Servo Drive E100/E1001
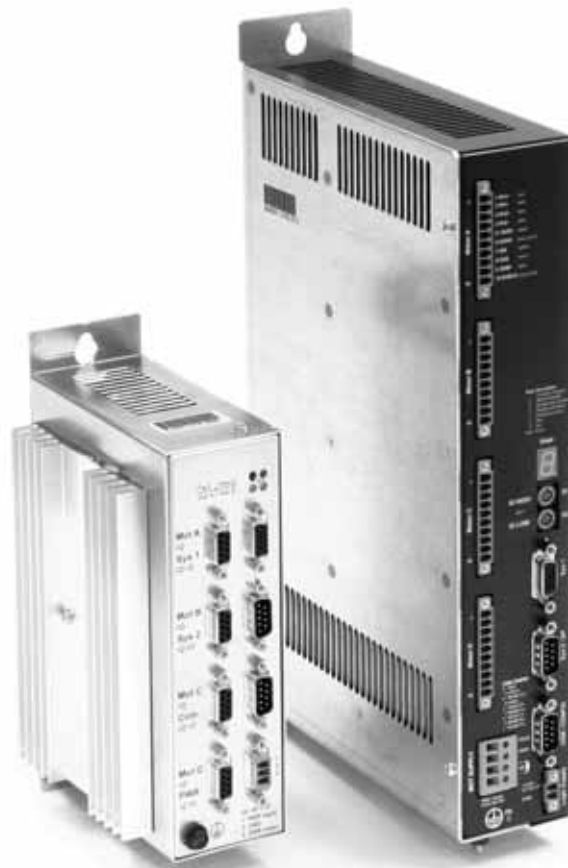
Servo Drive Series E100/E1001

The Series E100 Servo Drive and powerful Series E1001 are compact, one, two or four-axis position drives with 16-bit position resolution and integrated power elements.

The drives are suitable for simple and standard positioning tasks in the low to medium force range.

Motor Interfaces

Series E100 and E1001 Servo Drives allow control of up to four linear motors by one drive.

The linear motors themselves are operated without any complicated peripherals, such as end position monitors or reference switches.

The individual linear motors are either completely independently controlled, or they are synchronized with each other in special applications, in master booster or master gantry mode.

Connection to Machine Drive

The E100 and E1001 series Servo Drives can be controlled through the following interfaces:

- Digital inputs and outputs
- Analog Inputs
- RS232 Serial Interface
- RS485 Serial Interface
- CANopen
- DeviceNet
- Profibus DP

Process Interfaces

As a fast process interface for direct reading of sensor signals, one combined analog/digital input per drive is available as an analog position target or a trigger input.

Fieldbusses and interfaces to the overlaid control

Digital I/O´s | RS232 RS485 | CAN-open | Device-Net | Profibus DP

Supply

Logic Supply

Motor Supply

Linmot Servo Drive Series E100 / E1001

Position Drive:
• 16 Bit Position Value
• Resolution 20µm

Run Modes:
• VA Interpolated Moves
• Analog Position
• Run Curves
• Two Point Trigger Moves

Internal stored Curves:
• Max. 64 Curves
• Up to 4´000 set points

Process Inputs

Trigger Inputs

Analog Inputs

Config.

RS232

Fmax = 200N

Fmax = 200N

Fmax = 200N

Fmax = 200N

System Integration

Series E100/E1001 drives are suitable for controlling linear motors that are operated without optional peripherals such as reference and end stop switches, external high-precision position sensors, or a holding brake.

Connection to the overlaid control is done via analog and digital signals, a serial connection, or fieldbusses.

The compact size is a great advantage of the Series E100/E1001 Servo Drives, primarily for compound and multi-axis applications, with regard to installation space and effort.

Logic and Power Supply

The Servo Drives have two separate power supplies for the logic and power elements.

In an E-stop and safe stop of the drive, only the power element supply is cut off from the drive. The logic supply and the drive continue to run.

This has the advantage that the drive and linear motor do not need to be reinitialized when the machine is restarted, since all process data, including the current position of the linear motor, are still up to date.

Servo Drive E400 in use

Configuration

Parameterization and configuration of the Servo Drive is done via the RS232 interface on the front side.

The menu-drive Windows interface LinMot Talk is used for configuration, with which up to four Axis can be configured simultaneously on one drive. LinMot Talk provides extensive debugging tools, such as an oscilloscope and an error inspector, for simple and rapid start-up of the Axis.

Absolute & Relative Positioning Commands

Stroke [mm]

Goto   100mm
v_{max} = 2,5m/s
a_{max} = 3,0m/s^2

Time[ms]
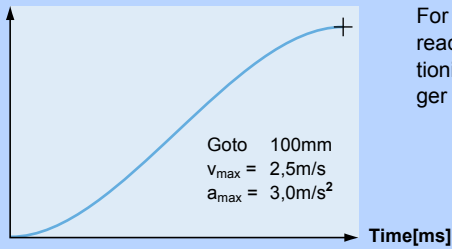
For direct position targets, using absolute or relative positioning, the desired position is reached according to acceleration and velocity-limited motion profiles (VA interpolator). Positioning commands can be invoked via the serial interface, fieldbusses, ETHERNET, or the trigger input.

Stroke range:	±630mm
Position Resolution:	20µm (16 Bit)
Velocity Resolution:	1.0µm/s (16 Bit)
Acceleration:	10.0µm/s^2 (16 Bit)

## Travel Along Time Curves

Stroke [mm]

Start Curve 1

Curve 1

Time[ms]
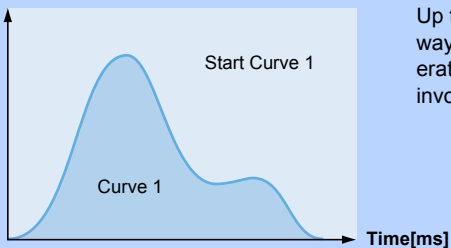
Up to 99 different time curves can be stored Series E1100 drives, with up to 16,000 individual waypoints. The motor can thus travel along time curves of any complexity, such as those generated by CAD programs and stored in the drive (Excel CSV format). The time curves can be invoked via the serial interface, fieldbusses, ETHERNET, or the trigger input.

Stroke range:	±630mm
Position Resolution:	20µm (16 Bit)
Motion profiles:	max. 64 curve profiles
Curve points:	max. 4'000points

Analog Position Target

0V   10V
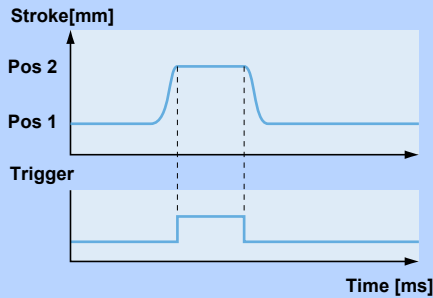Position Position
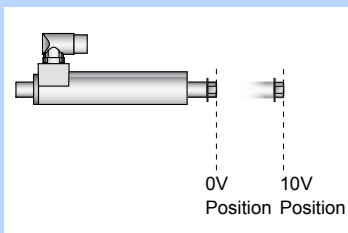
For an analog position target, the linear motor travels to a position proportional to the input voltage. The position is continuously read. In order to prevent uncontrolled jumps in position, the motor travels to the positions with a programmable maximum acceleration and velocity (VA interpolator).

Inputs:	1 analog input per motor
Voltage range:	0-10VDC
Resolution:	10 Bit
Scanning rate:	800µsec

Trigger 2 Point

**Stroke[mm]**

Pos 2

Pos 1

Trigger

Time [ms]

In the two-point trigger operating mode, two freely adjustable positions are controlled by the overarching drive, using a trigger signal.

One target value for the high level, and one for the low level of the digital input signal are stored in the drive electronics. If the signal at the drive electronics input changes, then the associated position is moved to at the programmed acceleration and speed.

Stroke range:	±630mm
Position Resolution:	20µm (16 Bit)
Velocity Resolution:	1.0µm/s (16 Bit)
Acceleration:	10.0µm/s² (16 Bit)

Master Slave Synchronization

X_1

X_2

y
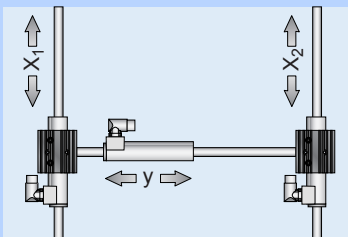
Using master-slave synchronization, two linear motors can be synchronized via a serial communications connection between two drives, so that the overlaid drive can control them as a single axis.

Master Gantry Synchronization
Master gantry synchronization is used for portal designs with two parallel Axis at different locations.

Master Booster Synchronization
Master booster synchronization is used to double the force when two motors are mechanically rigidly connected to each other.

Internal Command Table

Multi Trigger

Command 1	Pos 125mm
Command 2	Pos 250mm
Command 3	Curve 1
Command 4	Pos -30mm
Command 5	Pos +12,5mm
...	
...	
Command 64	Pos -12,5mm

With the Multi-Trigger-Table, up to 64 positions or independent travel commands can be stored on the drive and addressed directly or indirectly via 4 digital inputs.

Digital inputs:	Max. 4
Interface:	Sys2
Scanning rate:	800µsec

LinMot Talk

LinMot Talk configuration software is a Windows-based interface that supports the user during start-up and configuration of the LinMot Series E100 and E1001 Servo Drives. The software has a powerful, modular, graphical interface that covers all the tasks surrounding the LinMot Servo Drive. Great emphasis was placed on a high level of user-friendliness during development.
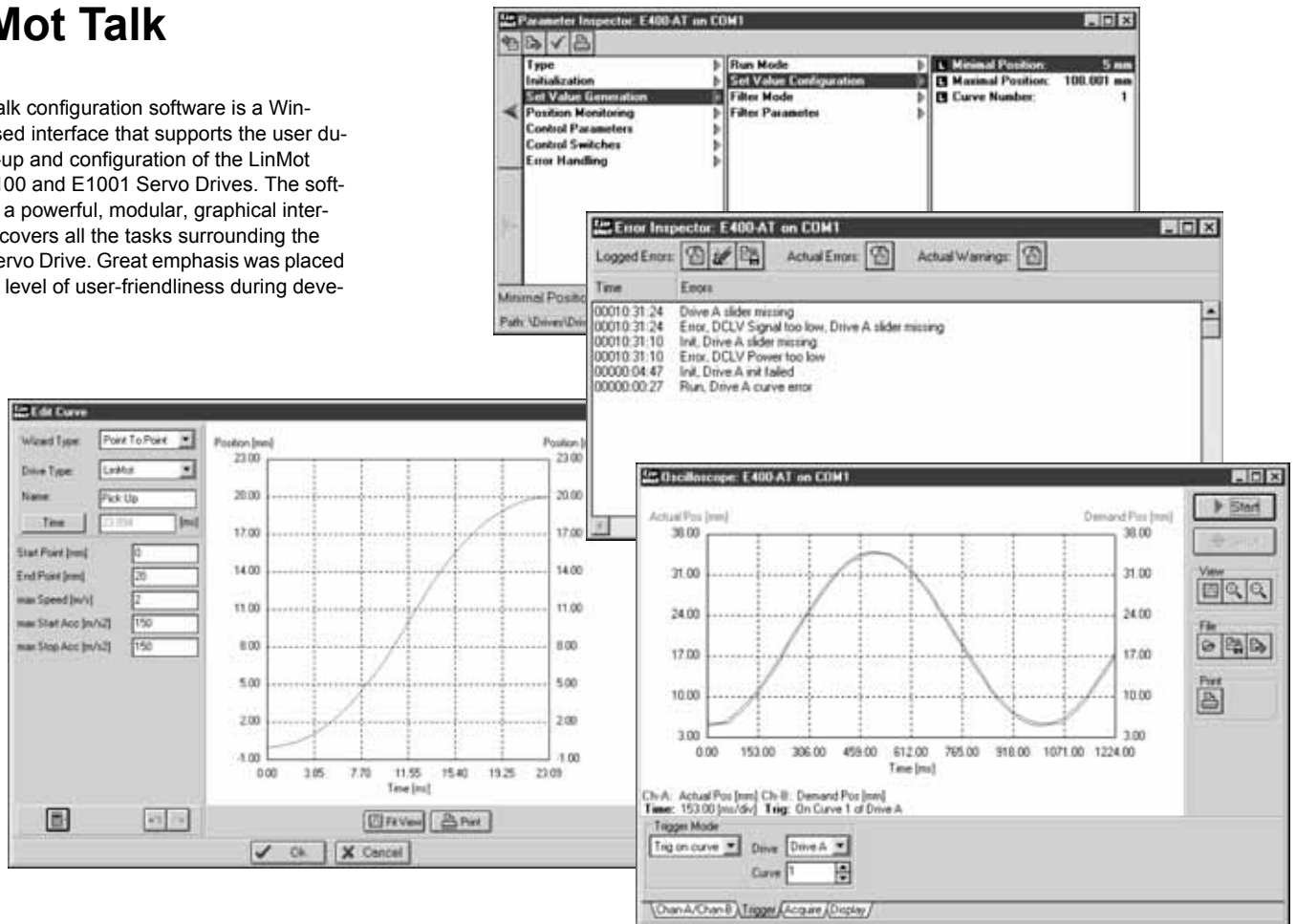
Start-up and Analysis Tools
Using the LinMot Talk PC interface, LinMot Servo Drives are configured. Additionally, the drives can be monitored during operation with the machine running, and the current motion sequences, as well as earlier warnings and error messages, can be analyzed in detail (monitoring).

Simple Installation
For start-up and monitoring, the Servo Drive is connected to a PC via the RS232 interface on the front, using a 9-pole D-sub connector (1:1 Connection). Up to four Axis on one drive can be configured and monitored at the same time using LinMot Talk.

Integrated Documentation
After installation of LinMot Talk on the PC is complete, all manuals and installation instructions are available via the Windows Start Menu. The user thus always has the current documentation available to him.

Parameterization

Using the "Parameter Inspector," the drives are parameterized in a simple manner. The user has a wide range of adjustments available for operating modes, error management, warning messages, and regulating parameters. Entire parameter sets can be stored, loaded, and printed out.

The "Curve Editor" allows creation of travel curves. In addition, existing curves can be loaded, stored, edited, combined, and printed out. Further, complex motion sequences can be generated as desired in MS Excel, and loaded into the drive.

The integrated oscilloscope helps the user during start-up and optimization of the

Optimization

drive system. Internal variables, such as the target and actual position, can be shown in real time on the screen, and then printed out. The displayed data can be stored in CSV format for further processing in MS Excel, or stored for documentation purposes.

Monitoring

Using the "Error Inspector," the user can read out stored errors, as well as the currently active warnings and error messages in the LinMot Servo Drive. The last 10 error messages are stored in non-volatile memory on the Servo Drive, together with the operating hours counter.

Further, the states of the inputs and outputs can be viewed in the "Error Inspector." This allows rapid and uncomplicated checking of signals from and to the overlaid control.
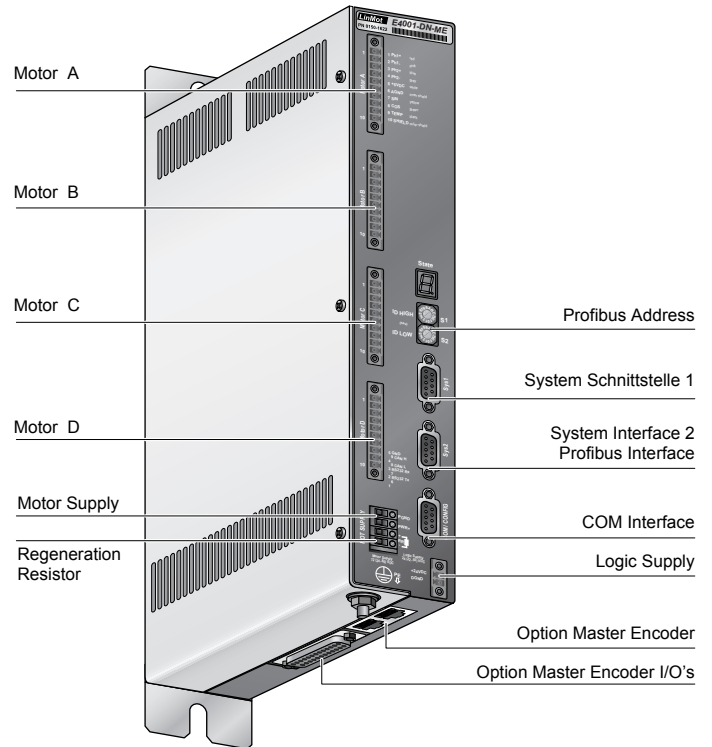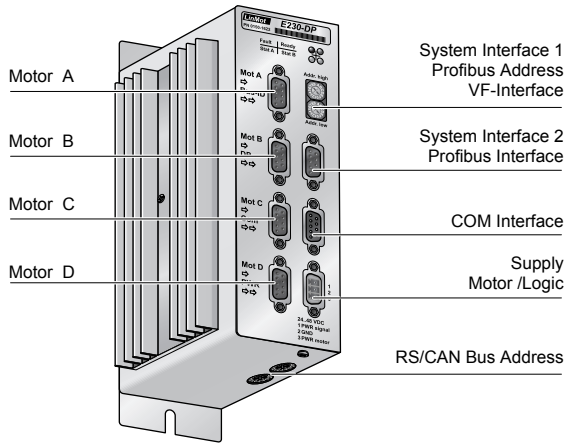
Interface	E100-AT	E1001-AT	E100-MT	E1001-MT	E100-CO	E1001-CO	E100-DN	E1001-DN	E130-DP	E1031-DP
System Interface 1	●	●	●	●	●	●	●	●		
System Interface 2	●	●	●	●	●	●	●	●		
Profibus Address		●		●		●		●	●	●
Profibus Interface									●	●
COM Interface	●	●	●	●	●	●	●	●	●	●
Supply Motor		●		●		●		●		●
Supply Logic		●		●		●		●		●
Supply Logic/Motor	●		●		●		●		●	
Regeneration Resistor		●		●		●		●		●
Bus Address RS/CAN	●	●	●	●	●	●	●	●		
Motor Connector DSUB-9	●		●		●		●		●	
Motor Connector MC01-P		●		●		●		●		●

E100-AT	E100-MT
E200-AT	E200-MT
E400-AT	E400-MT
E1001-AT	E1001-MT
E2001-AT	E2001-MT
E4001-AT	E4001-MT

✓ Absolute & Relative
  Positioning Commands

✓ Travel Along Time Curves

✓ Trigger Mode: Two Point

✓ Trigger Mode: Curves

✓ Internal Multi Trigger Table (MT)

✓ Analog Position Target

✓ Master-Slave Synchronization
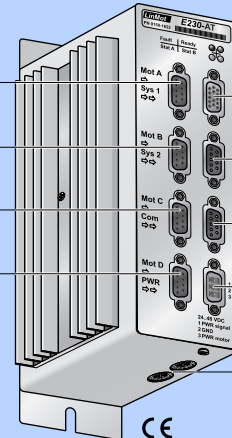
✓ Option:
  Customer-Specific Functions (MT)

E100, E200, E400-AT/MT

Mot A — Motor A

Mot B — Motor B

Mot C — Motor C

Mot D — Motor D

Sys 1 — System Interface 1

Sys 2 — System Interface 2

Com — COM Interface

PWR — Motor/Logic Supply

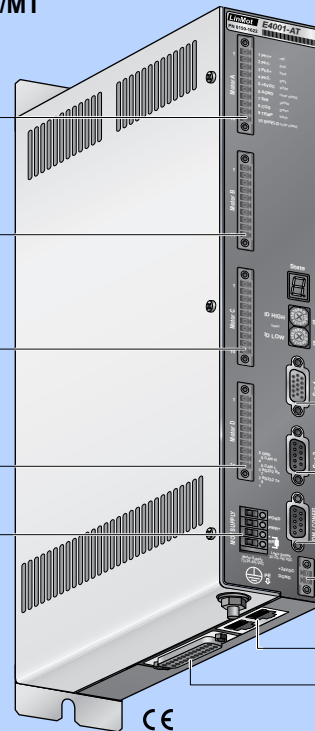RS/CAN Bus Address

E1001, E2001, E4001-AT/MT

Mot A — Motor A

Mot B — Motor B

Mot C — Motor C

Mot D — Motor D

PWR Motor — Motor Power Supply

Regeneration Resistor

Sys 1 — System Interface 1

Sys 2 — System Interface 2

Com — COM Interface

PWR Logic — Logic Supply

Option Master Encoder

Option Master Encoder I/O's

Analog Trigger Drive AT

The target position is provided by the overlaid control (PLC, industrial PC) as analog position signals, digital trigger signals, or directly via a serial interface.

End positions stored in the AT Servo Drive, or stored travel profiles, can be invoked using simple digital trigger signals.

The target position is provided as a voltage at the analog input of the Servo Drive. The position range associated with the voltage range at the analog input can be freely configured by the user.

Multi Trigger Drive MT

Multi trigger Servo Drives allow direct programming of complex motion sequences, with up to 64 commands. The Servo Drive is actuated by the overlaid control via digital signals.

The commands for the individual Axis are stored in the state table in the Servo Drive. The individual states in the table are controlled by the overlaid control via digital signal addressing. As soon as a state is invoked by the overlaid control, the Axis carry out their defined motion or defined command.

Serial Interface RS232/RS485

Series E100/E1001E1001-AT and -MT Servo Drives offfer an ASCII protocol for serial communication over RS232 / RS484 with the overlaid control system.

The E100/E1001 drives have two independent serial interfaces for RS232 and RS485. If the Servo Drive communicates with the RS485 interface with the overlaid control, the RS232 interface may be used the same time for configuration and debugging with configuration software LinMot Talk.

Adjustable Baud rates: 9.6-115.2kBaud

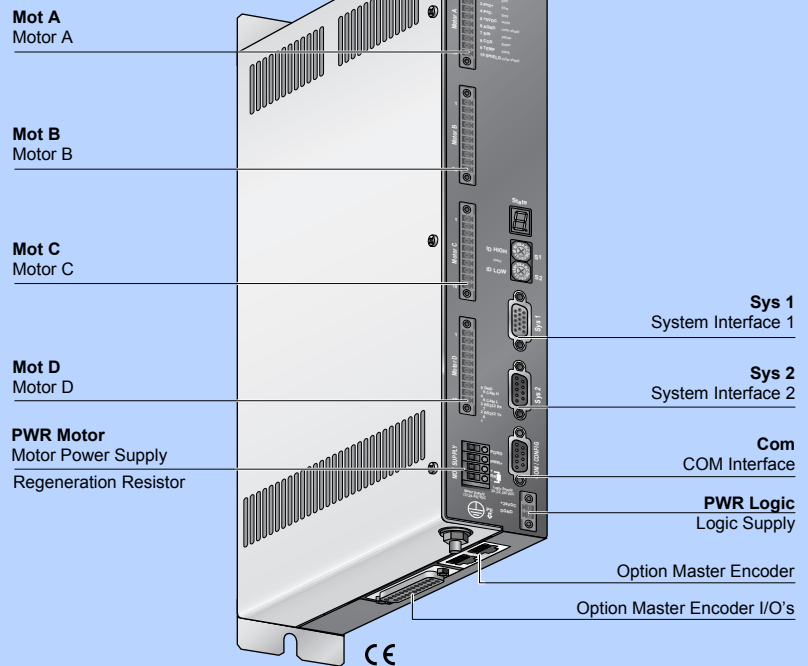| Item	Description	Part Number
E100-AT	AnalogTrigger Drive 1 Axis (48V/3A)	0150-1601
E200-AT	AnalogTrigger Drive 2 Axis (48V/3A)	0150-1602
E400-AT	AnalogTrigger Drive 4 Axis (48V/3A)	0150-1604
E1001-AT	AnalogTrigger Drive 1 Axis (72V/8A)	0150-2300
E2001-AT	AnalogTrigger Drive 2 Axis (72V/8A)	0150-2301
E4001-AT	AnalogTrigger Drive 4 Axis (72V/8A)	0150-2303
E100-MT	Multi Trigger Drive 1 Axis (48V/3A)	0150-1611
E200-MT	Multi Trigger Drive 2 Axis (48V/3A)	0150-1612
E400-MT	Multi Trigger Drive 4 Axis (48V/3A)	0150-1614
E1001-MT	Multi Trigger Drive 1 Axis (72V/8A)	0150-2304
E2001-MT	Multi Trigger Drive 2 Axis (72V/8A)	0150-2305
E4001-MT	Multi Trigger Drive 4 Axis (72V/8A)	0150-2307

E100-CO	E100-DN
E200-CO	E200-DN
E400-CO	E400-DN
E1001-CO	E1001-DN
E2001-CO	E2001-DN
E4001-CO	E4001-DN

✓ Absolute & Relative
Positioning Commands

✓ Travel Along Time Curves

✓ Trigger Mode: Two Point

✓ Trigger Mode: Curves

✗ Internal Command Table

✓ Analog Position Target

✓ Master-Slave Synchronization

✓ Option:
Customer-Specific Functions

E100, E200, E400-CO/DN

Mot A Motor A
Mot B Motor B
Mot C Motor C
Mot D Motor D
Sys 1 System Interface 1
Sys 2 System Interface 2
Com COM Interface
PWR Motor/Logic Supply
RS/CAN Bus Address

E1001, E2001, E4001-CO/DN

Mot A Motor A
Mot B Motor B
Mot C Motor C
Mot D Motor D
PWR Motor Motor Power Supply
Regeneration Resistor
Sys 1 System Interface 1
Sys 2 System Interface 2
Com COM Interface
PWR Logic Logic Supply
Option Master Encoder
Option Master Encoder I/O's

CANopen

LinMot CO drives, with integrated CANo-pen interface, support the CiA DS301 communication profile.

The following CANopen resources are available on the CO drives: 1-5 T_PDO, 1-5 R_PDO 1 T_SDO, 1 R_SDO

The following protocols are supported by the CO drives:
- Node Guarding
- PDO acyclic with inhibit time
- SDO Upload and Download
- NMT (Start, Stop, Enter PreOp, Reset Node, Reset Communication)
- Boot-Up Message

DeviceNet

Series DN drives feature an integrated DeviceNet interface. With the DeviceNet interface, even complicated motion sequences can be realized with the highest possible flexibility.

The drive can be actuated and monitored via the DeviceNet connection. The following expanded fieldbus functions are available:

- Direct target position
- Invoke motion profiles
- Read and write access to parameters
- Monitoring internal parameters
- Diagnosis

"Explicit Messaging" The DeviceNet Servo Drives support one "Explicit Messaging" connection per master.
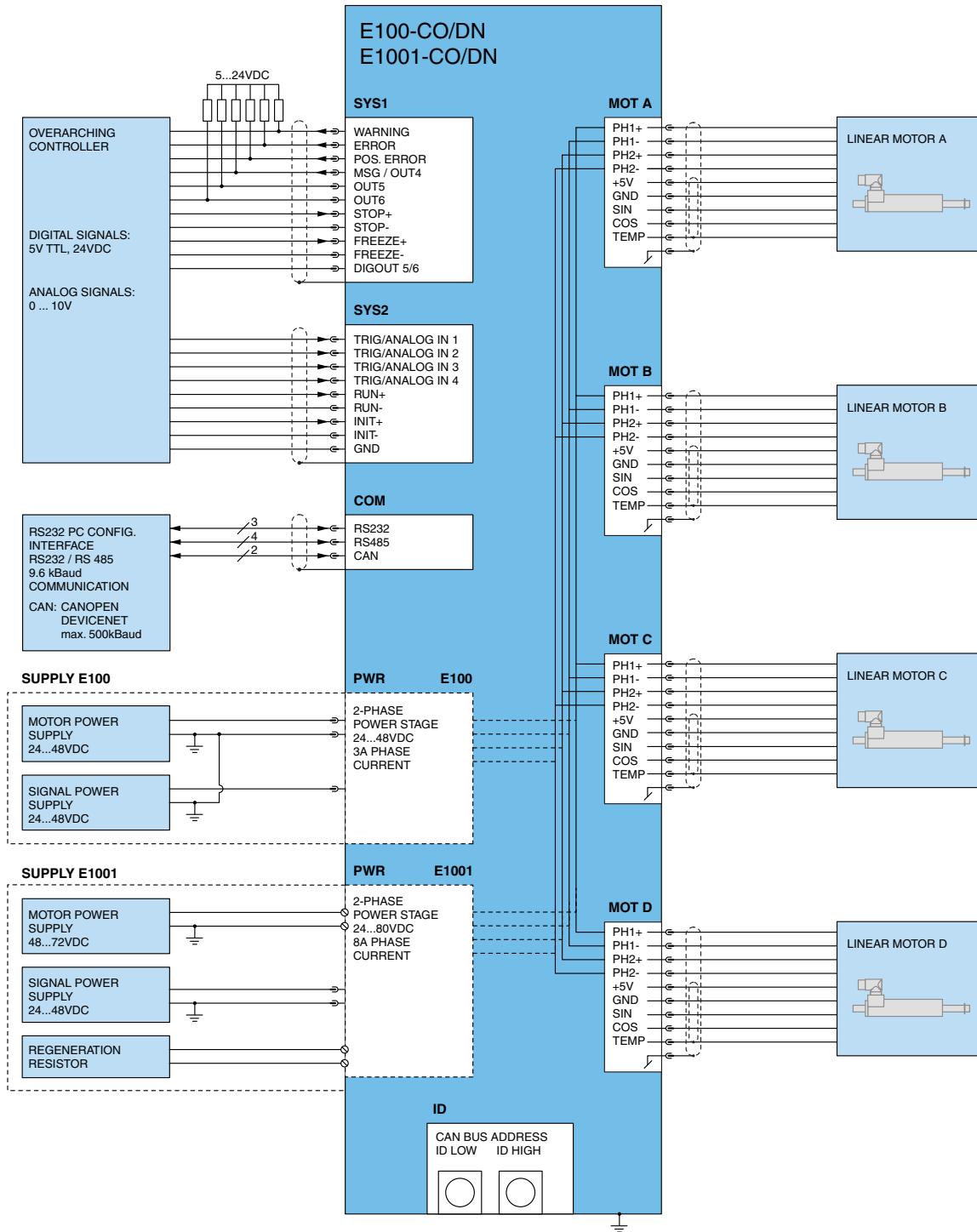
"Polled IO"
The master initiates data interchange with a "Polled IO" command.

"Change of State IO"
With this connection, the data is transferred only if the states or values have changed.

"Cyclic IO"
With the "Cyclic IO" connection, the data is transferred strictly cyclically.

E100-CO/DN
E1001-CO/DN

5...24VDC

OVERARCHING CONTROLLER

DIGITAL SIGNALS:
5V TTL, 24VDC

ANALOG SIGNALS:
0 ... 10V

SYS1
- WARNING
- ERROR
- POS. ERROR
- MSG / OUT4
- OUT5
- OUT6
- STOP+
- STOP-
- FREEZE+
- FREEZE-
- DIGOUT 5/6

SYS2
- TRIG/ANALOG IN 1
- TRIG/ANALOG IN 2
- TRIG/ANALOG IN 3
- TRIG/ANALOG IN 4
- RUN+
- RUN-
- INIT+
- INIT-
- GND

COM
- RS232
- RS485
- CAN

RS232 PC CONFIG. INTERFACE
RS232 / RS 485
9.6 kBaud
COMMUNICATION

CAN: CANOPEN
DEVICENET
max. 500kBaud

3
4
2

MOT A
- PH1+
- PH1-
- PH2+
- PH2-
- +5V
- GND
- SIN
- COS
- TEMP

LINEAR MOTOR A

MOT B
- PH1+
- PH1-
- PH2+
- PH2-
- +5V
- GND
- SIN
- COS
- TEMP

LINEAR MOTOR B

MOT C
- PH1+
- PH1-
- PH2+
- PH2-
- +5V
- GND
- SIN
- COS
- TEMP

LINEAR MOTOR C

MOT D
- PH1+
- PH1-
- PH2+
- PH2-
- +5V
- GND
- SIN
- COS
- TEMP

LINEAR MOTOR D

SUPPLY E100

MOTOR POWER SUPPLY
24...48VDC

SIGNAL POWER SUPPLY
24...48VDC

PWR   E100
2-PHASE
POWER STAGE
24...48VDC
3A PHASE
CURRENT

SUPPLY E1001

MOTOR POWER SUPPLY
48...72VDC

SIGNAL POWER SUPPLY
24...48VDC

REGENERATION RESISTOR

PWR   E1001
2-PHASE
POWER STAGE
24...80VDC
8A PHASE
CURRENT

ID

CAN BUS ADDRESS
ID LOW   ID HIGH

Item	Description	Part Number
E100-CO	CanOpen Drive 1 Axis (48V/3A)	0150-1669
E200-CO	CanOpen Drive 2 Axis (48V/3A)	0150-1670
E400-CO	CanOpen Drive 4 Axis (48V/3A)	0150-1672
E1001-CO	CanOpen Drive 1 Axis (72V/8A)	0150-2308
E2001-CO	CanOpen Drive 2 Axis (72V/8A)	0150-2309
E4001-CO	CanOpen Drive 4 Axis (72V/8A)	0150-2311
E100-DN	DeviceNet Drive 1 Axis (48V/3A)	0150-1641
E200-DN	DeviceNet Drive 2 Axis (48V/3A)	0150-1642
E400-DN	DeviceNet Drive 4 Axis (48V/3A)	0150-1644
E1001-DN	DeviceNet Drive 1 Axis (72V/8A)	0150-2312
E2001-DN	DeviceNet Drive 2 Axis (72V/8A)	0150-2313
E4001-DN	DeviceNet Drive 4 Axis (72V/8A)	0150-2315

E130-DP
E230-DP
E430-DP
E1031-DP
E2031-DP
E4031-DP

✓ Absolute & Relative
Positioning Commands

✓ Travel Along Time Curves

✗ Trigger Mode: Two Point

✗ Trigger Mode: Curves

✗ Internal Command Table

✗ Analog Position Target

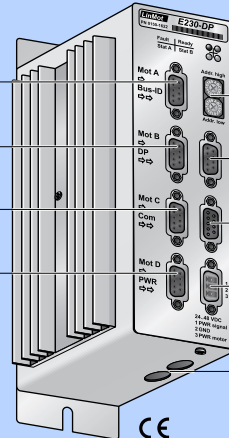✓ Master-Slave Synchronization

✓ Option:
Customer-Specific Functions

E130, E230, E430-DP

Mot A	Motor A
Mot B	Motor B
Mot C	Motor C
Mot D	Motor D

ID Profibus Bus Address
DP Profibus Interface
Com COM Interface
PWR Motor/Logic Supply

E1031, E2031, E4031-DP

Mot A	Motor A
Mot B	Motor B
Mot C	Motor C
Mot D	Motor D

PWR Motor Motor Power Supplyen
Regeneration Resistor
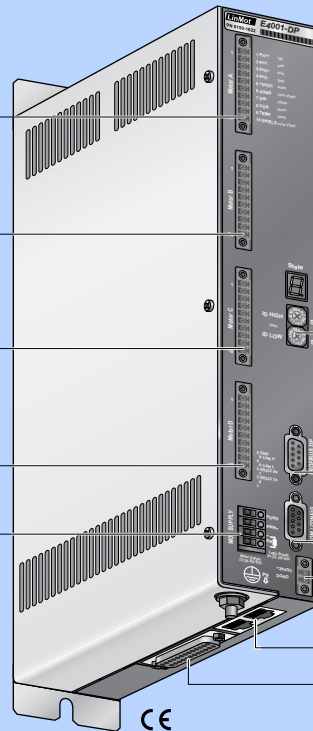
ID Profibus Bus Address
DP Profibus Interface
Com COM Interface
PWR Logic Logic Supply
Option Master Encoder
Option Master Encoder I/O's

Profibus DP

Series DP Servo Drives feature an integrated PROFIBUSDP interface. PROFIBUS-DP provides the user with a standardized fieldbus interface for rapid data interchange between the Servo Drive and the overlaid control.

With cyclical provision of target positions and other process data, the Profibus drives are the ideal solution for applications with motions and sequences that change frequently, such as are required, for example, in flexible machines and systems for rapid format changes.
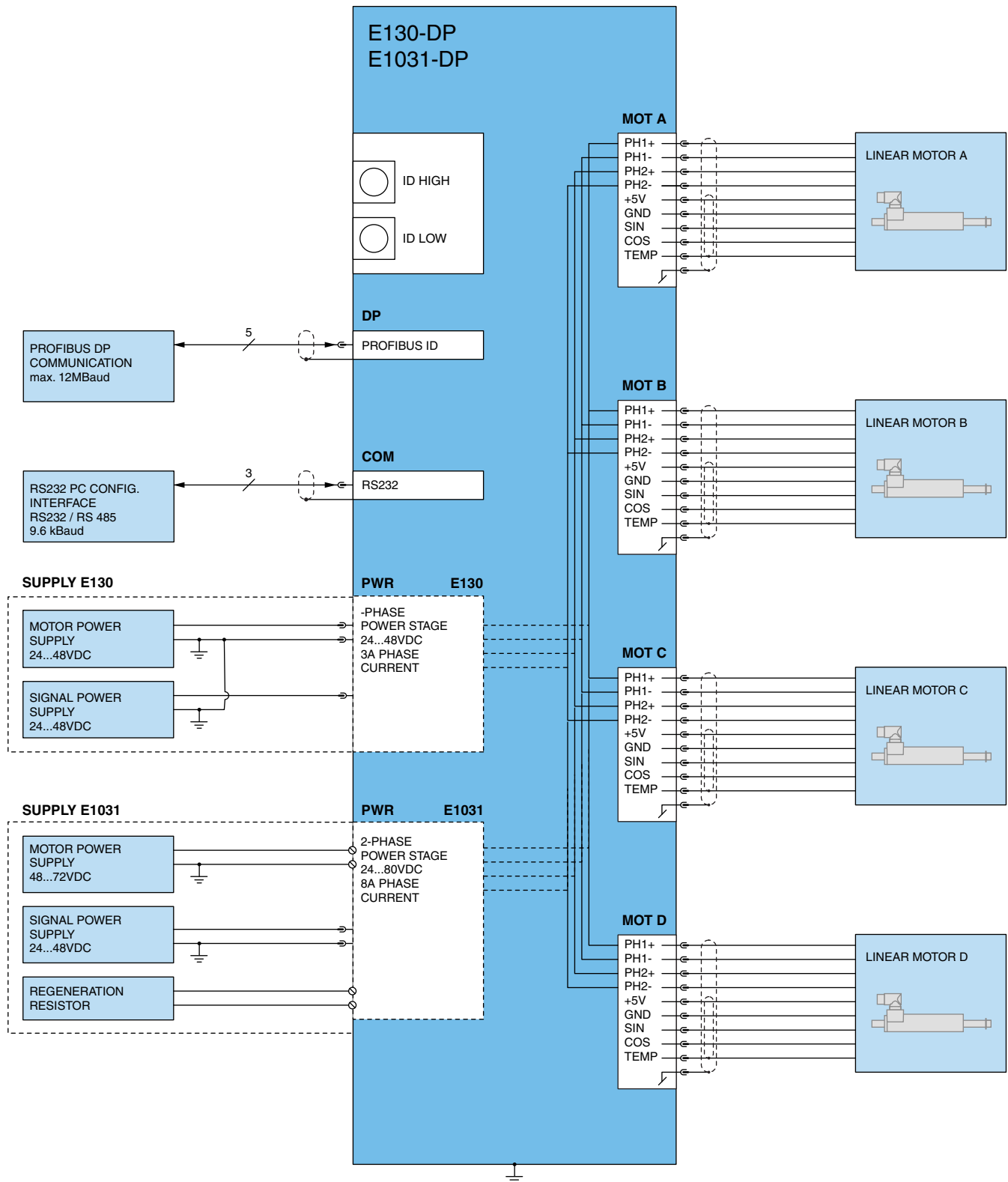
The Profibus interface supports all Baud rates from 9.6 Kbits/s to 12 Mbit/s. The maximum net data quantity exchanged in cyclical data traffic is 64 bytes per cycle. The smallest achievable bus cycle time is 100 µs. The structure and scope of cyclical data can be collected from any individual data modules into an overall data quantity when planning the system, whereby the data for the individually connected motors can be different.

A GSD device master file is provided for open planning in conformance with the standard.

The front-side 9-pin DSUB bus connector meets the PROFIBUS standard. It provides power for an external bus termination. A positive directional control signal is provided to control repeaters or optical fibers.

All signals on the PROFIBUS connector are galvanically separated.

The PROFIBUS-DP address is set by two hex code switches (ID1 and ID2). All addresses permitted by the standard are supported (0..125).

E130-DP
E1031-DP

ID HIGH

ID LOW

MOT A

| PH1+ |
| PH1- |
| PH2+ |
| PH2- |
| +5V |
| GND |
| SIN |
| COS |
| TEMP |

LINEAR MOTOR A

DP

PROFIBUS ID

PROFIBUS DP
COMMUNICATION
max. 12MBaud

5

COM

RS232

RS232 PC CONFIG.
INTERFACE
RS232 / RS 485
9.6 kBaud

3

MOT B

| PH1+ |
| PH1- |
| PH2+ |
| PH2- |
| +5V |
| GND |
| SIN |
| COS |
| TEMP |

LINEAR MOTOR B

SUPPLY E130

MOTOR POWER
SUPPLY
24...48VDC

SIGNAL POWER
SUPPLY
24...48VDC

PWR   E130

-PHASE
POWER STAGE
24...48VDC
3A PHASE
CURRENT

MOT C

| PH1+ |
| PH1- |
| PH2+ |
| PH2- |
| +5V |
| GND |
| SIN |
| COS |
| TEMP |

LINEAR MOTOR C

SUPPLY E1031

MOTOR POWER
SUPPLY
48...72VDC

SIGNAL POWER
SUPPLY
24...48VDC

REGENERATION
RESISTOR

PWR   E1031

2-PHASE
POWER STAGE
24...80VDC
8A PHASE
CURRENT

MOT D

| PH1+ |
| PH1- |
| PH2+ |
| PH2- |
| +5V |
| GND |
| SIN |
| COS |
| TEMP |

LINEAR MOTOR D

Item	Description	Part Number
E130-DP	Profibus DP Drive 1 Axis (48V/3A)	0150-1621
E230-DP	Profibus DP Drive 2 Axis (48V/3A)	0150-1622
E430-DP	Profibus DP Drive 4 Axis (48V/3A)	0150-1624
E1031-DP	Profibus DP Drive 1 Axis (72V/8A)	0150-2316
E2031-DP	Profibus DP Drive 2 Axis (72V/8A)	0150-2317
E4031-DP	Profibus DP Drive 4 Axis (72V/8A)	0150-2319

Break Out Module

The Break Out Module for the AT and MT Servo Drives leads all input and output signal from the SYS1 and SYS2 DSUB connectors to plug-type screw terminals.

48 mm

126 mm
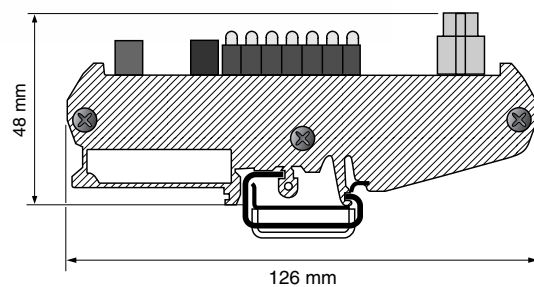
Break Out Module

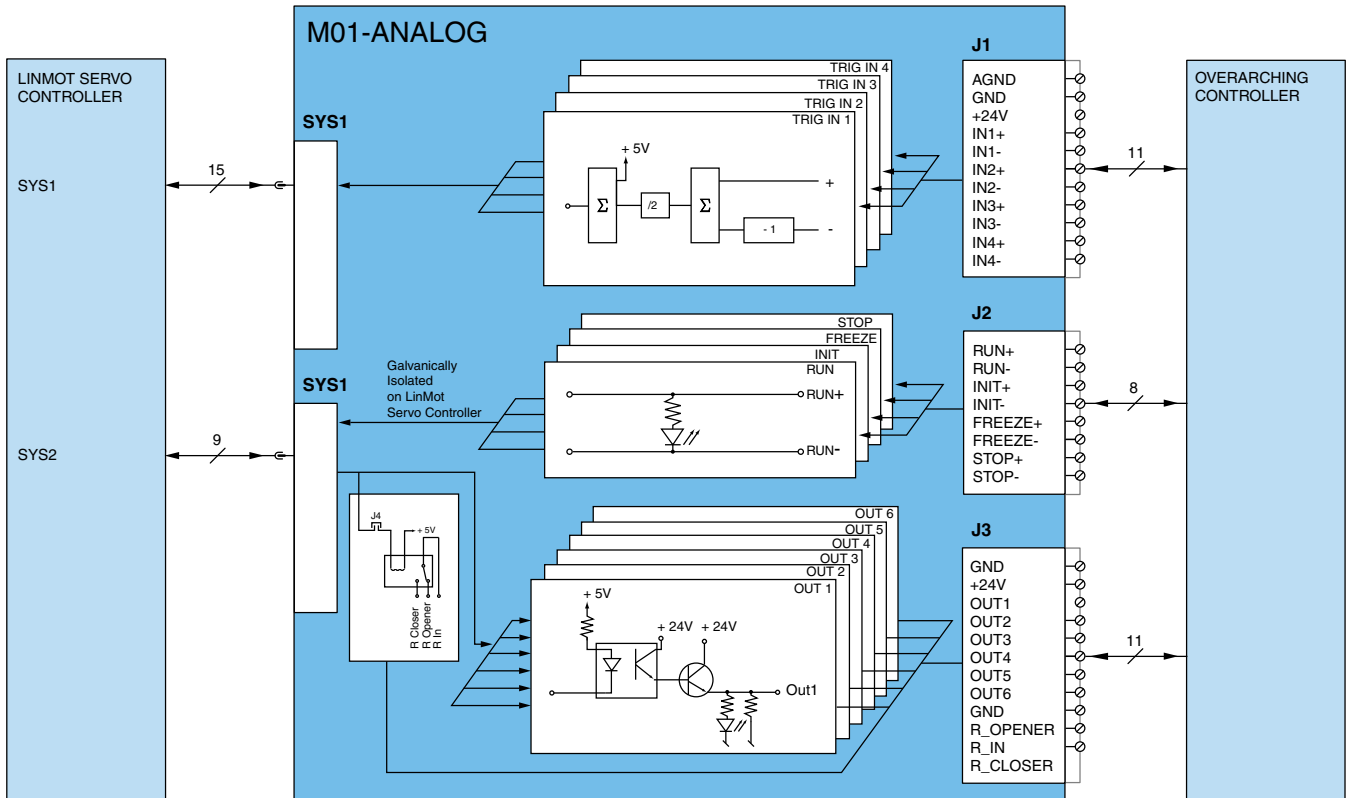The Break Out Module is available in two versions, with a digital or analog interface.
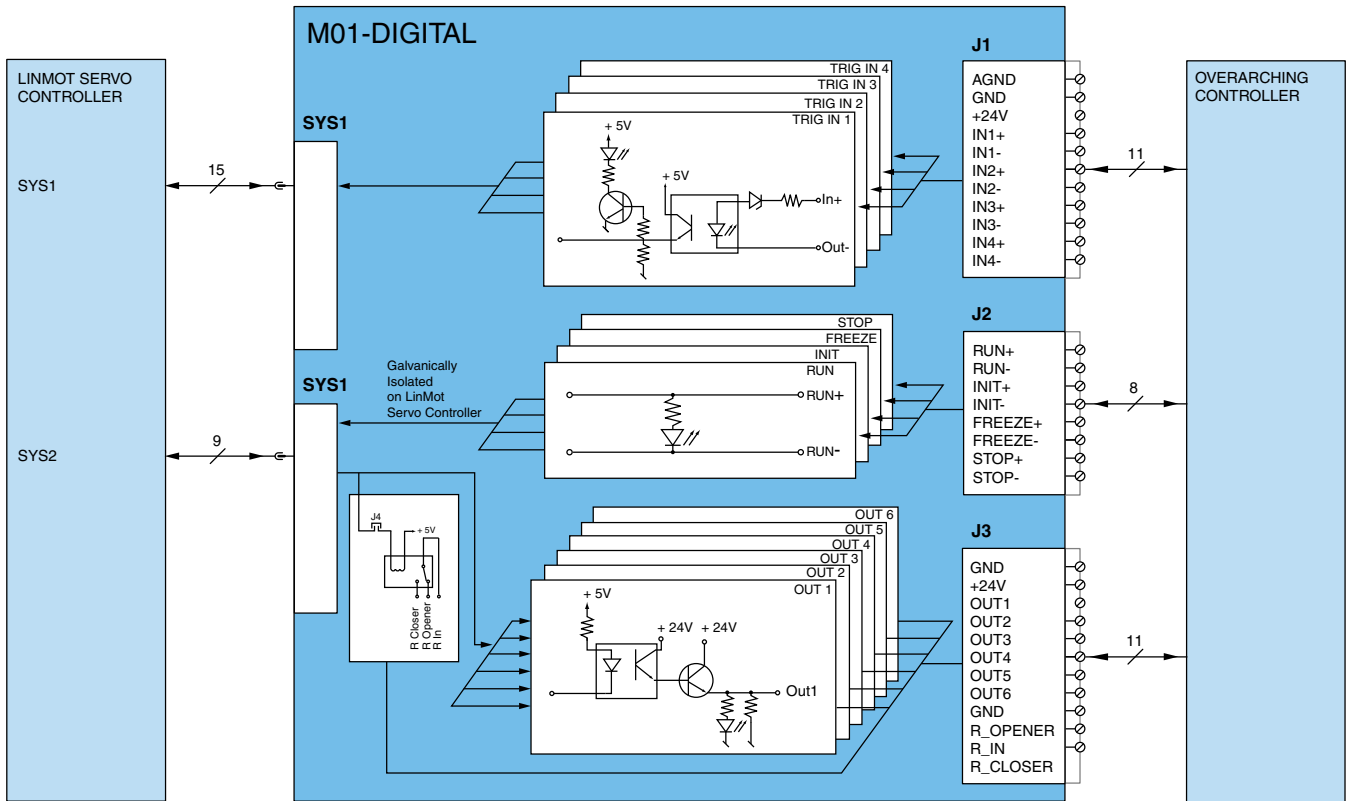
The Break Out Module is snapped onto the DIN rail directly in the electrical enclosure. Two tabs for screw mounting are also included.

Features:

- Plug-type screw terminals for all inputs and outputs

- Digital inputs, galvanically isolated, (24V/10mA)

- Digital outputs, galvanically isolated, (24V/0.5A)

- Relay output (48V/2A, max. 60W)

- LED status indicator for all inputs and outputs

- Analog input voltage -10…+10V for analog module.
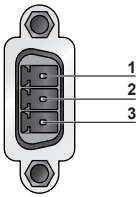
Cable & Connector Set

The connection cable to the Servo Drive and the plug-type screw terminals are available as a set.
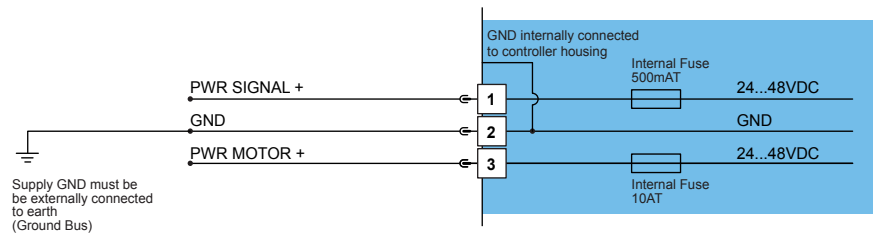
M01-DIGITAL

LINMOT SERVO CONTROLLER				OVERARCHING CONTROLLER

SYS1

SYS2

J1: AGND, GND, +24V, IN1+, IN1-, IN2+, IN2-, IN3+, IN3-, IN4+, IN4-

TRIG IN 4, TRIG IN 3, TRIG IN 2, TRIG IN 1

J2: RUN+, RUN-, INIT+, INIT-, FREEZE+, FREEZE-, STOP+, STOP-

STOP, FREEZE, INIT, RUN

Galvanically Isolated on LinMot Servo Controller

J3: GND, +24V, OUT1, OUT2, OUT3, OUT4, OUT5, OUT6, GND, R_OPENER, R_IN, R_CLOSER

OUT 6, OUT 5, OUT 4, OUT 3, OUT 2, OUT 1

M01-ANALOG

Item	Description	Part Number
M01-digital	Breakout Module digital	0150-1932
M01-analog	Breakout Module analog	0150-1933
M01-Connector	Cable and Connector set	0150-1934

E100 | Supply Motor/Logic

Power Connector
Logic/Motor
1.5 mm² (AWG16)

GND internally connected
to controller housing

PWR SIGNAL + — 1 — Internal Fuse 500mAT — 24...48VDC

GND — 2 — GND

PWR MOTOR + — 3 — 24...48VDC

Internal Fuse 10AT

Supply GND must be
be externally connected
to earth
(Ground Bus)

Supply

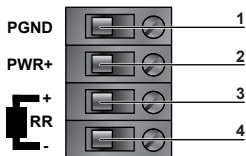|	
Supply Voltage Logic:	24...48VDC (absolute max. Rating 48VDC + 10%)
Supply Voltage Motor:	24...48VDC (absolute max. Rating 48VDC + 10%)

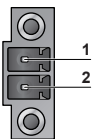Motor Supply GND must be externally connected to earth

⚠ - By exceeding 52VDC supply voltage, the drive will go into error state.
- Power supply connectors must not be connected or disconnected while DC voltage is present.
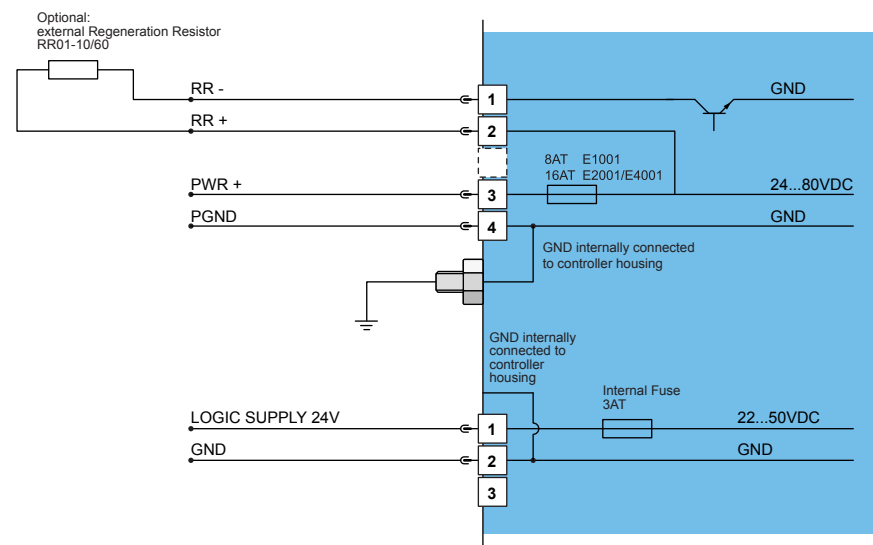
E1001 | Supply Motor/Logic

Screw Terminals
2.5 mm² (AWG14)

PGND — 1
PWR+ — 2
RR + — 3
RR - — 4

Phoenix MC1,5/2-STF-3.81
0.25-1.5mm² (AWG24-16)

Optional:
external Regeneration Resistor
RR01-10/60

RR - — 1 — GND
RR + — 2

8AT E1001
16AT E2001/E4001
PWR + — 3 — 24...80VDC
PGND — 4 — GND

GND internally connected
to controller housing

GND internally
connected to
controller
housing

LOGIC SUPPLY 24V — 1 — Internal Fuse 3AT — 22...50VDC
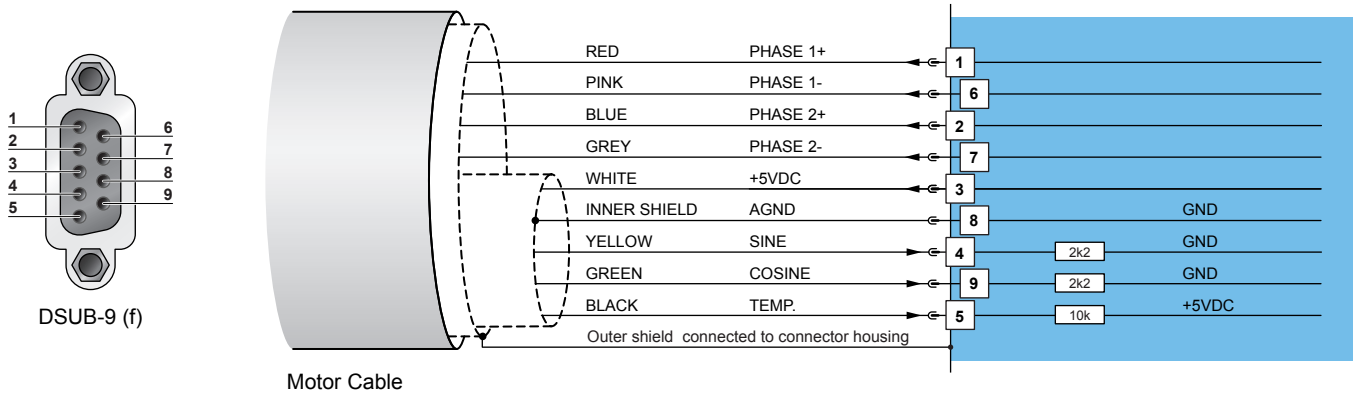GND — 2 — GND
3

Supply:

Supply Voltage Logic:	24...80VDC (absolute max. Rating 92VDC)
Supply Voltage Motor:	48...72VDC (absolute max. Rating 72VDC + 5%)

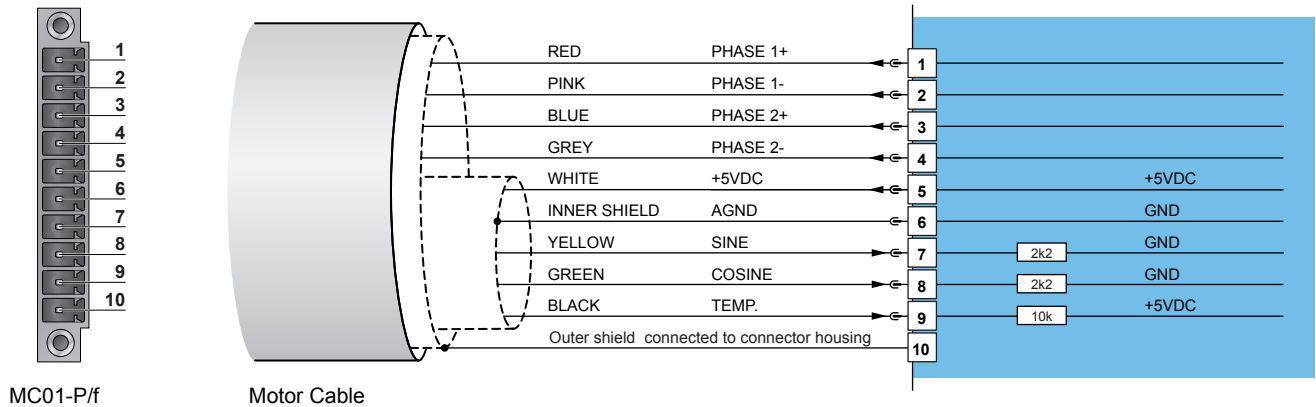Motor and Logic Supply GND must be externally connected to earth

⚠ - By exceeding 92VDC motor supply voltage, the drive will go into error state.
- By exceeding 52VDC logic supply voltage, the drive will go into error state.
- Power supply connectors must not be connected or disconnected while DC voltage is present.
- It is recommended that the motor and the logic be supplied and controlled separately.

Mot A (B, C, D) | Motor connector E100

RED	PHASE 1+	1
PINK	PHASE 1-	6
BLUE	PHASE 2+	2
GREY	PHASE 2-	7
WHITE	+5VDC	3
INNER SHIELD	AGND	8 — GND
YELLOW	SINE	4 — 2k2 — GND
GREEN	COSINE	9 — 2k2 — GND
BLACK	TEMP.	5 — 10k — +5VDC

Outer shield connected to connector housing

DSUB-9 (f)

Motor Cable

Mot A (B, C, D) | Motor connector E1001

RED	PHASE 1+	1
PINK	PHASE 1-	2
BLUE	PHASE 2+	3
GREY	PHASE 2-	4
WHITE	+5VDC	5 — +5VDC
INNER SHIELD	AGND	6 — GND
YELLOW	SINE	7 — 2k2 — GND
GREEN	COSINE	8 — 2k2 — GND
BLACK	TEMP.	9 — 10k — +5VDC
		10

Outer shield connected to connector housing
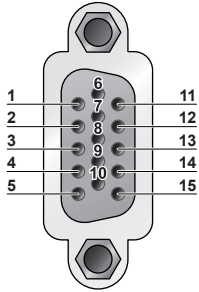
MC01-P/f

Motor Cable

Motor Cable

- Use only special double-shielded Linear Motor Cable (see motor accesories).
- LinMot offers a wide range of preassambled motor cable in standard and custom length (tested 1.5kV):
    Standard Cable K05-...
    High-Flex Cable KS05-...
    Robot-Cable KR05-...

- Do NOT connect AGND (Pin 6) to ground or earth!
- Inner shield (AGND) and outer shield (earth) must be isolated to each other.
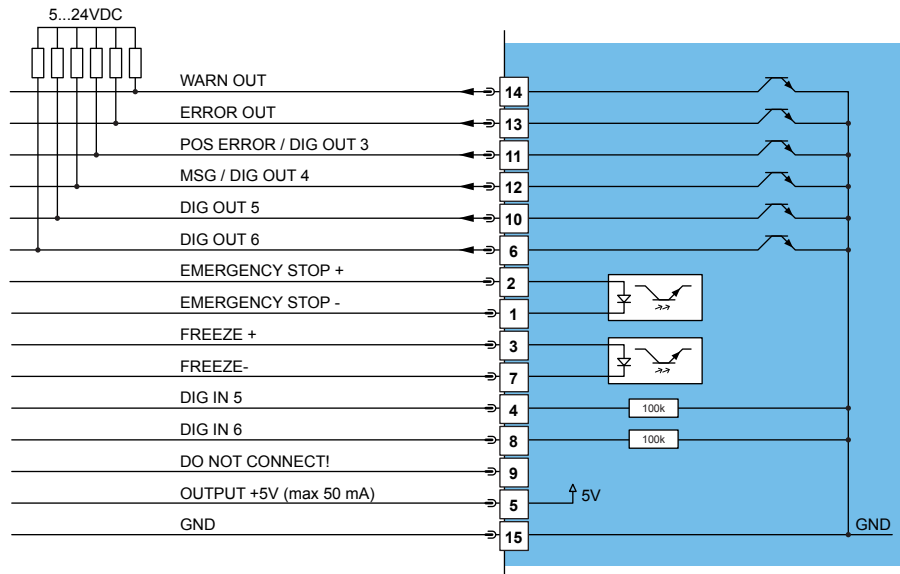- Use +5V (Pin 3) and AGND (Pin 6) only for motor internal Hall Sensor supply (max. 100mA).

- Wrong Motor wiring may damage Linear Motors and/or Servo Drive.
  If you are assembling motor cables by your own, double check motor wiring carefully before power up.

- Do not connect or disconnect the motors from drives with voltage present.
  Wait to connect or disconnect motors until all LinMot drive LED's have turned off.

SYS1 — System interface 1

5...24VDC

WARN OUT	14
ERROR OUT	13
POS ERROR / DIG OUT 3	11
MSG / DIG OUT 4	12
DIG OUT 5	10
DIG OUT 6	6
EMERGENCY STOP +	2
EMERGENCY STOP -	1
FREEZE +	3
FREEZE-	7
DIG IN 5	4
DIG IN 6	8
DO NOT CONNECT!	9
OUTPUT +5V (max 50 mA)	5
GND	15

DSUB-15 (f)

Control Inputs: Stop (active low) / Freeze (active high)
Optical isolated inputs (Input voltage: 0 …. 24V)
- for logical zero: input voltage < 2V
- for logical one: input volateg > 3.5V
Input current: < 20 mA (internally limited to 20 mA)
Update rate: 1.6 ms

Digital Inputs: Dig In 5 / Dig In 6
24VDC inputs, input resistance 100kOhm
- for logical zero: input voltage < 2V
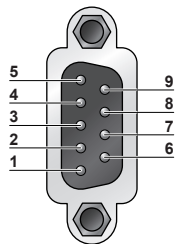- for logical one: input volateg > 3.5V

Digital Outputs: Pos Error Out / MSG / Error Out / Warn Out / Dig Out 5 / Dig Out 6
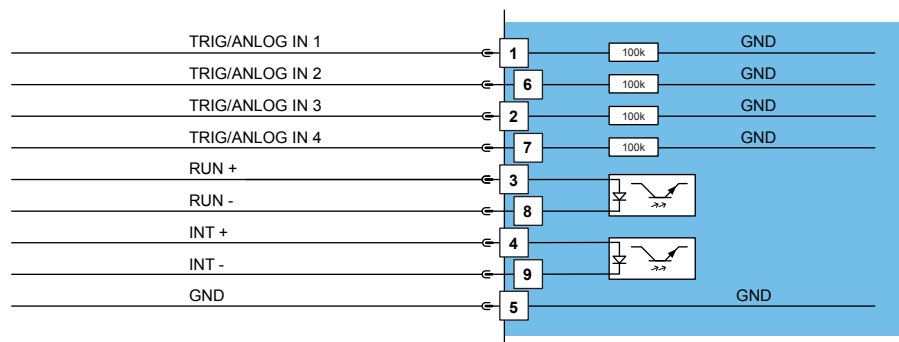Open Collector max 24V / 50 mA
Typical pull-up Resistor R:for V+ = 5V supply: R=150 Ohm/0.25 W
for V+=24V supply: R=820 Ohm / 1W

SYS2 — System interface 2

TRIG/ANLOG IN 1	1
TRIG/ANLOG IN 2	6
TRIG/ANLOG IN 3	2
TRIG/ANLOG IN 4	7
RUN +	3
RUN -	8
INT +	4
INT -	9
GND	5

DSUB-9 (m)

Digital/Analog Input: Trig/Analog IN
Input can be used as analog inputs between 0 … 10V (10 bit resolution) input resistance 100kOhm
or digital inputs (max. 24V, input resistance 100kOhm) for logical zero <2V,
for logical one   >3.5V

Control Inputs: RUN (active high) / INT (active high)
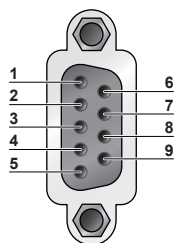Optical isolated 24V inputs
Input voltage: 0 …. 24V   for logical zero <2V
for logical one >3.5V
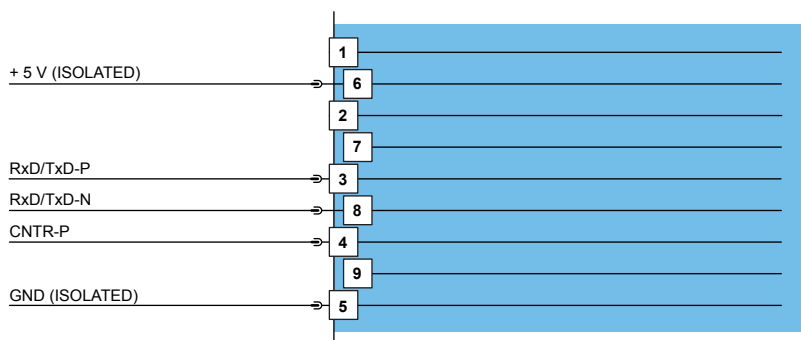
Input current: < 20 mA (internally limited to 20 mA)
Update rate: 1.6 ms

DP	Profibus DP interface

DSUB-9 (f)

+ 5 V (ISOLATED) — 6

RxD/TxD-P — 3
RxD/TxD-N — 8
CNTR-P — 4

GND (ISOLATED) — 5

1
2
7
9

Isolated 5V output: max 50 mA

COM	Com interface

DSUB-9 (m)

Pin		Signal
RS485_TX+	1	RS485_TX+
RS485_RX-	6	RS485_RX-
RS232_TX	2	RS232_TX
RS485_TX-	7	RS485_TX-
RS232_RX	3	RS232_RX
CAN_L	8	CAN_L
RS485_RX+	4	RS485_RX+
CAN_H	9	CAN_H
GND	5	GND

100
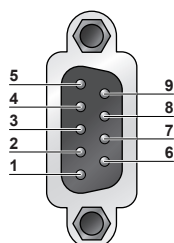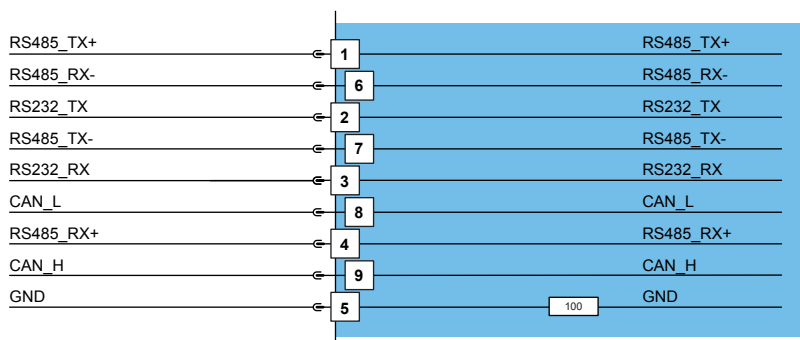
RS232: Configuration on all Drives: use 1:1 connection cable to PC

LED	State display E100
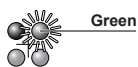
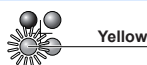**Green**

Ready Green:
READY: The system has started correctly

Yellow

Stat A Yellow:
STAT A : Coding for the actual operating state
The display of the various operating states is shown on the last page of this manual.

Yellow

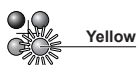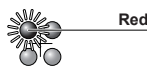**Stat B Yelllow:**
STAT B: Coding for the actual operating state
The display of the various operating states is shown on the last page of this manual.

Red

Fault Red:
FAULT: An error has occurred
(In the state ERROR a blink code of the STAT LEDs A and B tells what the actual error is.
The blink codes are explained in chapter 'Service'of the user Manual.)

DISPLAY	State display E1001

8 Segement Display
Output of operating states and error codes

Switched-Mode Power Supplies

Item	Description	Part Number
S01-48/300	Switched-Mode Power Supply 48V/300W for Drive Series E100	0150-1941
S01-48/600	Switched-Mode Power Supply 48V/600W for Drive Series E100	0150-1946
S01-72/500	Switched-Mode Power Supply 72V/500W for Drive Serie E1001	0150-1874
S01-72/600	Switched-Mode Power Supply 72V/600W for Drive Serie E1001	0150-1943
S01-72/1000	Switched-Mode Power Supply 72V/1000W for Drive Serie E1001	0150-1872
SM01-300	Mounting part for 300W Switched-Mode Power Supply	0150-3040
SM01-600	Mounting part for 600W Switched-Mode Power Supply	0150-3041

Transformer Supply T01 for E1001   3x230/280/400/480VAC

Item	Description	Part Number
T01-72/420...1500-Multi	Transformer Supply 3x230/280/400/480VAC, 50/60Hz, 420...1500W	see page 532

Control Box B01-04



Item	Description	Part Number
B01-04 230VAC/50Hz	Control Box for E100/E1001-AT/MT (230VAC, incl. cable and connectors)	0150-1930
B01-04 115VAC/60Hz	Control Box for E100/E1001-AT/MT (115VAC, incl. cable and connectors)	0150-1931

COM connection cables and USB-converter

Item	Description	Part Number
RS232 PC config. cabel 2m	for E100/E1001	0150-3009
RS232 PC config. cabel 2m	for E100/E1001/E1100/B1100	0150-3307
RS232 PC config. cabel 2.5m	for E1200/E1400	0150-2143
USB-Serial Converter	USB to 9-pin Serial Converter	0150-3110
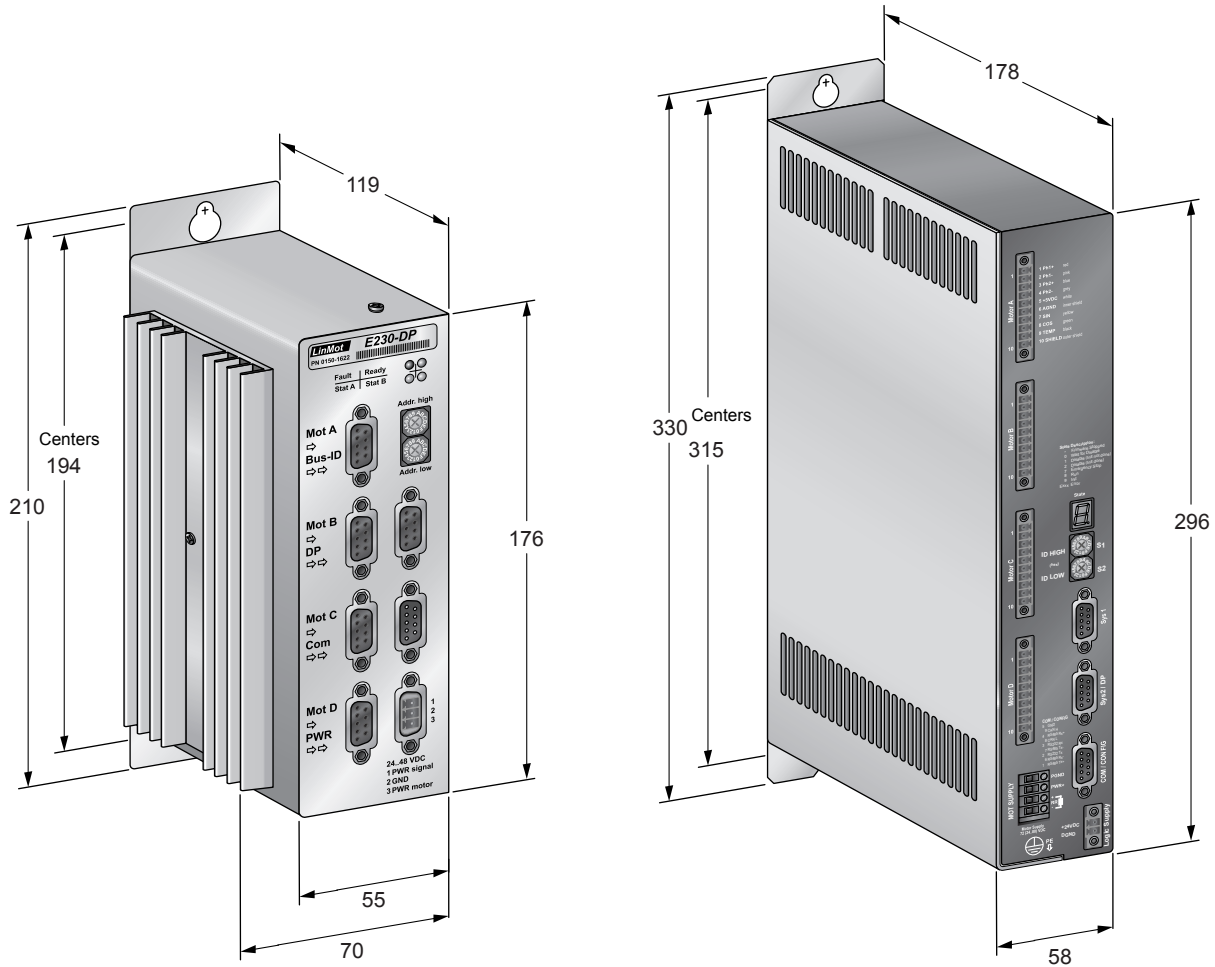
Dimensions in mm

		E100	E200	E400	E1001	E2001	E4001
Interfaces							
Width	mm		70			58	
Height	mm		210			330	
Height without fixings	mm		175			296	
Depth	mm		120			178	
Weight	kg	1.1	1.2	1.3	2. 5	2.6	2.7
Protection Class	IP		40			40	
Storage Temperture	°C		-25..70			-25..70	
Operating Temperature	°C		0..50			0..50	
Max. Case Temperature	°C		65			65	
Max. Power Dissipation	W	22	38	70		80	
Distance between Drives	mm		50			50	

Item	Description	Part Number
E100-AT	AnalogTrigger Drive 1 Axis (48V/3A)	0150-1601
E200-AT	AnalogTrigger Drive 2 Axis (48V/3A)	0150-1602
E400-AT	AnalogTrigger Drive 4 Axis (48V/3A)	0150-1604
E1001-AT	AnalogTrigger Drive 1 Axis (72V/8A)	0150-2300
E2001-AT	AnalogTrigger Drive 2 Axis (72V/8A)	0150-2301
E4001-AT	AnalogTrigger Drive 4 Axis (72V/8A)	0150-2303
E100-MT	Multi Trigger Drive 1 Axis (48V/3A)	0150-1611
E200-MT	Multi Trigger Drive 2 Axis (48V/3A)	0150-1612
E400-MT	Multi Trigger Drive 4 Axis (48V/3A)	0150-1614
E1001-MT	Multi Trigger Drive 1 Axis (72V/8A)	0150-2304
E2001-MT	Multi Trigger Drive 2 Axis (72V/8A)	0150-2305
E4001-MT	Multi Trigger Drive 4 Axis (72V/8A)	0150-2307
E130-DP	Profibus DP Drive 1 Axis (48V/3A)	0150-1621
E230-DP	Profibus DP Drive 2 Axis (48V/3A)	0150-1622
E430-DP	Profibus DP Drive 4 Axis (48V/3A)	0150-1624
E1031-DP	Profibus DP Drive 1 Axis (72V/8A)	0150-2316
E2031-DP	Profibus DP Drive 2 Axis (72V/8A)	0150-2317
E4031-DP	Profibus DP Drive 4 Axis (72V/8A)	0150-2319
E100-DN	DeviceNet Drive 1 Axis (48V/3A)	0150-1641
E200-DN	DeviceNet Drive 2 Axis (48V/3A)	0150-1642
E400-DN	DeviceNet Drive 4 Axis (48V/3A)	0150-1644
E1001-DN	DeviceNet Drive 1 Axis (72V/8A)	0150-2312
E2001-DN	DeviceNet Drive 2 Axis (72V/8A)	0150-2313
E4001-DN	DeviceNet Drive 4 Axis (72V/8A)	0150-2315
E100-CO	CanOpen Drive 1 Axis (48V/3A)	0150-1669
E200-CO	CanOpen Drive 2 Axis (48V/3A)	0150-1670
E400-CO	CanOpen Drive 4 Axis (48V/3A)	0150-1672
E1001-CO	CanOpen Drive 1 Axis (72V/8A)	0150-2308
E2001-CO	CanOpen Drive 2 Axis (72V/8A)	0150-2309
E4001-CO	CanOpen Drive 4 Axis (72V/8A)	0150-2311