-	-	-	41.5	41.5	41.5	41.5
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
Diagram	A11	A11	A11	A11	A1	A1	A1	A1

Dimensions [mm]	BR-110.03, 541*)	BR-200.03, 541*)	BR-270.03, 541*)	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
D (Depth)	80	80	80	80	80	200	200	200	200	200	200
A											
C	*) Fixing brackets are made of perforated sheet metal Web width F = 2 mm Grid square E = 8 mm										
DØ											
Diagram	A2	A2	A2	A2	A2	A3	A4	A3	A4	A4	A4
Drawings											
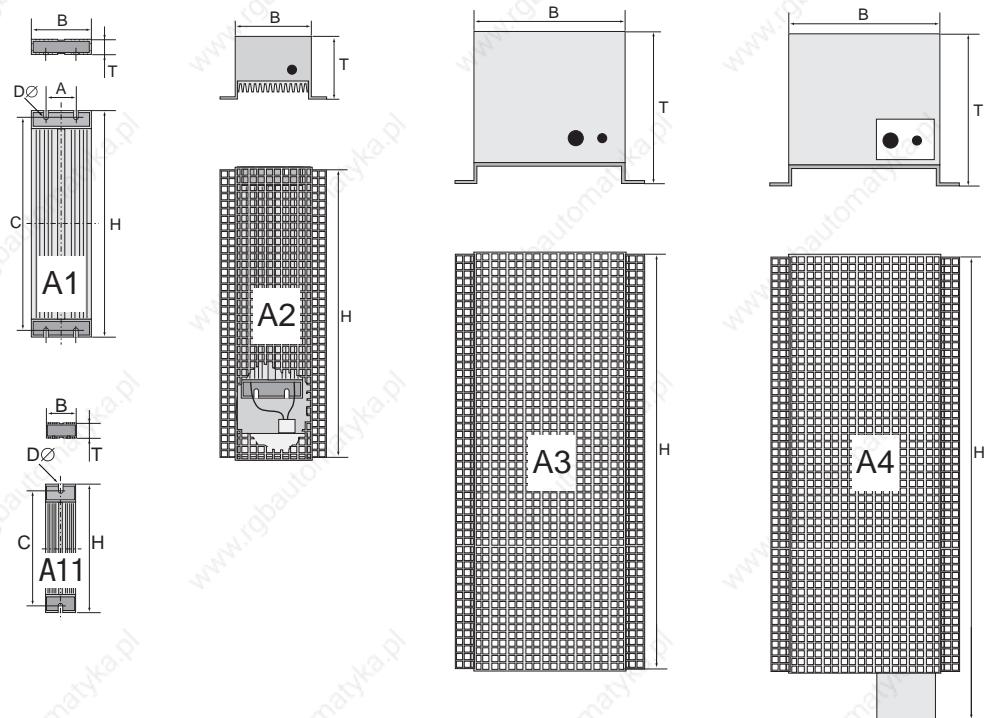
Mains filters		Order code

EMC50.0

EMC17.U/S

EMC ☐☐☐.☐

Electro
Magnetic
Compatibility

Rated current

Version
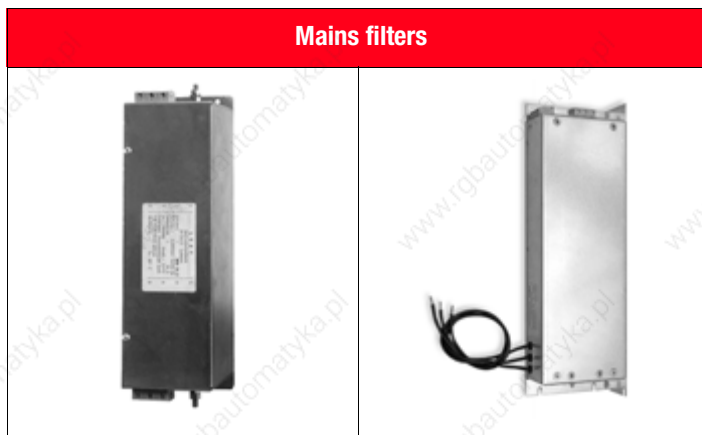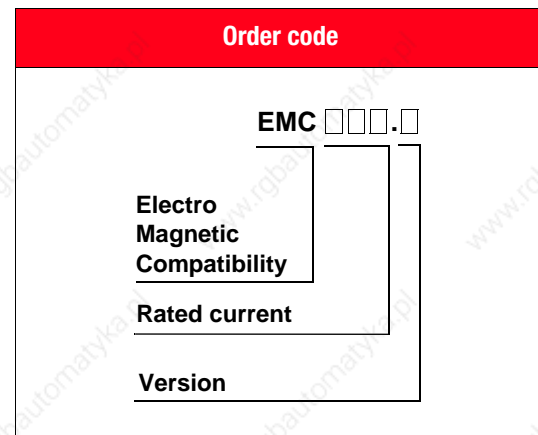
Ambient conditions	EMCxx.x
Mains voltage	3 x 480 V, max. +10 %, 50/60 Hz
Ambient temperature	typical -25° C up to +40° C, with power loss up to 60° C (1.3 % / ° C)
Mounting height	1000 m, with power loss up to 4000 m (6 % / 1000 m)
Relative humidity	15 ... 85 %, condensation not permitted
Transport / Storage temperature	-25° C up to +70° C/ -40° C up to +85° C
Protection	IP00, Input terminals VBG4
Permissible contamination	P2 according to EN 61558-1
UL-Recognition	Version EMCxxx-UR has UL Recognition for the USA and Canadian markets
Radio interference suppression EN61800-3 -residential-	Motor calbe length up to 100 m permitted
Radio interference suppression EN61800-3 -industrial-	Motor cable length up to 150 m permitted

Three-phase mains filters

Techn. data / Order code	Suitable for inverter modules	Rated current [A]	Power loss total [W]	Inductance [mH]	Weight [kg]	Connection [mm²]
EMC 10.0, EMC 10.0-UR	CDA34.008 CDA34.010	10	13	< 1.3	1.7	0.2...4, PE M5
EMC 17.0 EMC 17.0-UR	CDA34.014 CDA34.017	17	21	< 1.2	1.8	0.2...4, PE M5
EMC 35.0 EMC 35.0-UR	CDA34.024 CDA34.032	35	27	< 1.1	2.5	0.2...6, PE M5
EMC 50.0 EMC 50.0-UR	CDA34.045[1]	50	31	< 1.1	3.4	0.5...16, PE M5
EMC 63.0	CDA34.060[1]	63	53	< 1.1	6.0	0.5...16, PE M6
EMC 80.0	CDA34.072[1]	80	68	< 1.1	6.0	0.75...35, PE M8
EMC 100.0	CDA34.090[1]	100	68	< 1.3	6.0	0.75...35, PE M8
EMC 125.0	CDA34.110[1]	125	82	< 1.3	10.0	16...50, PE M10
EMC 150.0	CDA34.143[1]	150	88	< 1.4	10.0	35...95, PE M10
EMC 180.0	CDA34.170[1]	180	150	< 1.1	15.5	Bolt M12
EMC 250.0	CDA34.250[1]	250	180	< 1.5	18.2	Bolt M12

1) Inverter modules (CDA34.045 to CDA34.250) have to be operated with line chokes.

LUST

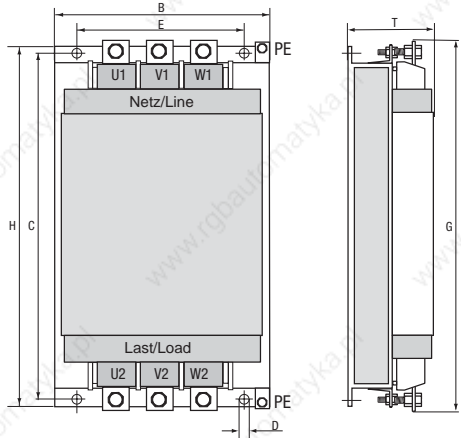| Three-phase mains filters									
Dimensions [mm]	EMC 10.0/ 17.0/35.0	EMC 50.0	EMC 63.0	EMC 80.0	EMC 100.0	EMC 125.0	EMC 150.0	EMC 180.0	EMC 250.0
Drawing	Type Ia	Type Ib	Type II						Type III
W (Width)	270	290	330	325	325	345	345	490	490
H (Height	55	90	150	150	150	175	175	170	230
D (Depth)	100	100	103	107	107	127	135	158	158
G	260	325	366	340	340	416	428	629	655
C	260	275	315	310	310	330	330	470	260
E	36	76	105	105	105	120	120	110	170
DØ	Ø 4.5	Ø 4.5	Ø 7	Ø 7	Ø 7	Ø 7	Ø 7	Ø 8.5	Ø 8.5

Drawing: Type Ia +Ib

1) litz wire at type Ia:

EMC10.0: litz wire AWG 14/ 2,08 qmm, length 400 mm

EMC17.0: litz wire AWG 12/ 3,31 qmm, length 400 mm

EMC35.0: litz wire AWG 10/ 5,26 qmm, length 400 mm
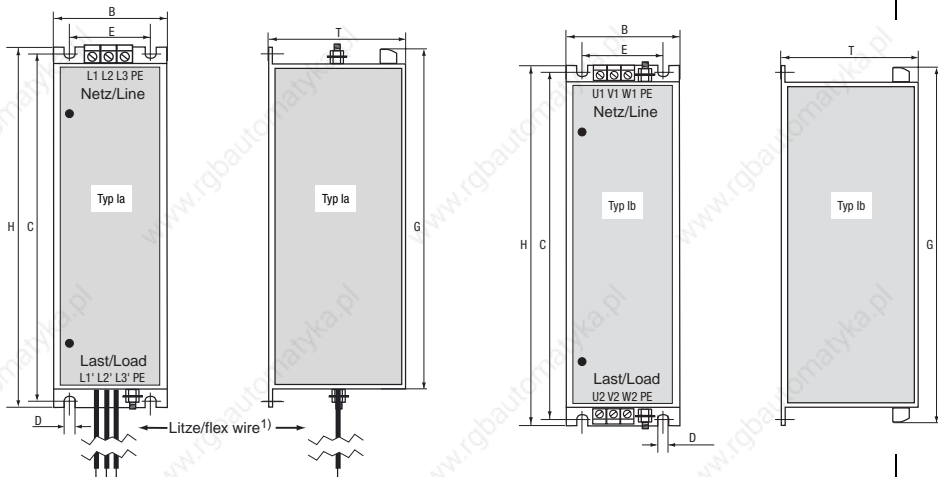
Drawing: Type II
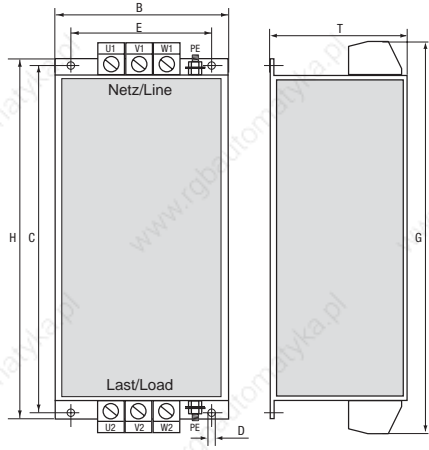
Drawing: Type III

Three-phase base-side mounting mains filters

Techn. data / Order code	Suitable for inverter modules	Rated current [A]	Power loss total [W]	Inductance [mH]	Weight [kg]	Connection [mm²]
EMC10.U/S EMC10.U/S-UR	CDA34.008 CDA34.010	10	12.5	< 1.3	2.0	0.2 ... 4.0 PE M5
EMC17.U/S EMC17.U/S-UR	CDA34.014 CDA34.017	17	21	< 1.2	3.5	0.2 ... 4.0 PE M5
EMC35.U/S EMC35.U/S-UR	CDA34.024 CDA34.032	35	21	< 1.1	4.0	0.2 ... 6.0 PE M5
EMC 50.U EMC 50.U-UR	CDA34.045	50	31	< 1.1	4.5	0.5...16, PE M8
EMC 63.U	CDA34.060	63	53	< 1.1	8.1	0.5...16, PE M8
EMC 80.U	CDA34.072	80	68	< 1.1	8.2	10...25, PE M8

Three-phase base-side mounting mains filters

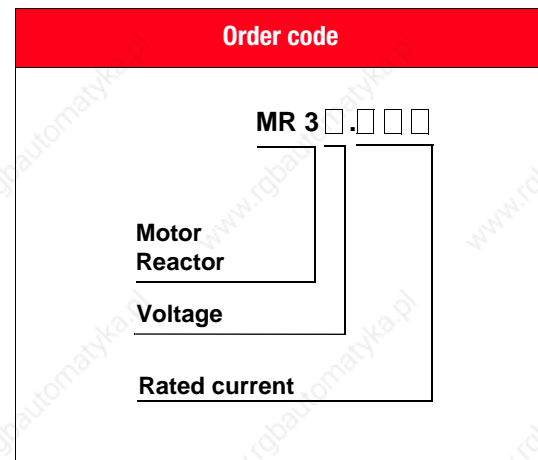| Dimensions[mm]	EMC10.U/S	EMC17.U/S	EMC35.U/S	EMC 50.U, EMC 63.U, EMC 80.U
W (Width)	385	385	385	430
H (Height	70	120	170	250
D (Depth)	55	55	55	100
A	40	40	40	-
C	370	370	370	415
E	50	80	130	190
F	40	80	130	215
M	320			360
O	340			390
DØ	Ø 5.5			Ø 7

*The filters in base-mounting execution are only suitable for mounting under inverter modules version CDA34.xxx,W.

Three-phase base-side mounting mains filters

Dimensions[mm]	EMC10.U/S	EMC17.U/S	EMC35.U/S	EMC 50.U, EMC 63.U, EMC 80.U
Drawing: **EMC10.U/S** **EMC17.U/S** **EMC35.U/S**				
Drawing: **EMC50.U** **EMC63.U** **EMC80.U**				

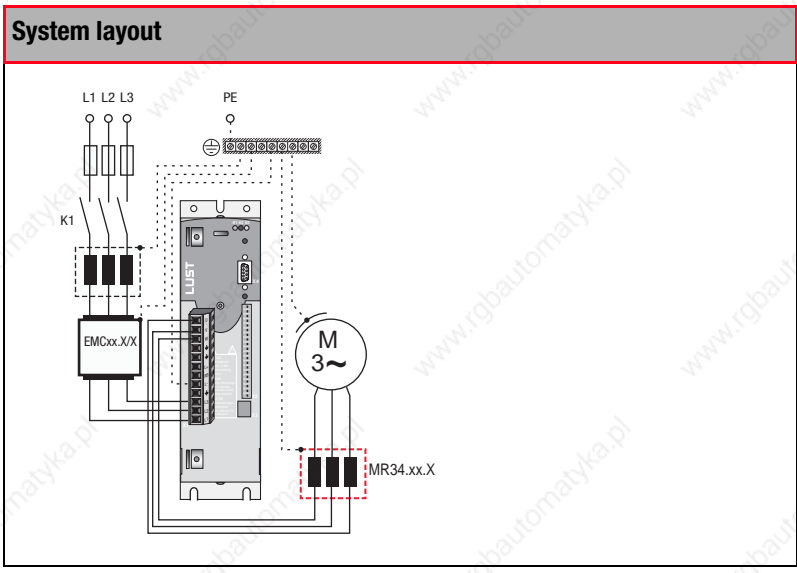*The filters in base-mounting execution are only suitable for mounting under inverter modules version CDA34.xxx,W.

System layout

Motor choke	Order code
	MR 3☐.☐☐☐ Motor Reactor Voltage Rated current
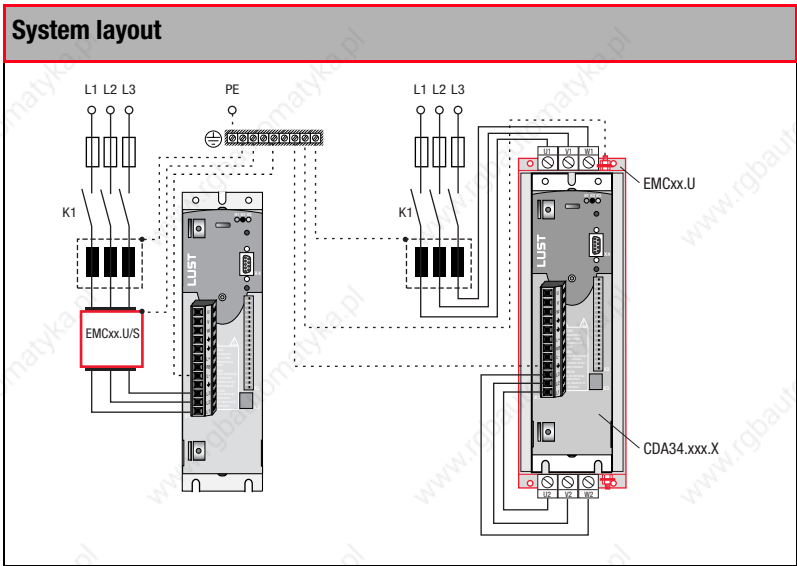
MR34.10

Ambient conditions	MR34.xxx
Rated voltage	3 x 460 V, +10 %
Overload factor	1.8 x I_N for 40 s up to a rated current of 32 A 1.5 x I_N for 60 s at rated current from 45 up to 170 A
Ambient temperature	-25° C up to +45° C, with power loss up to 60° C (2.5 % / ° C)
Mounting height	1000 m, with power loss up to 2000 m (12.5 % / 1000 m)
Relative humidity	15 ... 85 %, condensation is not permitted
Storage temperature	-25° C up to +70° C
Protection	IP00, terminals VBG4
Permissible contamination	P2 according to EN 61558-1, vertical wall mounting
Connections	up to type MR34.24 screw terminals, larger motor chokes flat terminals with threaded bolt
UR-Recognition	all motor chokes have the UL-Recognition for the markets in the USA and Canada
Rotating field frequency/ clock frequency power stage	max. 150 Hz/ 4 up to 8 kHz
Standstill torque (Rotating field zero)	all 120 s, max. 5 s
du/dt	typical < 1000 V/ μs

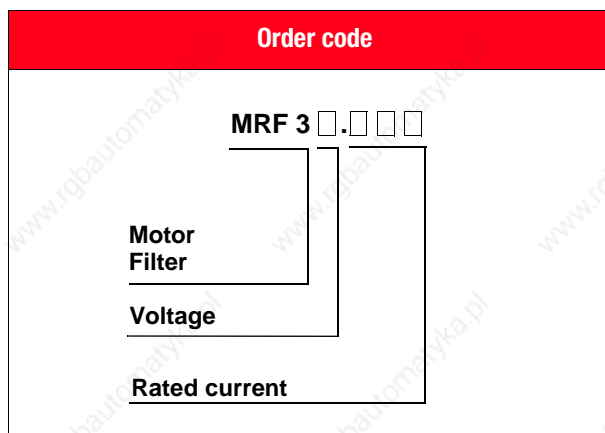| Motor chokes							
Techn. data Order code	Suitable for inverter module	Rated current [A]	Power loss [W]	Motor cable max. length [m]	max. capacitance per unit length [pF/m]	Inductanc e [mH]	Weight [kg]
MR34.10	CDA32.004 bis CDA34.010	9.4	70	30	L - L = 140 L - screen = 210	0.9	4.5
MR34.24	CDA34.014 bis CDA34.024	24	120	50	L - L = 140 L - screen = 210	0.45	10
MR34.45	CDA34.032 CDA34.045	46	130	50	L - L = 170 L - screen = 260	0.15	10.3
MR34.90	CDA34.060 bis CDA34.090	91	145	30	L - L = 190 L - screen = 300	0.05	10.5
MR34.110	CDA34.110	150	160	50	L - L = 190 L - screen = 300	0.05	20
MR34.170	CDA34.143 CDA34.170	176	210	30	L - L = 190 L - screen = 300	0.05	28

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Motor chokes

Dimensions[mm]	MR34.10	MR34.24	MR34.45	MR34.90	MR34.110	MR34.170	MR34.250
Drawing	Type I		Type II				
W (Width)	160	193	182	182	205	205	?
H (Height	155	190	210	210	240	240	?
D (Depth)	85	115	120	120	131	165	?
D	130	170	175	175	190	190	?
E	70	75	85	85	95	129	?
G	90	100	105	105	121	155	?
C	M5	M6	M6	M6	M8	M8	?

Drawing: Type I

Drawing: Type II

System layout

Motor filters	Order code

MRF34.45

MRF 3 □ . □ □ □

Motor
Filter

Voltage

Rated current

Ambient conditions	MRF34.xxx
Execution	Motor choke with condensator for inverters acc. to EN61558, VDE0570
Rated voltage	3 x 460 V, +10 %
Overload factor	1.8 x I_N for 40 s up to rated current of 32 A 1.5 x I_N for 60 sat rated current from 45 up to 250 A
Ambient temperature	-25° C up to +45° C, with power loss up to 60° C (2.5 % / ° C)
Mounting height	1000 m, with power loss up to 2000 m (7.5 % / 1000 m)
Relative humidity	15 ... 85 %, condensation is not permitted
Storage temperature	-25° C up to +70° C
Protection/ Connections	IP00, terminals VBG4 / screw terminals
Permissible contamination	P2 acc. to EN 61558-1, vertical wall mounting
UL-Recognition	all motor filters have the UL-Recognition for the markets in USA and Canada
Rotating field frequency/Clock frequency of power stage	max. 150 Hz from 4 up to 8 kHz
Standstill torque (rotating field zero)	max. 5 s, all 120 s
Motor cable length screened	max. 250 m
Output voltage	sinozoidal with low, overlayed riple voltage

Motor filters

Techn. data / Order code	Suitable for inverter modules	Rated current [A]	Power loss [W]	max. capacitance per unit length of motor cable [pF/m]	Connection cross section [mm²]	Weight [kg]
MRF34.10	CDA32.004 bis CDA34.010	10	70	L - L = 140 L - Screen = 210	4	5.5
MRF34.17	CDA34.014	16.5	120		10	8.5
MRF34.24	CDA34.024	24	150		16	14.5
MRF34.32	CDAA34.032	32	170	L - L = 170 L - Screen = 260	16	19
MRF34.45	CDA34.045	48	190		16	25.5
MRF34.60	CDA34.060	61	220		35	33.5
MRF34.72	CDA34.072	72	250	L - L = 190 L - Screen = 300	35	37
MRF34.90	CDA34.090	90	290		50	53
MRF34.110	CDA34.110	115	350		95	66
MRF34.170	CDA34.143 CDA34.170	180	450		150	75

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Motor filter										
Dimension [mm]	MRF 34.10	MRF 34.17	MRF 34.24	MRF 34.32	MRF 34.045	MRF 34.060	MRF 34.072	MRF 34.090	MRF 34.110	MRF 34.170
W (Width)	160	185	280	280	280	315	315	320	415	415
H (Height	155	190	240	240	240	300	300	300	360	360
D (Depth)	120	160	190	200	220	228	240	270	210	240
D	130	170	190	190	190	240	240	240	264	264
E	71	67	105	105	125	133	145	172	125	154
Fixing screws C	M5	M5	M6	M6	M6	M8	M8	M8	M8	M10
Drawings										

System layout
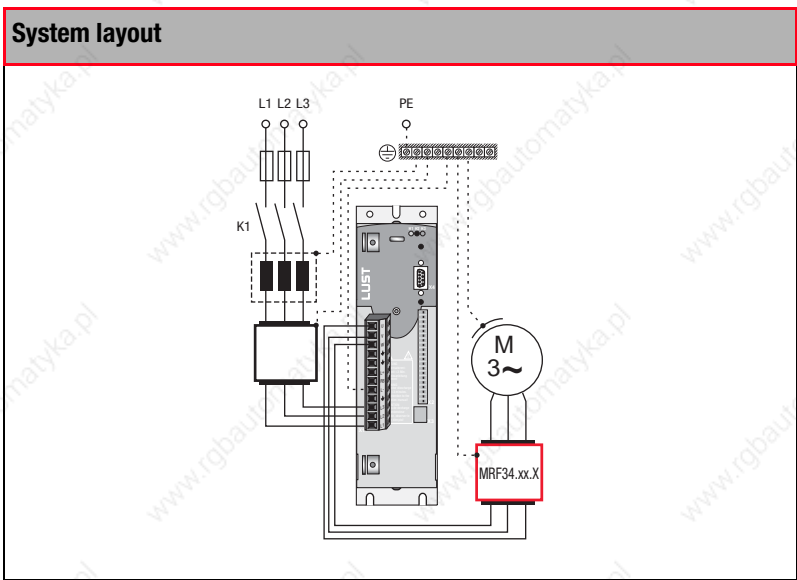
Inverter ED12.005,C for simple applications
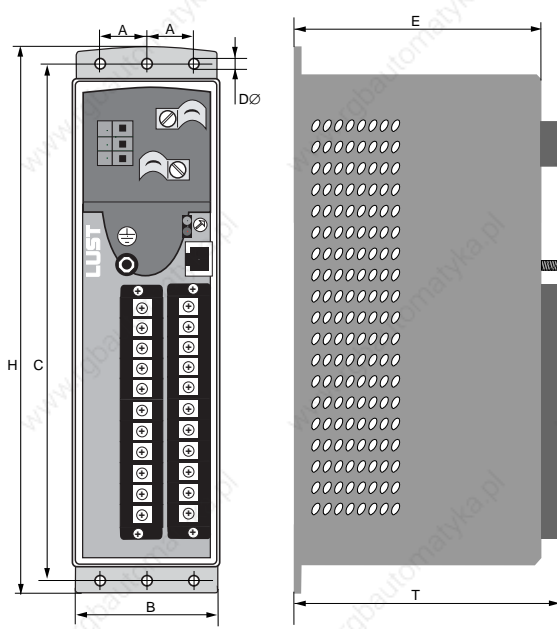
Techn. data / Order code	ED12.005
Output motor side	
Recommended rated power with 4-pole standard motor	0.25 kW up to 0.75 kW
Device rated power	1.4 kVA
Voltage	3 x 0 ... 230 V
Effective rated current (at 4/8 kHz)	3.5 A
Peak current (4/8 kHz) for 10 s	7.0 A
Rotating field frequency	0 ... 400 Hz
Switching frequency of power stage	4, **8** kHz (factory setting 8 kHz at 40° C cooling air temperature)
Input mains side	
Mains voltageq	1 x 230 V -20 % +15 %
Frequency	50/60 Hz ±10 %
Power loss (at 4/8 kHz)	35 W

Ambient cond. / Order code	ED12.005
Temperature range	
during operation	0 ... 40 °C, with power loss up to 50 °C (2,5 %/°C)
during storage	-25 ... +55 °C
during transport	-25 ... +70 °C
Relative humidity	15 ...85% no condensation
Mechanical strength (IEC68-2-6)	
stationary use	Vibration: 0.075 mm (10 ... 58 Hz) Shock: 9.8 m/s² (>9 ... 500 Hz)
during transport	Vibration: 3.5 mm (5 ... 9 Hz) Shock: 9.8 m/s² (>9 ... 500 Hz)
Protection	
Device	IP00 (NEMA 1)
Touch protection	VBG 4
Monting height	up to 1000 m above MSL, with power loss up to max. 2000 m above MSL

Norms/Acceptances	ED12.005
CE-mark	Conform to the requirements of the low voltage directive DIN EN 50178. The inverter is conform to the requirements for installation in a machine or plant under the terms of the Machinery Directive 98/37/EG.
UL-Approbation	The inverter ED1200 is „UL-Recognized" . It is equivalent to UL and CSA for „UL-Recognized Components".
EMV-acceptance	By taking the installation notes into consideration (see operation manual) the EMV product norm will EN 61800-3 will be met. Including • Public low voltage system: Residential areas up to 10 m motor cable length • Industrial low voltage system: Industrial area up to 25 m motor cable length

Cooling method	ED12.005, C x.x	Drawing
Mechanics		
Cooling air temperature	40 °C (at4/8 kHz switching frequency)	
Weight	1.3 kg	
Mounting method	vertical mounting	
Single mounting	Additional cooling via mounting plate (unvarnished) of 0.25 m²	
Dimensions	**[mm]**	
W (Width)	65	
H (Height)	233	
D (Depth)	120	
A	20	
C	220	
E	105	
D⌀	⌀ 4.8	

Order code	Short description
HS12.005	Heat sink for use at thermally insulated mounting areas
ED12.005,C1x.x with HS12.005	**Drawing**

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Order code	Short description
Dimensions	[mm]
W (Width)	65
H (Height)	232.5
D (Depth)	67.5
A	32.5
C	246.5
D	$\varnothing$ 4.8
E	256.5
F	187.5
Weight	[kg]
Heat sink	0.9

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User information on paper (selection)	Order Code

0XXX . XXB . X-xx

Docu Id.-No.

Stand

For complete ordering data please refer to the following tables.

User information	Method	Order code	Language
Operating manual CDA3000	Presents the mechanical and electrical installation of the CDA3000 inverter module. Guide to quick and save inital commissioning.	0840.00B.x	German/English/ Frenchh/Italien/ Spain
Application manual CDA3000	Presents the adaptation of the drive system to the application (software-based).	0840.02B.x 0840.22B.x	German English
User manual, communication modules CM-CAN1	Project planning, installation and commissioning of the CDA3000 to field bus CAN_{Lust} .	0916.01B.x 0916.21B.x	German English
User manual, communication modules CM-CAN2	Project planning, installation and commissioning of the CDA3000 to field bus CAN_{open}.	0916.02B.x 0916.22B.x	German English
User manual communication modules CM-DPV1	Project planning, installation and commissioning of the CDA3000 to field bus PROFIBUS-DP.	0916.00B.x 0916.20B.x	German English
CDA3000-PLC System manual	Presents machine sub-automation solutions with c-line DRIVES in connection with VTxxxx Operator Panels	0840.12B.x	German English
ED1200 Operating manual	Presents the mechanical and electrical installation of the ED 12.005,C inverter. Guide to quick and save initial commissioning.	0994.01B.x 0994.21B.x	German English

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