

SERVO DRIVES



The wide range of drive products allows rapid implementation of simple applications with two end positions, up to complex, high-precision multi-axis applications with synchronization to a main electronic shaft.

The servo drives cover a wide range in terms of performance. Controlling small actuators with low power as well as high-power servomotors with direct feed from the three-phase network can be realized.

LinMot Servo Drives

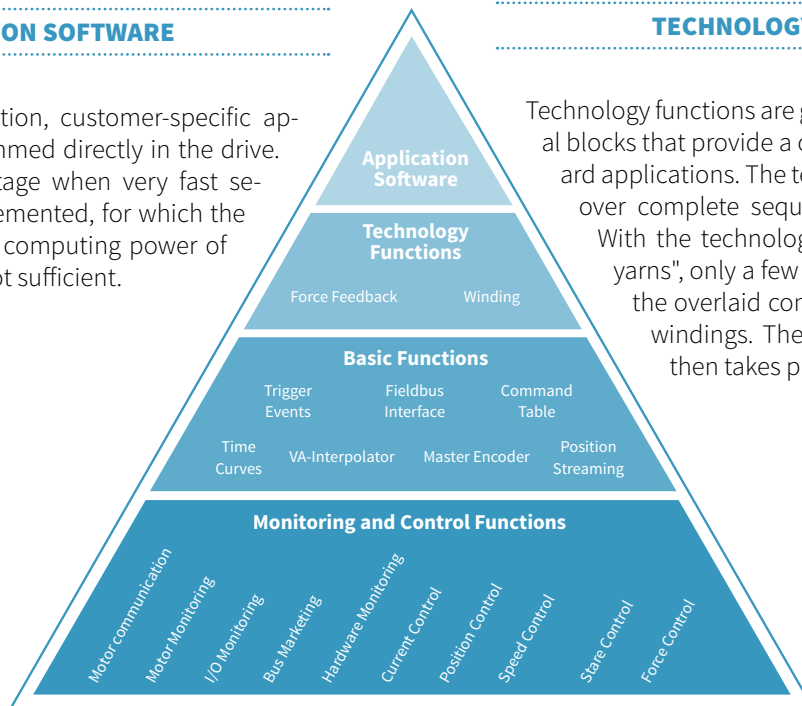
LinMot Servo Drives are highly integrated inverters with one or more power elements, for controlling the motors, and an intelligent control element with integrated position regulation. The control element performs all drive-related control and monitoring functions. It allows direct position set points, or travel along internally stored motion profiles from the overlaid control, using simple analog or digital signals. Additionally, using the technology functions or a customer-specific software application, complete sequences or functions can be implemented for customerspecific applications.

APPLICATION SOFTWARE

Using a software application, customer-specific applications can be programmed directly in the drive. This is mainly an advantage when very fast sequences need to be implemented, for which the communication speed or computing power of the overlaid control are not sufficient.

TECHNOLOGY FUNCTIONS

Technology functions are generally available functional blocks that provide a complete solution for standard applications. The technology function can take over complete sequence control of a process. With the technology function "winding textile yarns", only a few parameters are provided by the overlaid control, such as the number of windings. The complete winding process then takes place automatically.



BASIC FUNCTIONS

The basic functions include communication with the overlaid control, generation of target values for speed and acceleration-limited point-to-point motions, travel along motion profiles, synchronization of drives to an electronic main or master shaft, and synchronization in multi-axis applications.

MONITORING AND CONTROL

The basic functions of the Servo Drive, such as position and current control; control and monitoring of the power element; and monitoring the motor temperature, power, and position are handled by the control, monitoring, and regulation element, which also controls the entire finite state machine of the drive.

SPS LIBRARIES AND PROGRAMMING EXAMPLES

LinMot Drives have all common fieldbus interfaces available for connection to a master controller. In order to realize simple control concept integration, extensive function blocks and programming examples are provided for the customer. These function blocks allow for direct and quick LinMot drive integration. The function blocks run standard functions as well as commands such as drive parameterization and configuration directly from the controller. The complete drive

configuration of the corresponding axis is thus stored on the controller. Maintenance or replacement can be easily realized via automatic drives detection and configuration over the communication bus. Thus manual and time-consuming configuration of the drives in case of failure is eliminated.

Characteristics

POINT-TO-POINT MOTIONS

Because of their high dynamic capabilities, long life, and ability to travel to several positions, LinMot linear motors are often used as a replacement for pneumatic cylinders.

Various end positions can be stored in the drive and are invoked via digital signals, just as with a pneumatic cylinder. Once the end position is reached, this is reported to the overlaid control via the In-position signal on a digital output. Speed and acceleration can be configured freely for each motion.

NC MOTION

Travel along paths from an overlaid NC drive can be implemented via the +/-10V interface, or in streaming mode (PVT, PV).

The predetermined points are calculated rapidly, so that even irregular and complex curves are realized dynamically.

HIGH-END APPLICATIONS

Complex applications with synchronization to a main or master shaft can be implemented without trouble using the integrated master encoder interface. All incoming signals from the main shaft are processed by the LinMot Drive and depend on the movement type of the linear motor.

Together with a high-resolution, external position sensor, even high-precision positioning tasks in μm range can be handled.

MULTI-AXIS OPERATION

In multi-axes or linked operation, the master encoder interface can control both individually and synchronous to a main or master shaft.

For complex designs, several axes can be synchronized in master-booster or master-gantry mode. This allows simple implementation of portal designs with two synchronized axes, which are controlled by the overlaid control as a single axis.

LINEAR AND ROTARY DRIVES

Using LinMot Servo Drives, rotary servomotors can be used as well as linear motors, or any 1/2/3-phase actuators.

Primarily in assembly automation and feeding applications, small, light brushless DC motors (EC motors) are often needed to rotate a gripper about the Z-axis. The flexibility of the Servo Drive allows such rotary motors to be integrated into the existing controls concept in the same simple manner as linear motors.

STANDARDIZED DEVICE PROFILES

To simplify the integration of different axes, the C Series Servo Drives are equipped with PROFIdrive, Sercos III, SoE (SercosOver-Ethercat) and CoE (CiA402). By using device profiles, the integration of „foreign“ Drives in the motion control is simplified. Further positive aspects are the automatic data exchange in real time and the increase of determinism in the system.

PLUG AND PLAY

LinMot motors with the plug and play functionality are automatically recognized by the A1100 / C1200 / C1100 / E1200 / E1400 servo drives and are immediately ready for use.

The servo drive reads these values when it boots up, and sets the parameters accordingly. This automatic device detection eliminates the selection of the required model parameters from an extensive library. Without having the configuration software to boot, first commands can be sent directly by the PLC control.

INTEGRATED SAFETY FUNCTION

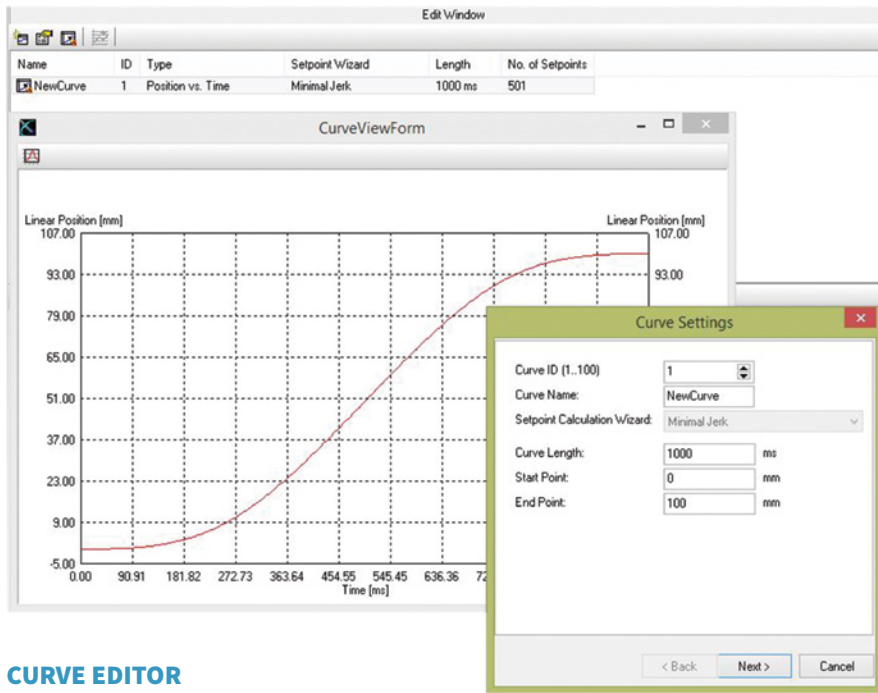
In order to prevent unintended startup, the model C1200 / C1100 / E1200 / E1400 drives have an STO function to safely shut off the output stage. The drive cannot produce any more force when shut off using the "Safe Torque Off" function. A functional safety is currently under preparation and can already be solved today with external components.

CERTIFICATION

The current LinMot Drives are marked with CE and approved as components according to the UL regulation for variable-frequency controllers. Thus they meet the requirements for the US and Canadian market.

Configuration with LinMot Talk

LinMot Talk configuration software is a Windows- based interface that supports the user during start-up and configuration of the LinMot Servo Drives. The software has a powerful, modular, graphical interface that covers all the tasks surrounding the LinMot Servo Drive. Using LinMot Talk PC interface, the engineer can configure LinMot servo drives. The motors are also monitored during operation and the current motion sequences are analysed (monitoring). The integrated control panel gives the user direct access to the control and status words, as well as all commands that are invoked by the upper-level controller.



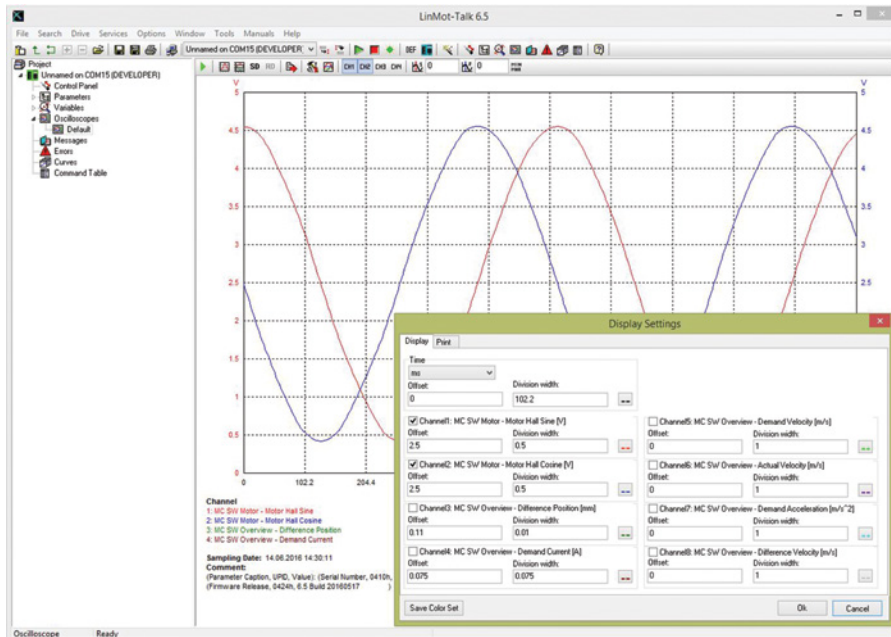
CURVE EDITOR

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.

CURVE EDITOR

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.



OSCILLOSCOPE

OPTIMIZATION

The integrated oscilloscope helps the user during start-up and optimization of the Parameterization Optimization Monitoring 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. A list of the last error messages are stored in non-volatile memory on the Servo Drive, together with the operating hours counter.

Overview Servo Drives



A1100

Space-saving servo drive for instrument engineering



C1100

Compact drive for an ideal use in point-to-point applications.



C1200

Servo Drive for demanding tasks with axis, NC synchronization and an industrial ETHERNET interface.



E1200

High-End Servo Drive with configuration via ETHERNET.



C1400

Servo Drive with direct power supply for simple motions as well as complex axis synchronization. Designed to control the P10 motor family.



E1400

Servo Drive for P10 motors with direct main supply and 3x400 VAC technology. Equipped with an ETHERNET Config. interface.

Technical Specifications

	A1100	C1100	C1200
Motor Supply			
	24...72VDC	24...72VDC	24...72VDC
Motor Current			
	8A _{pk}	25A _{pk}	25A _{pk}
Control of			
LinMot Motors P0x/ PR01	•	•	•
LinMot Motors P10			
Rotary Motors		•	•
EC02 Motors		•	•
AC Servo Motors			
3rd Party Motors		•	•
Functionality			
	Point-to-Point	Point-to-Point	Point-to-Point
	Command Table	Closed Loop Force Control	Limited jerk motion commands
	Motion Profiles	Command Table	NC Motion
		Motion Profiles	Closed Loop Force Control
			Command Table
			Motion Profiles
Ethernet & Fieldbuses			
	CANOpen	PROFINET	PROFINET
		EtherCAT (LinMot Profile)	PROFINET Profidrive
		EtherCAT (CiA402)	EtherNet/IP
		EtherCAT (SoE)	Sercos III
		CANOpen	Powerlink
			LinUDP
			EtherCAT
			EtherCAT (CiA402)
			EtherCAT (SoE)
Interfaces			
Analog Inputs 0..10V / +-10V	1 / 0	1/1	1/1
Number of digital Inputs / Outputs	6 / 2	4/2	4/2
Brake Output	(-)	24V/0.5A	24V/0.5A
External Encoder			
		A/B/Z (RS422)	A/B/Z (RS422)
		SSI	SSI
		BISS	BISS
			EnDat
Timings			
Min. Bus Cycle Time	250 µs	250 µs	125 µs
PWM Frequency	16 kHz	16 kHz	16 kHz
Trigger Commands	≥ 250 µs	≥ 250 µs	≥ 125 µs
Position Drive	250 µs	250 µs	125 µs
Configuration			
RS 232	•	•	•
ETHERNET			•
ETHERNET –Maintenance			

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E1200	C1400	E1400
24...72VDC	1x200...240VAC	3x400...480VAC
32A _{pk}	15A _{pk}	28A _{pk}
•	•	•
•	•	•
•	•	•
•	•	•
Point-to-Point	Point-to-Point	Point-to-Point
NC Motion	Limited jerk motion commands	Limited jerk motion commands
Master Encoder / CAM	NC Motion	NC Motion
Belt Synchronization	Master Encoder / CAM	Master Encoder / CAM
Master Booster (up to 4 slaves)	Belt Synchronization	Belt Synchronization
Master Gantry (up to 4 slaves)	Closed Loop Force Control	Master Booster (up to 4 slaves)
Winding Application	Command Table	Master Gantry (up to 4 slaves)
Closed Loop Force Control	Motion Profiles	Winding Application
Command Table		Closed Loop Force Control
Motion Profiles		Command Table
		Motion Profiles
PROFINET	PROFINET	PROFINET
PROFINET Profidrive	PROFINET Profidrive	PROFINET Profidrive
EtherNet/IP	EtherNet/IP	EtherNet/IP
Sercos III	Sercos III	Sercos III
Powerlink	Powerlink	Powerlink
LinUDP	LinUDP	LinUDP
Profibus DP	CANOpen	Profibus DP
CANOpen	EtherCAT	CANOpen
EtherCAT	EtherCAT (CiA402)	EtherCAT
EtherCAT (CiA402)	EtherCAT (SoE)	EtherCAT (CiA402)
EtherCAT (SoE)		EtherCAT (SoE)
LinRS		LinRS
2/1	1/1	2/1
8	4/2	8
24V/1.0A	24V/1.5A	24V/1.5A
A/B/Z (RS422)	A/B/Z (RS422)	A/B/Z (RS422)
Sin/Cos (1Vpp)	SSI	SSI
SSI (only position recovery)	BISS	BISS
	EnDat	EnDat
200 μs	250 μs	250 μs
20 kHz	8 kHz	8 kHz
≥ 100 μs	≥ 125 μs	≥ 125 μs
100 μs	125 μs	125 μs
•	•	•
•	•	•
•	•	•



LinMot®

LinMot®

LinMot®

S2 1 2 3 4 5 6 7 8
S1 1 2 3 4 5 6 7 8
ID LOW ID HIGH
CTS 206-8 T340

S2 1 2 3 4 5 6 7 8
S1 1 2 3 4 5 6 7 8
ID LOW ID HIGH
CTS 206-8 T340

S2 1 2 3 4 5 6 7 8
S1 1 2 3 4 5 6 7 8
ID LOW ID HIGH
CTS 206-8 T340

X33 STO RELAYS

X33 STO RELAYS

X33 STO RELAYS

WARN ERROR
EN 24V OK

WARN ERROR
EN 24V OK

WARN ERROR
EN 24V OK

11 AnIn-
10 AnIn+
9 AnIn
8 In
7 In
6 In
5 In
4 Out
3 Out
24VDC
DGND
X4 LOGIC SUPPLY / CONTROL
11
1

X19 SYSTEM
8

X19 SYSTEM
8

X19 SYSTEM
8

C1100

C1100

SERIES C1400



- ✓ Input voltage 230VAC
- ✓ 15A rms peak phase current
- ✓ Integrated Line Filter
- ✓ For LinMot P10 Linearmotors & AC servomotors
- ✓ Integrated Cooling Fan
- ✓ 100 programmable motion profiles
- ✓ 255 storable motion commands
- ✓ Interface for incremental or absolute sensors

Servo Drive Series C1400

Series C1400 Servo Drives are modular axis drives, with 32-bit position resolution and an integrated power stage 1x240VAC, for linear motors and rotary motors.

The drives are suitable for simplest, standard, and high-end positioning tasks.



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CONNECTION TO MACHINE DRIVE

The Series C1400 Servo Drives can be actuated by machine controls from many manufacturers or brands, via digital inputs and outputs, or industrial ETHERNET.

PROCESS AND SAFETY INTERFACES

Fast process interfaces for direct processing of sensor signals are available as freely programmable analog and digital inputs, a fast trigger input, and a capture input.

The safety IO's on Servo Drives with the -1S option with industrial ETHERNET allows safe torque off (STO) of the drives via control signals, without interrupting the power supply.

LOGIC AND POWER SUPPLY

In an E-stop and safe stop of the drive, only the motor power 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 position of the linear motor are still up to date (as long as the logic supply is not turned off).

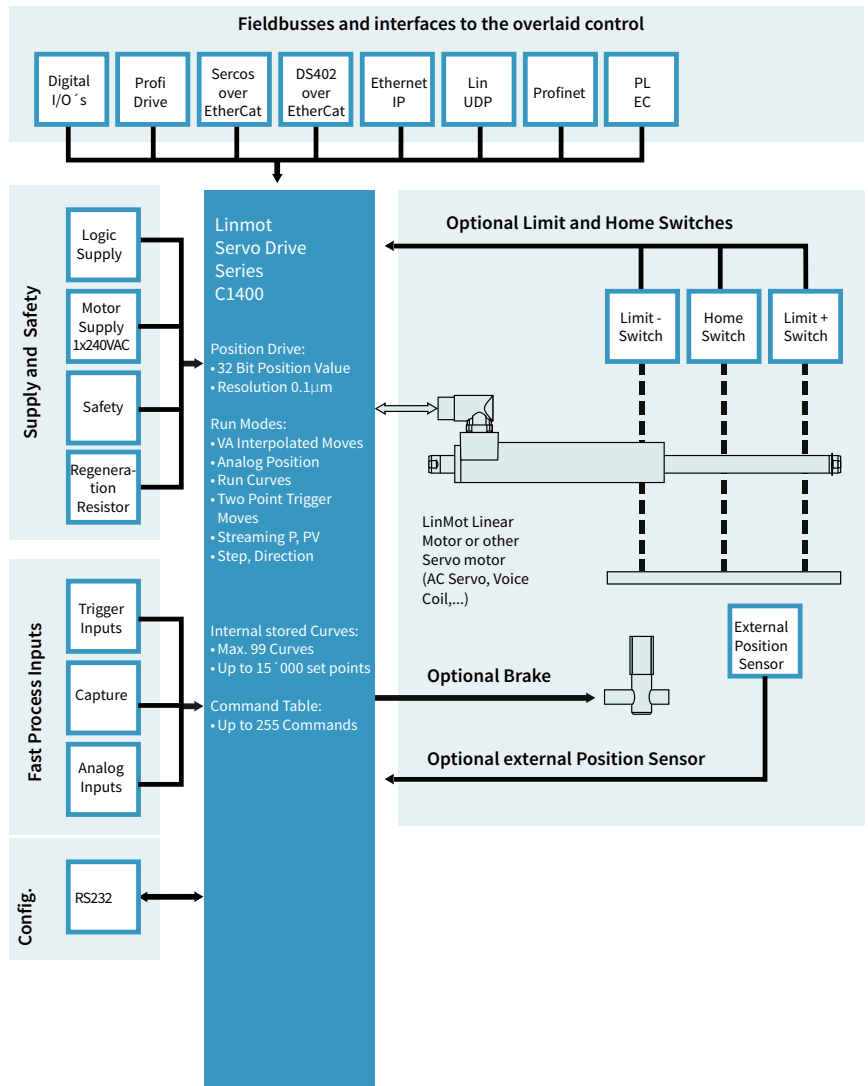
System Integration

Flexible hardware enables control of any 1/2/3- phase motors. Thus, low-power rotary servomotors, such as brushless DC motors, can be integrated in the same controls concept.

Additionally, the drives can be equipped with optional peripherals, such as reference and end stop switches, high-precision external position sensors, or a mechanical holding brake.

Series C1400 Servo Drives have analog and digital inputs and outputs and ETHERNET connections. The user is therefore not dependent on the selection of the overlaid drive. An appropriate interface is available, with associated protocols, for many PLC or IPC solutions.

With flexibility and a compact form factor, LinMot Series C1400 Servo Drives provide a complete solution for a flexible drive concept in single and multiple axes applications, with linear motors and other actuators.



MOTOR INTERFACES

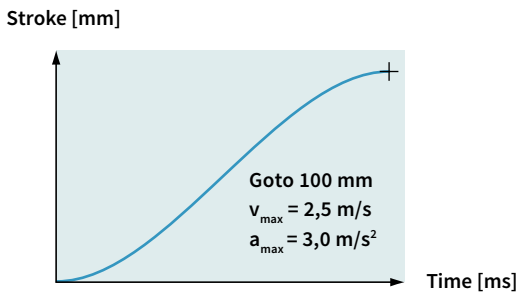
C1400 Servo Drives provide all necessary interfaces to operate linear or rotary motors with optional external peripherals, such as end position and reference switches, a mechanical brake, or a high-resolution external position sensor.

CONFIGURATION

LinMot Talk user-friendly PC software is available for configuration. In addition to online documentation, LinMot Talk provides extensive debugging tools, such as an oscilloscope and an error inspector, for simple and rapid start-up of the Axis.

Fieldbus and ETHERNET drives can also be configured directly by the overlaid control.

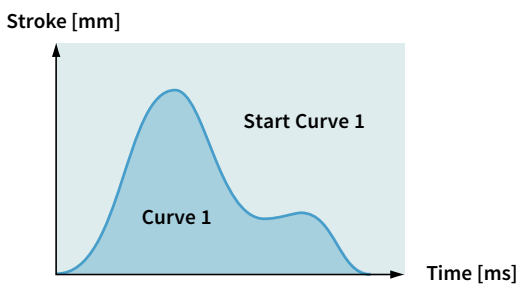
INTERPOLATED MOVES



For direct position targets, using absolute or relative positioning, the desired position is reached using acceleration and velocity-limited motion profiles or jerk optimized profiles (jerk limited and Bestehorn). Positioning commands can be invoked via the serial interfaces, CANopen, DeviceNet, Profibus, Ethernet or a trigger input.

Stroke range:	±100 m
Position Resolution:	0.1 µm (32Bit)
Velocity Resolution:	1.0 µm/s (32Bit)
Acceleration Resol.:	10.0 µm/s ² (32Bit)

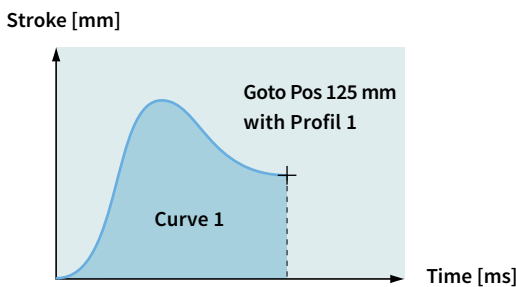
TIME CURVES



Up to 100 different time curves can be stored Series C1200 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, fieldbuses, Ethernet, or the trigger input.

Stroke range:	±100m
Position Resolution:	0.1 µm (32Bit)
Motion profiles:	Max. 100 Time Curves
Curve points:	Max. 16'000 points

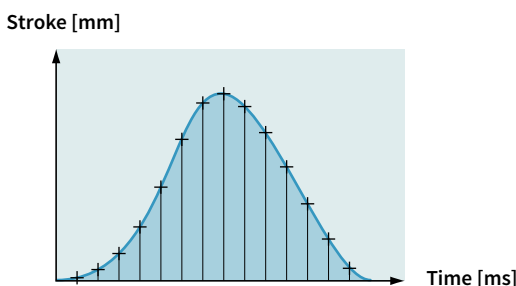
PROFILED MOVES



For travel to an absolute position, or shifting by a relative position, any desired motion rules can be stored besides the VA interpolator. They are stored in the drive as motion profiles (Excel CSV format). The positions can be approached, for example, with a sinusoidal motion to optimize power loss, or special reverse optimized motion profiles.

Stroke range:	±100m
Position Resolution:	0.1 µm (32Bit)
Motion profiles:	Max. 100 Time Curves
Curve points:	Max. 16'000 points

SETPOINT STREAMING



Overlaid NC drives with fieldbus or Ethernet interfaces communicate with the servo drives via “Position Streaming”. The position and velocity calculated in the overlaid control is transmitted to the Servo Drive cyclically. The P, PV, or PVT mode is available for this transmission.

Position Resolution:	32 Bit
Velocity Resolution:	32 Bit
Interpolator:	8 kHz
Cycle times:	0.25 - 5 ms

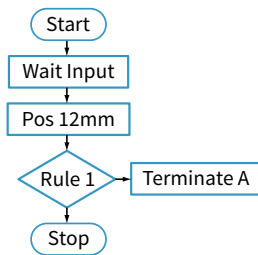
EASY STEPS

Input 1	Pos 125 mm
Input 2	Pos 250 mm
Input 3	Curve 1
Input 4	Pos -30 mm

With the Easy Steps function, up to 4 positions or independent travel commands can be stored on the drive, and addressed via 4 digital inputs or fieldbus interfaces/Ethernet.

Digital inputs: max. 4
Interface: X4
Scanning rate: 250 µsec

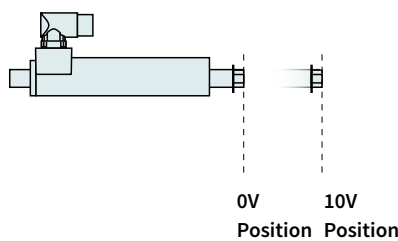
COMMAND TABLE



Entire motion sequences with up to 255 individual motion commands can be stored in the Command Table. This is primarily advantageous if complete motion sequences need to be executed very quickly, without dead time from the overlaid drive. In the Command Table, the programmer has access to all motion commands, internal parameters, and digital inputs and outputs.

Commands: max. 254
Cycle time: 125 µsec

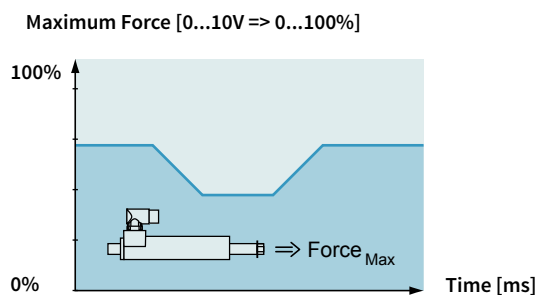
ANALOG POSITION



For an analog position target, the linear motor travels to a position proportional to the input voltage. The position is either scanned continuously, or only after a rising edge of the trigger signal. In order to prevent uncontrolled jumps in position, the motor travels to the positions with a programmable maximum acceleration and velocity (VA interpolator).

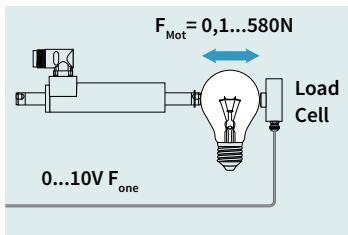
Inputs: Analog Input X4
Voltage range: 0-10VDC or ±10V
Resolution: 12 Bit
Scanning rate: >=125 µsec (adjustable)

EASY STEPS PARAMETER SCALE



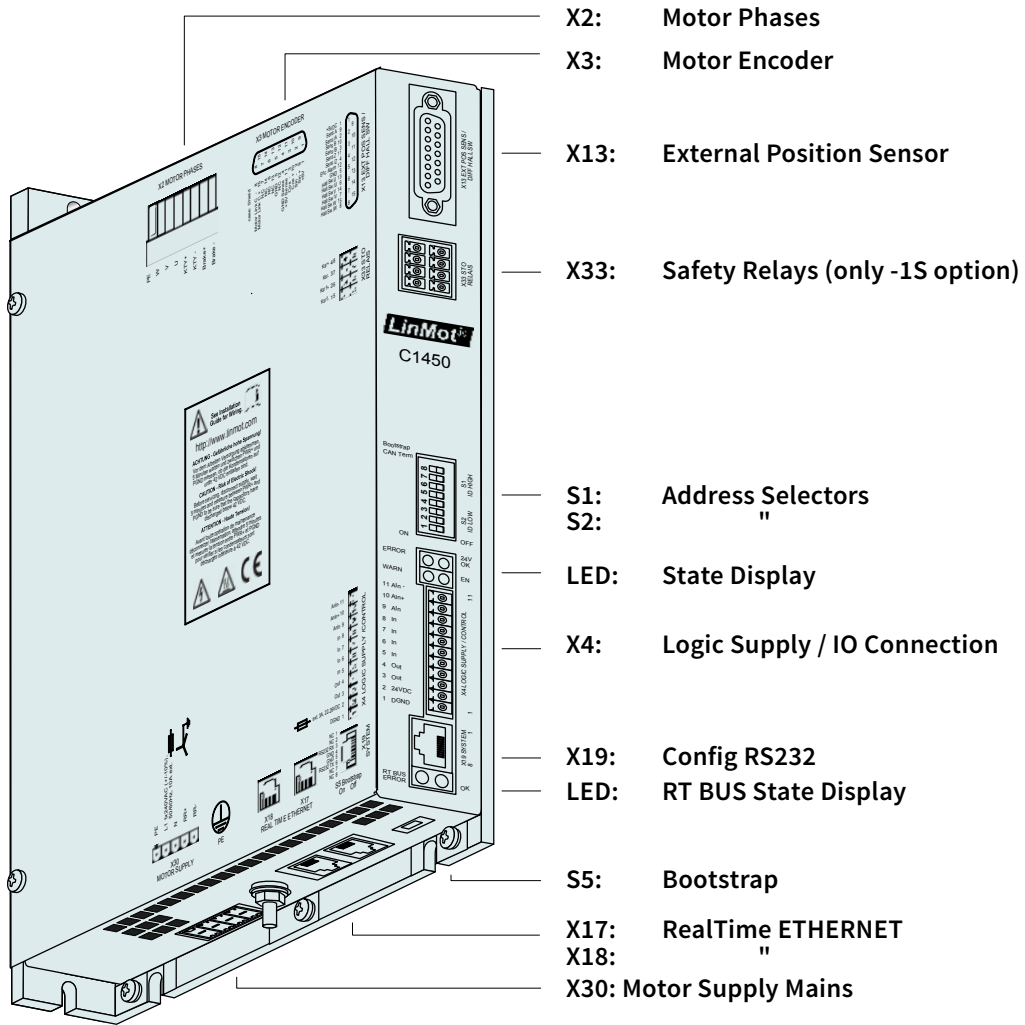
Easy Steps provide the ability to parameterize internal parameters using two analog inputs. If, for example, the maximum motor current is read at an analog input, then the maximum motor force can be provided as analog for freely programmable joining processes.

Inputs: 2 x Analog
Voltage range: 0-10VDC
Resolution: 12 Bit
Scanning rate: 250 µsec

CLOSED LOOP FORCE CONTROL

Using the force control technology function, precise joining processes can be implemented reliably and reproducibly with high-precision force control. For force control, the current motor force is measured with a load cell and controlled in the drive. Joining process or quality checks with high requirements for applied force can be implemented.

Analog input:	0-10V or $\pm 10V$
Resolution:	12 Bit
Min. Force Resolution:	0.1N



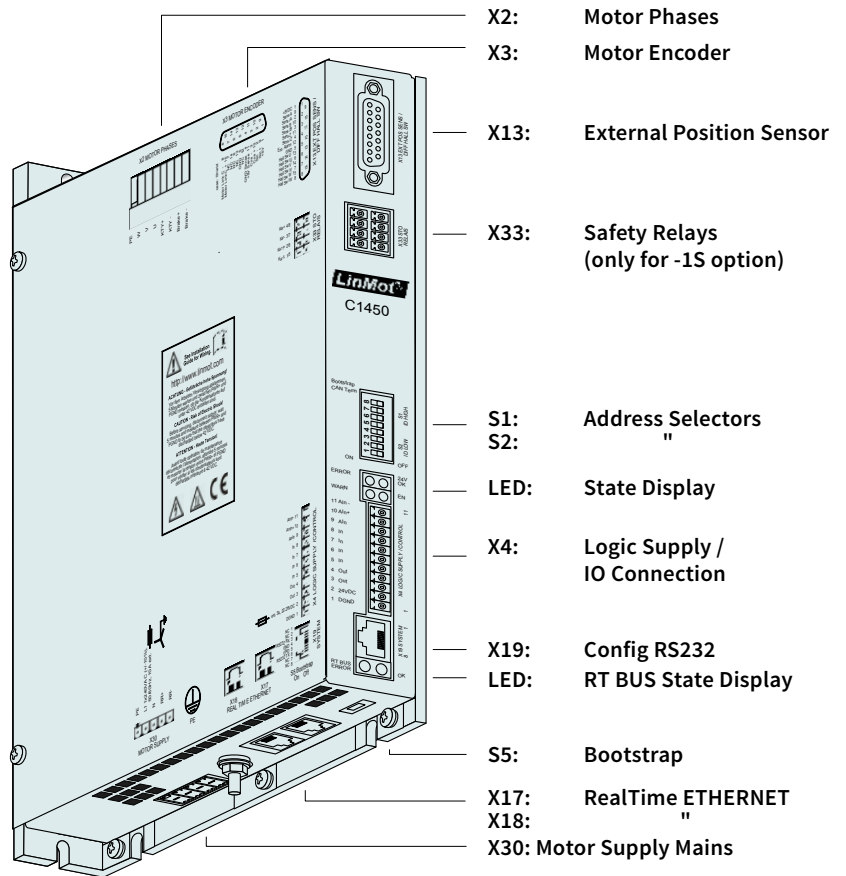
Interfaces	C1450-PN-VS-1S	C1450-PD-VS-1S	C1450-SC-VS-1S	C1450-IP-VS-1S	C1450-LU-VS-1S	C1450-EC-VS-1S	C1450-DS-VS-1S	C1450-SE-VS-1S	C1450-PL-QN-1S
PROFINET	•								
PROFINET Profidrive		•							
SERCOS III			•						
ETHERNET IP				•					
LinUDP					•				
ETHERCAT						•			
ETHERCAT CiA402							•		
ETHERCAT SoE								•	
POWERLINK									•



EtherCAT

- C1450-PN-VS -1S**
- C1450-PD-VS -1S**
- C1450-SC-VS -1S**
- C1450-IP-VS -1S**
- C1450-LU-VS -1S**
- C1450-EC-VS -1S**
- C1450-DS-VS -1S**
- C1450-SE-VS -1S**
- C1450-PL-QN -1S**

- » Absolute & Relative Positioning
- » Time based motion profiles
- » Internally stored Motion Sequences
- » Position Streaming
- » Analog Position Target
- » Analog Parameter Scaling
- » Winding Function Block
- » Force Control Technology Function
- » Customer-Specific Functions



INDUSTRIAL ETHERNET

Series C1400 drives allow integration of LinMot linear motors in controls concepts with industrial Ethernet interfaces. The user can integrate Series C1400 drives regardless of the provider of the overlaid control.

LinMot drives are available with common industrial Ethernet protocols. Since all Ethernet drives have the same motion command interface, and the control and status word are identical, software blocks that have been implemented once can be transferred to other drives without a problem.

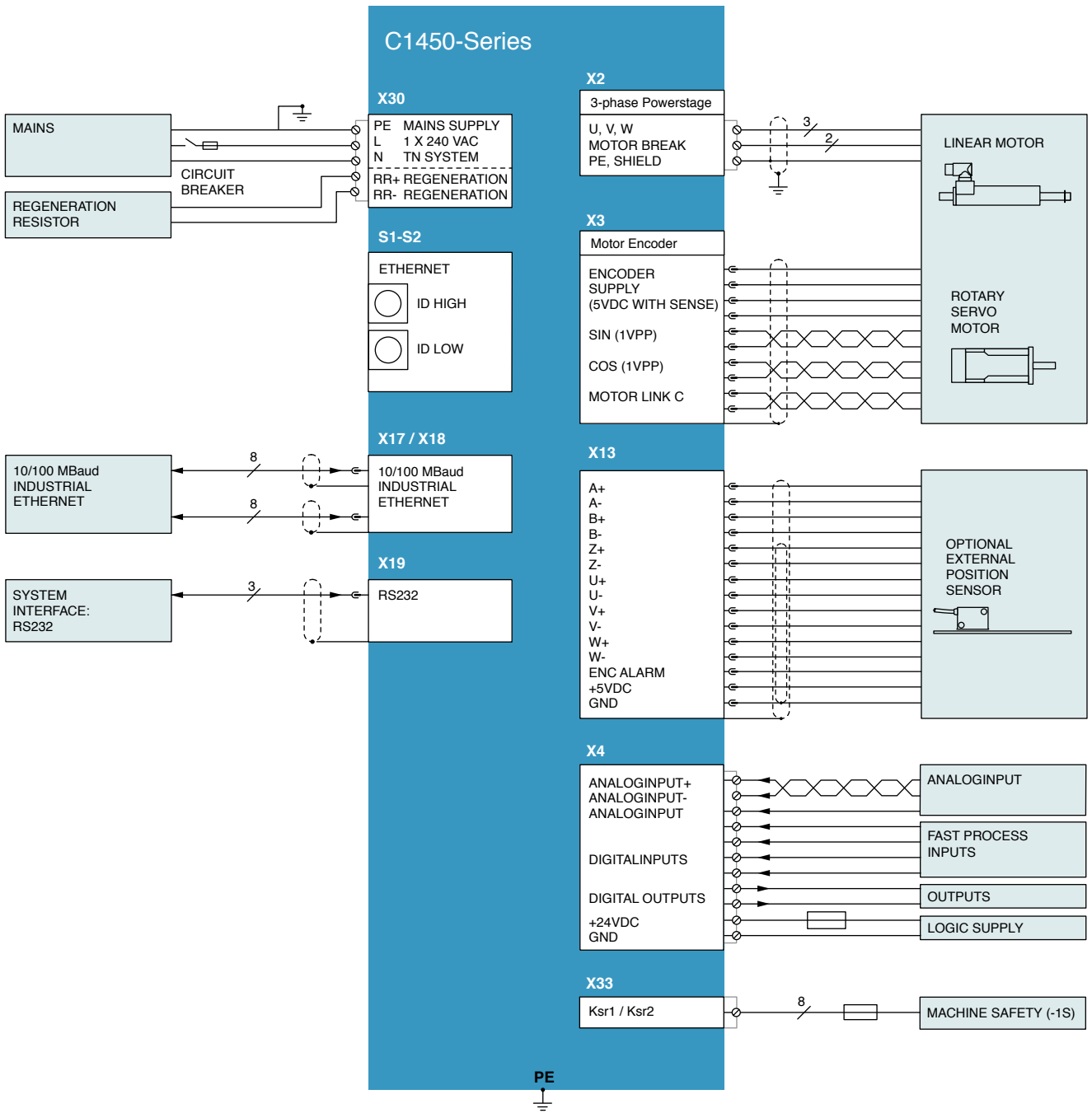
Series C1400 servo drives support the following industrial Ethernet protocols:

- » Profinet
- » EtherCAT
- » Ethernet IP
- » PowerLink
- » Sercos III
- » Sercos over EtherCAT

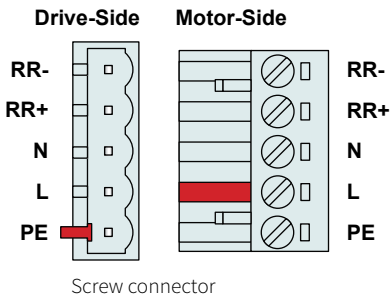
The appropriate drive is available for each protocol.

TECHNICAL DATA

Type:	Realtime ETHERNET
Switch/Hub:	Integrated 2-Port Hub/Switch
Transfer rate:	10/100MBit/sec
Minimal cycle times:	
Bus cycle:	250 µs
IO update:	250 µs
Trigger Input:	125 µs
Position control loop:	125 µs
Current control loop:	125 µs



X30 MOTOR SUPPLY MAINS / REGENERATION RESISTOR



	Designation
RR-	Regeneration Resistor
RR+	Regeneration Resistor
N	Neutral (TN system with grounded Neutral)
L	Line 1 (1x240VAC (+-10%) 50/60Hz external fuse: max.10A)
PE	Protective Earth

Line filter is integrated into the drive.

Screw Terminals:

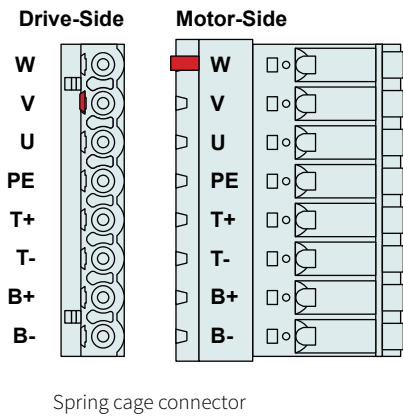
- » Tightening torque: 0.5 - 0.6 Nm
- » Screws: M3
- » Use 60/75°C copper conductors only
- » Conductor cross-section: 2.5 mm² (AWG 12)
- » Stripping length 7 mm

LinMot Article Number:
0150-3607 (DC01-C1400/X30)



Operating of the drive is only allowed with the above article! No other type of connector shall be used!

X2 MOTOR PHASES



Nr	Designation
W	Motor Phase W
v	Motor Phase V
U	Motor Phase U
PE	Protective Earth
T+	Temperature Sensor KTY+
T-	Temperature Sensor KTY-
B+	Motor Brake+
B-	Motor Brake-



The Shield of the motor cable has to be mounted with a surface as large as possible (low ohm, low impedance). Use an EMC shield clamp for fixing.

Attention: An isolated thermistor is necessary! Especially LinMot D01 and D02 Motors can not be connected!

Screw Terminals:

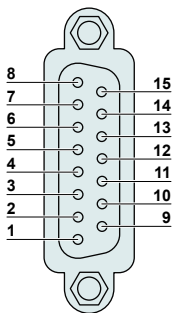
- » Spring-cage connector
- » Use 60/75°C copper conductors only
- » Conductor cross-section: 0.2–2.5 mm² (depends on Motor current)/AWG 24-12
- » Stripping length 10 mm

LinMot Article Number:
0150-3605



Operating of the drive is only allowed with the above article! No other type of connector shall be used!

X3 MOTOR ENCODER (MOTOR LINK C) / NOT AVAILABLE ON -CO DRIVES!

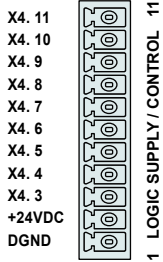


DSUB-15 (m)

Nr	Description
8	Motor Link C-
15	Motor Link C+
7	do not connect
14	do not connect
6	do not connect
13	do not connect
5	GND
12	do not connect
4	GND Sense
11	+5V Sense
3	Cos-
10	Cos+
2	Sin-
9	Sin+
1	+5V-
Case	Shield

Motor Link C is a high speed serial communication protocol to the motor encoder

X4 LOGIC SUPPLY / IO CONNECTION



Spring cage connector

LinMot Article Number:
0150-3447 (DC01-Signal/X4)



Operating of the drive is only allowed with the above article! No other type of connector shall be used!

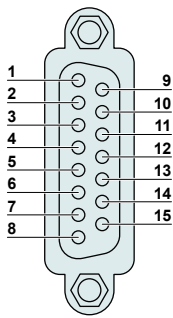
Nr	Description		
11	AnIn-	X4.11	Configurable Analog Input deifferentiell (with X4.10)
10	AnIn+	X4.10	Configurable Analog Input deifferentiell (with X4.11)
9	AnIn	X4.9	Configurable Analog Input single ended
8	In	X4.8	Configurable Input
7	In	X4.7	Configurable Input
6	In	X4.6	Configurable Input
5	In	X4.5	Configurable Input
4	Out	X4.4	Configurable Output
3	Out	X4.3	Configurable Output
2	+24VDC	Supply	Logic Supply 22-26 VDC
1	GND	Supply	Ground

Inputs (X4.5 .. X4.8): 24V / 5mA (Low Level: -0.5 to 5VDC, High Level: 15 to 30VDC)
Outputs (X4.3 .. X4.4): 24V / max.100mA, Peak 370mA (will shut down if exceeded)

Analog Inputs: 12 bit A/D converted
X4.9: Single ended analog input to GND, 0..10V, Input Resistance 51kΩhm to GND
X4.10/X4.11: Differential analog input, +/-10V, Common mode range +/-5VDC to GND
 Input resistance 11.4kΩhm for each signal to GND.

- » Use 60/75°C copper conductors only
- » Conductor cross-section max. 1.5 mm²
- » Stripping length: 10 mm
- » The 24VDC supply for the control circuit (X4.2) must be protected with an external fuse (3A slow blow)

X13 EXTERNAL POSITION SENSOR DIFFERENTIAL HALL SWITCHES



DSUB-15 (f)

Nr	SSI / BiSS / EnDat	
1	+5V DC	
2	9	A+
3	10	B+
4	11	Z+
5	12	Encoder Alarm
6	13	U+
7	14	V+
8	15	W+
Case	Shield	

Position Encoder Inputs (RS422):

Encoder Simulation Outputs (RS422):

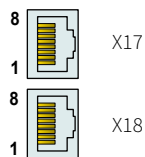
Differential Hall Switch Inputs (RS422):

Enc. Alarm In:

Sensor Supply:

Max Input Frequency: 25 M counts/s with quadrature decoding, 40ns edge separation
 Max Output Frequency: 4 M counts/s with quadrature decoding, 250ns edge separation
 Input Frequency: <1kHz
 5V / 1mA
 5VDC max. 100mA / 9VDC 100mA (SW selectable)

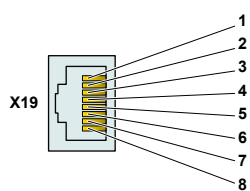
X17 - X18 REALTIME ETHERNET 10/100 MBIT/S (NOT AVAILABLE ON -CO DRIVES)



RJ-45

Nr		
X17	RT ETH In	Specification depends on RT-Bus. Please refer to interface documentation.
X18	RT ETH Out -	

X19 SYSTEM



RJ-45

Nr	Description
1	Do not connect
2	Do not connect
3	RS232 Rx
4	GND
5	GND
6	RS232 Tx
7	Do not connect
8	Do not connect

Use isolated USB-RS232 converter (Art.-No. 0150-2473) for configuration over RS232.

LEDS STATE DISPLAY



24VOK	Green	24V Logic Supply OK
EN	Yellow	Motor Enabled / Error Code Low Nibble
Warn	Yellow	Warning / Error Code High Nibble
Error	Red	Error

RT BUS LEDS



BUS OK	Green	OK
BUS Error	Red	Error

The use of these LEDs depends on the type of fieldbus which is used. Please see the corresponding manual for further information.

S1 -S2 ADDRESS SELECTORS

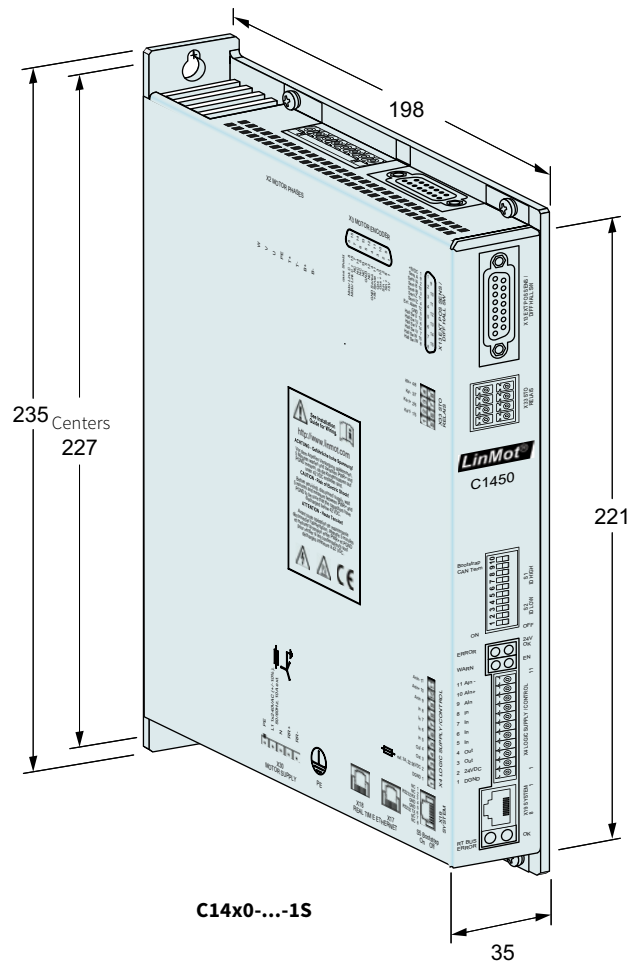


Switch	
S1 (5..8)	Bus ID High (0 ... F). Bit 5 is the LSB, bit 8 the MSB.
S2 (1..4)	Bus ID Low (0 ... F). Bit 1 is the LSB, bit 4 the MSB.

The use of these switches depends on the type of fieldbus which is used. Please see the corresponding manual for further information.

S5 BOOTSTRAP

The switch is used for initial programming. Make sure the switch is in position "off". Otherwise the drive will not start up.



C14x0-...-1S

Dimensions in mm

Servo Drive Series		C14x0-...-1S
Width	mm (in)	43.5 (1.71)
Height	mm (in)	235 (9.25)
Depth	mm (in)	193 (7.60)
Weight	kg (lb)	
Mounting		Backside 2 x M4 Bottom Side 4 x M4
Case IP Code	IP	20
Storage temperature	°C	-25...40
Transport temperature	°C	-25...70
Operating temperature	°C	0...40
Relative humidity		95% (non-condensing)
Pollution	IEC/EN 60664-1	Pollution degree 2
Shock resistance (16 ms)	-1S option	2 g
Vibration resistance (10-200 Hz)	-1S option	1 g
Max. Case Temperature	°C	90
Max. Power Dissipation	W	100
Mounting place		In the control cabinet
Mounting position		vertical
Distance between drives	mm (in)	≥ 200 (8) top /bottom Drives with fans can be mounted vertically side by side

Servo Drives		
Item	Description	Part Number
C1450-SE-VS-1S-000	EtherCAT SoE Drive (1x240V/20A), STO	0150-2660
C1450-SC-VS-1S-000	Sercos III Drive (1x240V/20A), STO	0150-2659
C1450-PN-VS-1S-000	ProfiNet Drive (1x240V/20A), STO	0150-2658
C1450-PL-VS-1S-000	POWERLINK Drive (1x240V/20A), STO	0150-2656
C1450-PD-VS-1S-000	PROFIdrive Drive (1x240V/20A), STO	0150-2664
C1450-IP-VS-1S-000	Ethernet/IP Drive (1x240V/20A), STO	0150-2666
C1450-EC-VS-1S-000	EtherCAT Drive (1x240V/20A), STO	0150-2657
C1450-DS-VS-1S-000	EtherCAT CoE Drive (1x240V/20A), STO	0150-2665
C1400-LU-VS-1S-000	LinUDP Drive (1x240V/20A), STO	0150-2667