LUST | **LTi** | DRiVES

Technologies that move the World.

CDE/CDB
The Positioning Experts in the Economy Class

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Specialists in their field

CDE3000
for synchronous motors

CDB3000
for asynchronous motors

CDE/CDB 3000 power range

Power range from 375 W (2 A) to 110 kW (210 A)

- Mains voltage 1 x 230 V (-20 % +15 %)
    - Device power output 375 W - 1.5 kW in 2 sizes

- Mains voltage 3 x 400 V (-25 % + 10 %)
    - Device power output 750 W - 110 kW in 7 sizes

High overload capacity of power stage

- 180 % for 30 s to 15 kW device power output

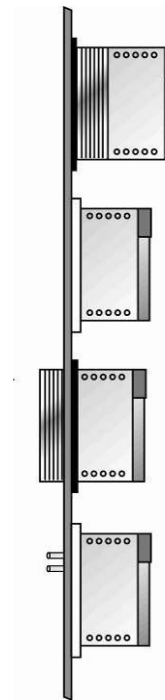- 200 % for 30 s/10 s above 15 kW device power output

Power range

No separate auxiliary voltage supply required

- Field bus operation with mains voltage off enabled by
  24 V auxiliary voltage supply

Always the right cooling method

- Cold Plate up to 15 kW

- Wall mounting

- IP54 push-through heat sink
  from 3 kW to 110 kW

- Water cooling from 22 kW

Sizes

- Mains supply 230 V
  - Tolerance -20 % +15 %
  - Rated current: 2.4 ... 7.1 A

- Mains supply 460 V
  - Tolerance -25 % +10 %
  - Rated current: 2.2 ... 210 A

- Overload
  - To 32 A: 180 % rated current for 30 s
  - 45 A to 72 A: CDE 200 % for 10 s / CDB 150 % rated current for 30 s
  - 72 A to 210 A: 200 % rated current for 30 s or 10 s
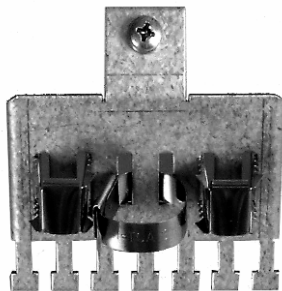
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Acceptance tests/Ambient conditions

- CE label to DIN EN 50178 and product standard EN 61800-3 (EMC)

- cUL approbation (UL & CSA)

- EMC acceptance tests
  - Integrated RFI filters up to 7.5 kW and 22 to 37 kW to conform to EN 61800-3
    - Public low voltage system:
      Residential areas up to 10 metres motor cable length
    - Industrial low voltage system:
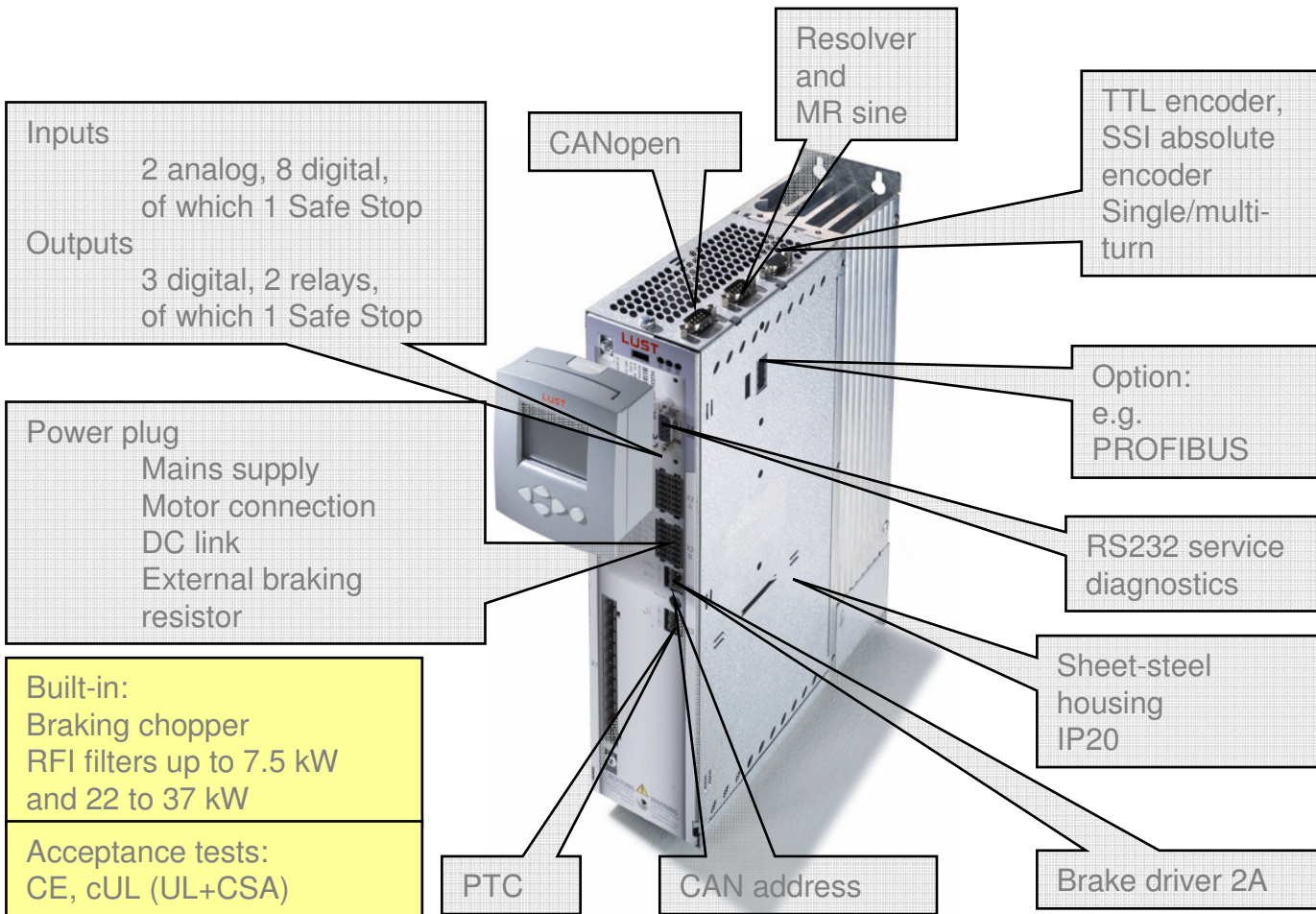   Industry up to 25 metres motor cable length
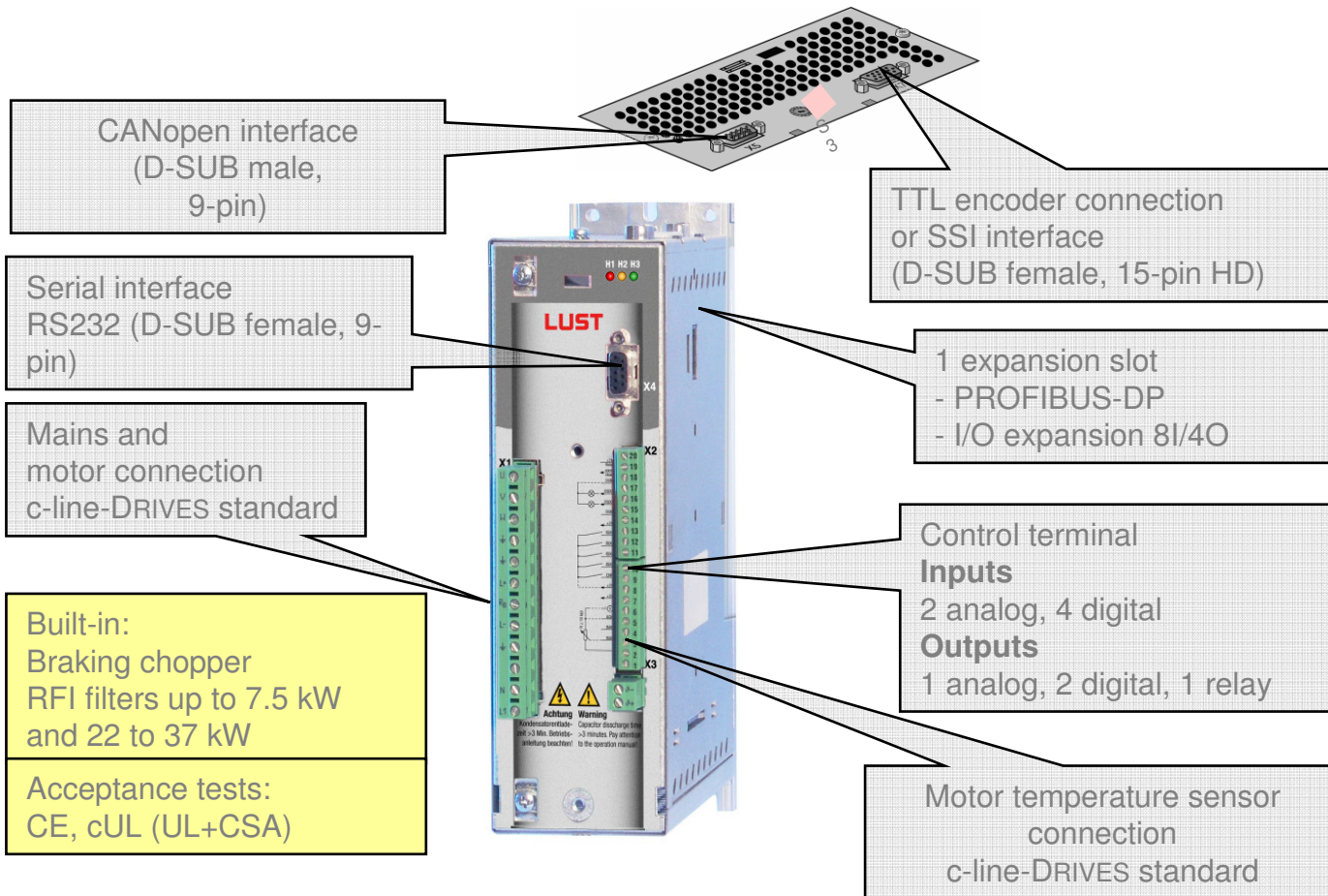
Acceptance tests/Ambient conditions

- Extensive mains filter range
  (side-mounted and built-under)

- Radiation-tight
  - thanks to sheet-steel housing with aluminium-zinc finish
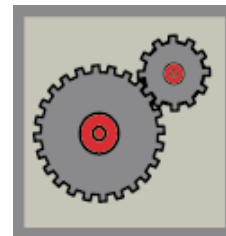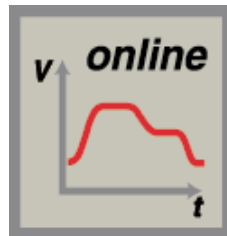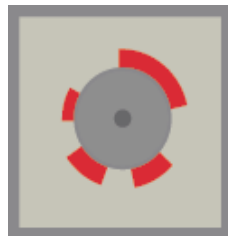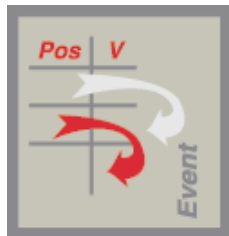
- EMC-compatible installation

Summary - CDE3000

Resolver and MR sine

CANopen

TTL encoder, SSI absolute encoder Single/multi-turn

Inputs
  2 analog, 8 digital, of which 1 Safe Stop
Outputs
  3 digital, 2 relays, of which 1 Safe Stop

Option: e.g. PROFIBUS

Power plug
  Mains supply
  Motor connection
  DC link
  External braking resistor

RS232 service diagnostics

Sheet-steel housing IP20

Built-in:
Braking chopper
RFI filters up to 7.5 kW and 22 to 37 kW

Acceptance tests:
CE, cUL (UL+CSA)

PTC

CAN address

Brake driver 2A

Summary - CDB3000

CANopen interface
(D-SUB male,
9-pin)

Serial interface
RS232 (D-SUB female, 9-pin)

Mains and
motor connection
c-line-DRIVES standard

Built-in:
Braking chopper
RFI filters up to 7.5 kW
and 22 to 37 kW

Acceptance tests:
CE, cUL (UL+CSA)

TTL encoder connection
or SSI interface
(D-SUB female, 15-pin HD)

1 expansion slot
- PROFIBUS-DP
- I/O expansion 8I/4O

Control terminal
Inputs
2 analog, 4 digital
Outputs
1 analog, 2 digital, 1 relay

Motor temperature sensor
connection
c-line-DRIVES standard
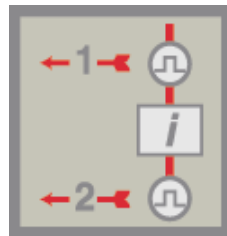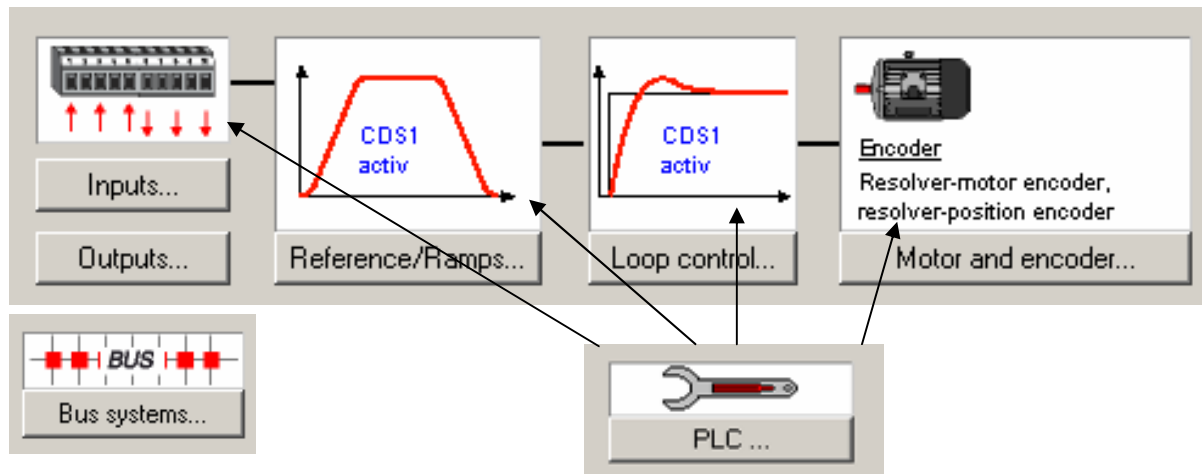
Software functions

- Preset solutions for torque, speed and position control

- Application-specific tailored software functionality:

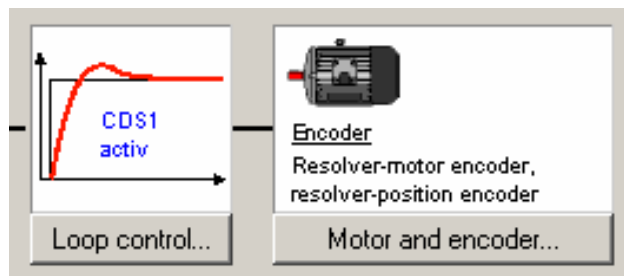LUST **LTi** DRiVES

Software structure

- User-friendly device setup by initial commissioning
  - Select preset solution
  - Motor/control configuration
  - Make basic settings

Field-oriented motor control

Executed as

- Torque control

- Speed control

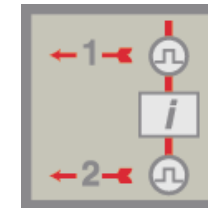- Position control with speed pre-control

Flexible 2-channel encoder interface

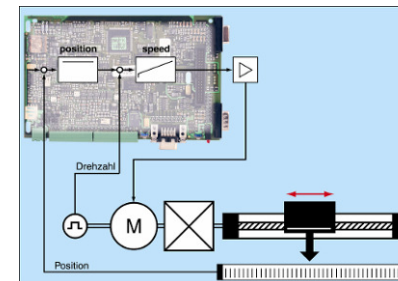Simultaneous evaluation of 2 encoders

- CDB3000
  - TTL incremental encoder (RS422, 5 V)
    or SSI multi-turn for homing
    with no axle movement
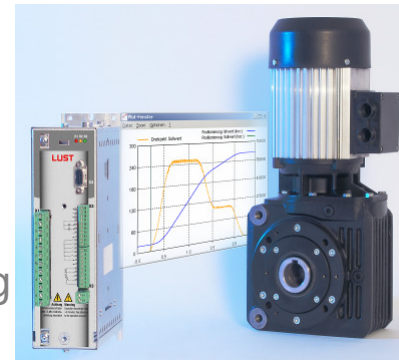 - HTL incremental encoder (24 V)
    isolated via control terminal

- CDE3000
  - Resolver or MR encoder (sine)
  - TTL incremental encoder (RS422, 5 V)
    or SSI absolute value encoder for
    homing with no axis movement
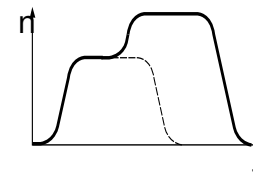
Positioning

- Various positioning modes
  - Absolute
  - Relative
  - Endless (velocity-controlled)
  - Indexing table - travel-optimized positioning
  - Homing (various types)

- Positioning in application-specific units (mm, °, incr ...)

- Driving set profile and control via
  - Driving set table with flexible follow-up job logic (16 driving sets)
  - Field bus - CANopen DS402 profiles are supported
  - PLC
  - Incremental encoder (synchronous)

Positioning profile generation

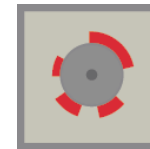Integrated "Online Position Profile Generator"

- Position profile computed while in motion (online)
  - Short setup time of 1ms
  - Possible to change driving profile during positioning, jerk-limited, with no interim stops

- Cycle time 1ms with underlaid 250 µs fine interpolation

- Flexible configuration
  - Separately programmable acceleration and deceleration ramps
  - Programmable smoothing time for jerk limitation

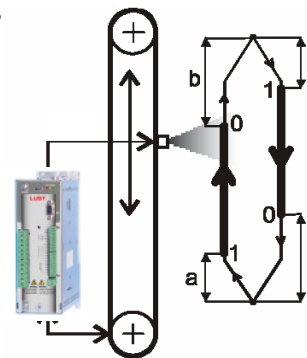- Also usable as speed profile generator

Cam gear

Cam switch

- 16 programmable cams with start and end position

- Setting of outputs and flags

- Event control over field bus

4 driving set-dependent switching points

- 2 switching points usable for each table driving
  - Set/Clear/Invert

- Switching point reference
  - Relative to start or target position
    of a table driving set
  - Absolute

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Features of the PLC firmware

The PLC sequence program, with
a Main Task and two Event Tasks, permits:
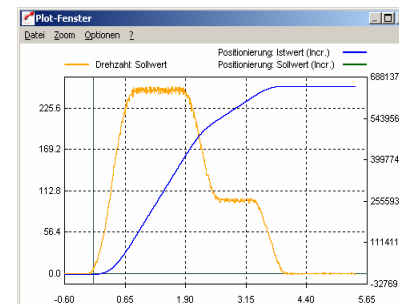
PLC
Motion

- Flexible presetting of control and setpoint data

- Setting/reading of analog and digital outputs/inputs

- Direct read/write access to all parameters

- Mathematical operations (+, -, *, :, modulo, ABS, round)

- Logical operations (AND, OR, Exclusive-OR)

- Handling with integer and floating-comma variables and flags

- Control, positioning, travel and synchronization or cam plate commands

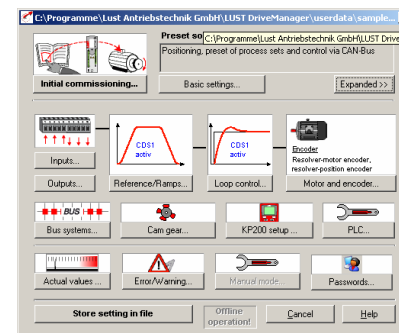LUST **LTi** DRiVES

Commissioning and diagnostics

- Initial commissioning with DRIVEMANAGER:
  - Application-specific function screens for preset solutions
  - Drive control - manual mode
  - 4-channel digital oscilloscope
  - PLC programming environment
  - Motor database/motor identification built-in
  - Data set handling
  - Optimum diagnostics based on comprehensive status displays

- Serial commissioning:
  - with KEYPAD and SMARTCARD
  - via DRIVEMANAGER (data set download)
  - via field bus

The highlights in brief

- Very good price/performance value thanks to tailored hardware for synchronous and asynchronous applications

- Wide power range: 0.75 kW with 230 V system up to 110 kW with 400 V system

- Full standard CANopen included for free

- Safety Torque Off function included for free

The highlights in brief

- Outstanding software and control functionality: Multiple encoders simultaneously, pre-assembled software solution from classic speed control to high-end synchronous motion

- Compact position controller size, capable of end-to-end mounting with four different cooling systems, from Cold Plate to water cooling

- High overload capacity from 200 % to 170 A