SERIES E1400

- ✓ 3x400...480VAC
- ✓ Controls LinMot motors / AC servomotors
- ✓ Time Curves
- ✓ Real Time (Streaming)
- ✓ Synchronous control (Drive profiles)
- ✓ Master Encoder Synchronization (In/Out)
- ✓ PLC or Stand-Alone Solutions
- ✓ Industrial Ethernet Configuration / Remote Access Ethernet
- ✓ Safe Torque Off
- ✓ Safe Limited Speed Ready
- ✓ Interface for optional incremental and absolute sensor
- ✓ Position Encoder Simulation (RS 422)
- ✓ Master / Slave Solutions
- ✓ ± 10 VDC Force / Speed Control
- ✓ Supports Plug and Play

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Servo Drive Series E1400

Series E1400 Servo Drives are modular axis drives, with 32-bit position resolution and an integrated power stage 3x400VAC, for linear motors and rotary motors.

The drives are suitable for simplest, standard and high-end positioning tasks across the entire force range of the LinMot product range.

CONNECTION TO MACHINE DRIVE

The Series E1400 Servo Drives can be actuated by machine controls from many manufacturers or brands, via digital inputs and outputs, RS232 or RS485 serial interface, CanBus CANopen and DeviceNet interfaces, Profibus DP, 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 interface on Servo Drive with fieldbus interfaces or industrial ETHERNET allows safe stop of the drives via control signals, per EN 954-1, without interrupting the power supply.

LOGIC AND POWER SUPPLY

The Servo Drives have two separate power supply inputs 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.
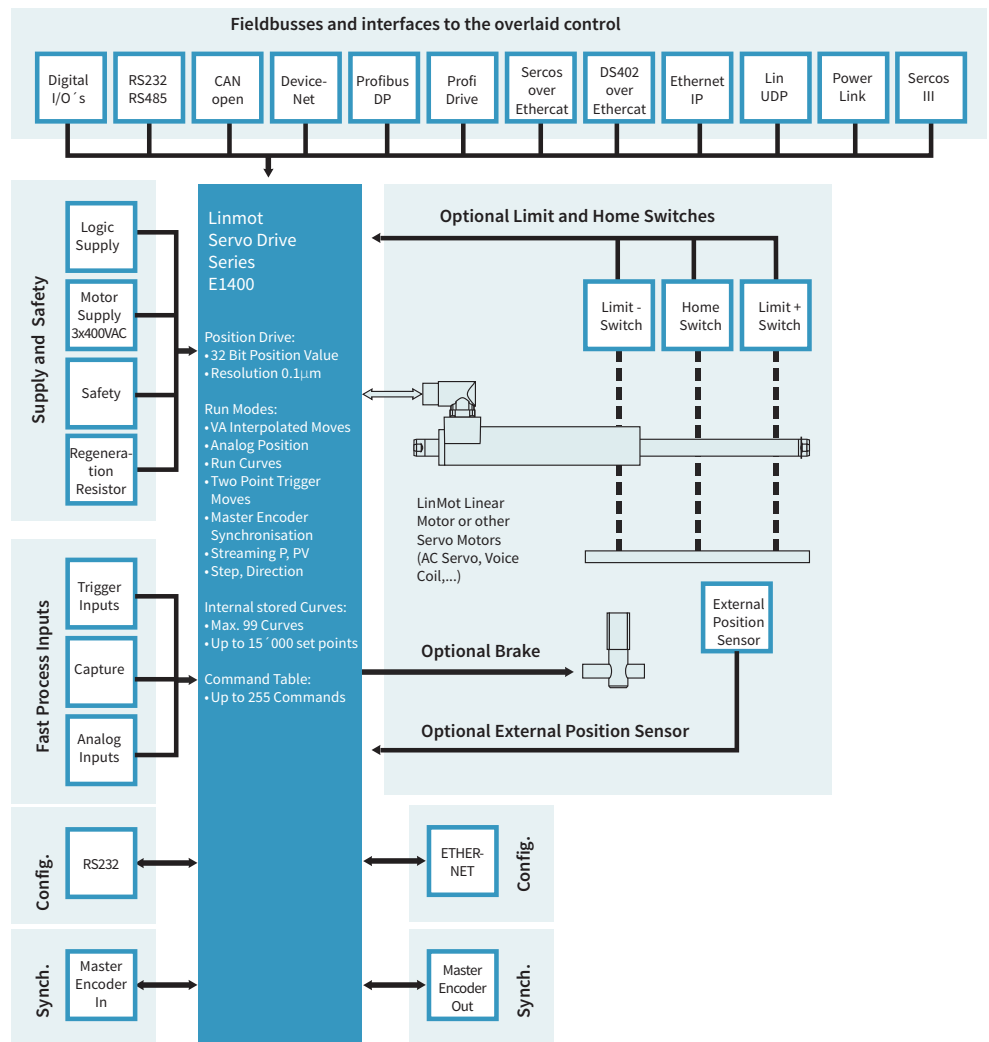
LinMot®

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 control 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 E1400 Servo Drives have analog and digital inputs and outputs, serial interfaces, fieldbusses, 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 any PLC or IPC solution.

With flexibility and a compact form factor, LinMot Series E1400 Servo Drives provide a complete solution for a flexible drive concept in single and multiple axes applications, with linear motors and other actuators.

Fieldbusses and interfaces to the overlaid control

| Digital I/O´s | RS232 RS485 | CAN open | Device-Net | Profibus DP | Profi Drive | Sercos over Ethercat | DS402 over Ethercat | Ethernet IP | Lin UDP | Power Link | Sercos III |

Supply and Safety
- Logic Supply
- Motor Supply 3x400VAC
- Safety
- Regeneration Resistor

Linmot Servo Drive Series E1400

Position Drive:
- 32 Bit Position Value
- Resolution 0.1µm

Run Modes:
- VA Interpolated Moves
- Analog Position
- Run Curves
- Two Point Trigger Moves
- Master Encoder Synchronisation
- Streaming P, PV
- Step, Direction

Internal stored Curves:
- Max. 99 Curves
- Up to 15´000 set points

Command Table:
- Up to 255 Commands

Optional Limit and Home Switches
- Limit - Switch
- Home Switch
- Limit + Switch

LinMot Linear Motor or other Servo Motors (AC Servo, Voice Coil,...)

External Position Sensor

Optional Brake

Optional External Position Sensor

Fast Process Inputs
- Trigger Inputs
- Capture
- Analog Inputs

Config.
- RS232
- ETHER-NET

Synch.
- Master Encoder In
- Master Encoder Out

MASTER ENCODER

For synchronization to a mechanical master shaft, or a rotating main drive, the Axis (linear motors and rotary motors) can be coupled to an electronic main shaft via the Master Encoder Interface.

The encoder signal from the main shaft can be passed through by the Master Encoder Interface, so that any number of linear motors can be synchronized to the main shaft.

MOTOR INTERFACES

E1400 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

Parameterization and configuration of the Servo Drive is done via the Ethernet interface on the front side for simultaneous configuration of several drives.

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.

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INTERPOLATED MOVES

Stroke [mm]

Goto 100 mm
v_{max} = 2,5 m/s
a_{max} = 3,0 m/s²

Time [ms]
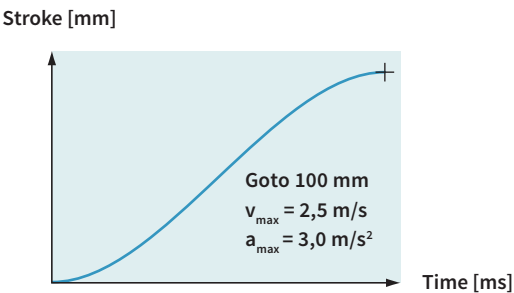
For direct position targets, using absolute or relative positioning, the desired position is reached using acceleration and velocity-limited motion profiles or jerk optimized profiles (jerk limited and Bestehorn). Positioning commands can be invoked via the serial interfaces, CANopen, DeviceNet, Profibus, 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/s² (32Bit)

## TIME CURVES

Stroke [mm]

Start Curve 1

Curve 1

Time [ms]
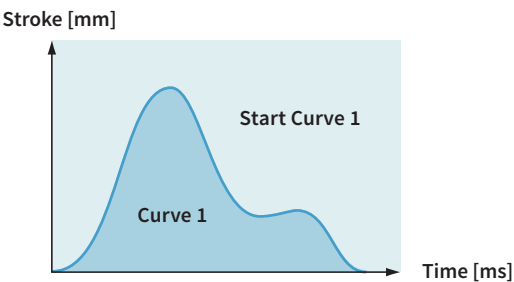
Up to 100 different time curves can be stored on Series E1400 drives, with up to 16`000 individual waypoints. The motor can thus travel along time curves of any complexity, such as those generated by CAD programs and stored in the drive (Excel CSV format). The time curves can be invoked via the serial interface, fieldbusses, ETHERNET, or the trigger input.

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

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PROFILED MOVES

Stroke [mm]

**Goto Pos 125 mm
with Profil 1**

Curve 1

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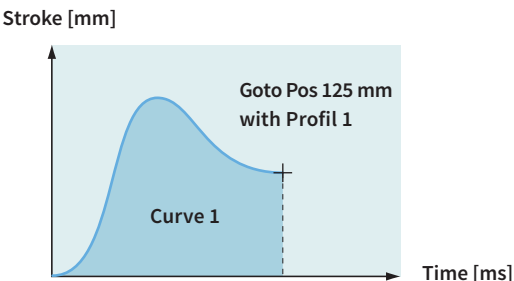
For travel to an absolute position, or shifting by a relative position, any desired motion rules can be stored besides the VA interpolator. They are stored in the drive as motion profiles (Excel CSV format). The positions can be approached, for example, with a sinusoidal motion to optimize power loss,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

Stroke [mm]

Time [ms]
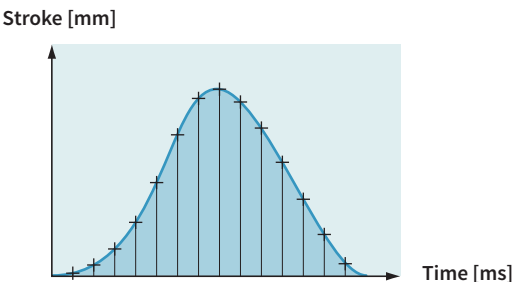
Overlaid NC drives with fieldbus or ETHERNET interfaces communicate with the Servo Drives via "Position Streaming". The position and velocity calculated in the overlaid control is transmitted to the Servo Drive cyclically. The P, PV, or PVT mode is available for this transmission.

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

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EASY STEPS

Input 1	Pos 125 mm
Input 2	Pos 250 mm
Input 3	Curve 1
Input 4	Pos -30 mm
Input 5	Pos +12,5 mm
Input 6	Curve 2
Input 7	Pos 2 mm
Input 8	Pos -12,5 mm

With the Easy Steps function, up to 8 positions or independent travel commands can be stored on the drive, and addressed via 8 digital inputs or fieldbus interfaces/ETHERNET.

|	
Digital inputs:	max. 8
Interface:	X4
Scanning rate:	200 µsec

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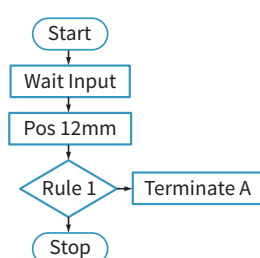
Entire motion sequences with up to 255 individual motion commands can be stored in the Command Table. This is primarily advantageous if complete motion sequences need to be executed very quickly, without dead time from the overlaid drive. In the Command Table, the programmer has access to all motion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

|	
Commands:	max. 255
Cycle time:	100 µsec

MASTER ENCODER SYNCHRONIZATION (MT)
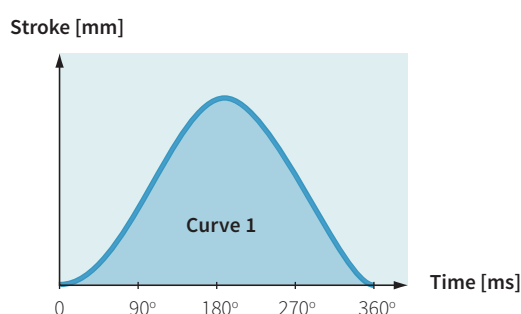
For synchronization to an external main or master shaft, the linear motor travels along the motion profiles stored in the drive, at the machine speed (machine angle 0…360°). Using this function, mechanical cam discs can be replaced with highly dynamic linear motors. The motion profiles can be freely defined, and the correct motion profile can be invoked during product changeover with no changeover time.

|	
Motion profiles:	Max. 100 curve profiles
Curve points:	Max. 16'000 points
Encoder counter:	32 Bit
Encoder input:	A/B/Z (RS422)
Max. counting frequency	Max. 4.5 MHz

BELT SYNCHRONIZATION
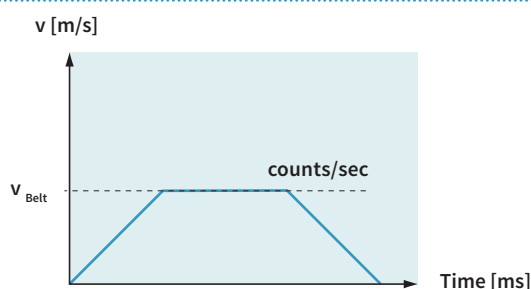
Synchronization to a belt speed can be done using the Master Encoder Interface or Step/Direction/ Zero interface. Applications such as the "flying saw", synchronous loading or unloading, synchronous filling or labeling of bottles or containers on a conveyor belt, and many other applications can be implemented in this way.

|	
Encoder Counter:	32 Bit
Encoder Input:	A/B/Z (RS422), max. 5 MHz
	STEP/DIR/ZERO
Max. counting frequency	Max. 4.5 MHz

LinMot®
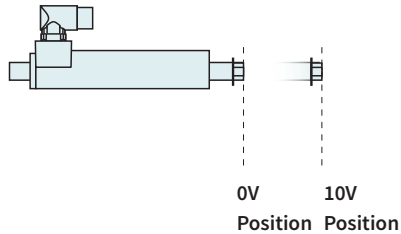
ANALOG POSITION

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 or X20
Voltage range:	0-10VDC or ±10V
Resolution:	12 Bit
Scanning rate:	>=100 μsec (adjustable)

EASY STEPS PARAMETER SCALE

Maximum Force [0...10V => 0...100%]
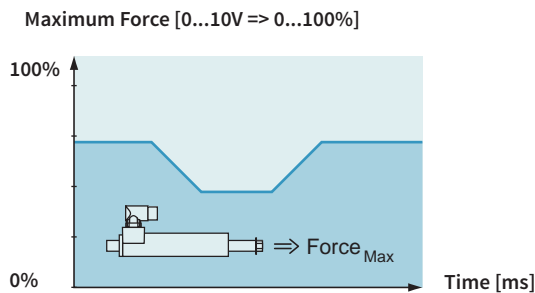
Easy Steps provide the ability to parameterize internal parameters using two analog inputs. If, for example, the maximum motor current is read at an analog input, then the maximum motor force can be provided as analog for freely programmable joining processes.

Inputs:	2 x Analog (X4.4, X4.7)
Voltage range:	0-10VDC
Resolution:	12 Bit
Scanning rate:	200 μsec

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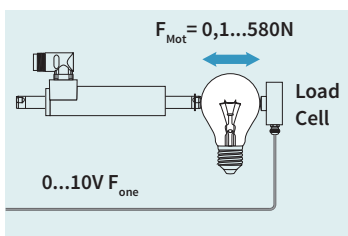
Using the force control technology function, precise joining processes can be implemented reliably and reproducibly with high-precision force control. For force control, the current motor force is measured with a load cell and controlled in the drive. Joining process or quality checks with high requirements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

Analog Input:	0-10V or ±10V
Resolution:	12 Bit
Min. force resolution:	0.1N

WINDING APPLICATION
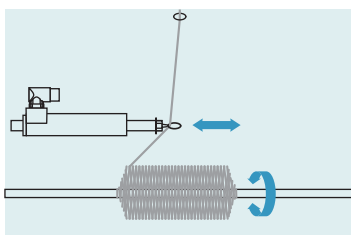
For winding textile yarns, glass fiber optics, or wires, a complete functional block is available that controls the entire sequence of a complete winding process.

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X2: Motor Phases
X32: Brake
X33: Safety Relais (1S Option only)
X3: Motor Encoder

X11: Master Encoder OUT
X10: Master Encoder IN
X8: CMD (RS485 / CAN) OUT
X7: CMD (RS485 / CAN) IN
S5: Bus Termination

X13: External Position Sensor

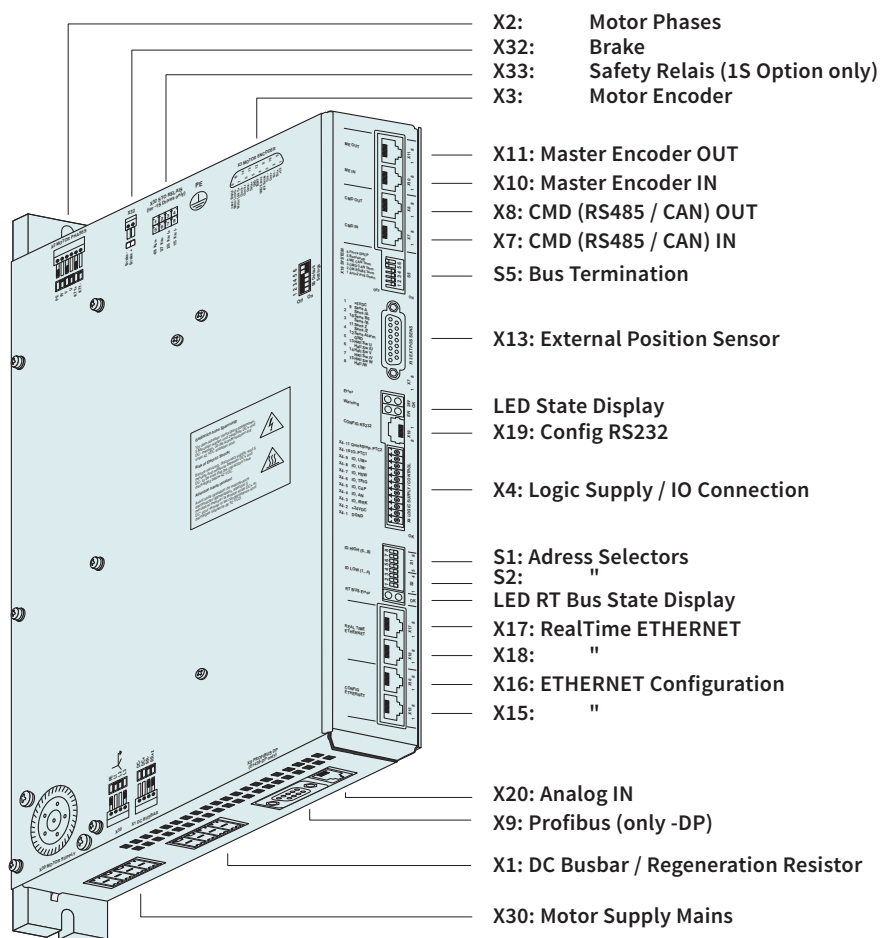LED State Display
X19: Config RS232

X4: Logic Supply / IO Connection

S1: Adress Selectors
S2: "
LED RT Bus State Display
X17: RealTime ETHERNET
X18: "
X16: ETHERNET Configuration
X15: "

X20: Analog IN
X9: Profibus (only -DP)
X1: DC Busbar / Regeneration Resistor
X30: Motor Supply Mains

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Interfaces	E1450-PL-QN	E1430-PN-QN	E1450-PD-QN	E1450-SC-QN	E1450-IP-QN	E1450-LU-QN	E1450-EC-QN	E1450-DS-QN	E1450-SE-QN	E1430-DP-QN	E1400-GP-QN
CANopen											•
LinRS											•
POWERLINK	•										
PROFINET		•									
PROFINET Profidrive			•								
SERCOS III				•							
ETHERNET IP					•						
LinUDP						•					
ETHERCAT							•				
ETHERCAT CiA402								•			
ETHERCAT SoE									•		
PROFIBUS DP										•	

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PROFI NET   PROFI BUS   EtherNet/IP   ETHERNET POWERLINK   sercos the automation bus   EtherCAT.

E1450-PL-QN

E1450-PN-QN

E1450-PD-QN

E1450-SC-QN

E1450-IP-QN

E1450-LU-QN

E1450-EC-QN

E1450-DS-QN

E1450-SE-QN

E1430-DP-QN

E1400-GP-QN

» Absolute & Relative Positioning
» Travel Along Time Curves
» Positioning using Motion Profiles
» Internally stored Motion Commands
» Internally stored Motion Sequences
» Master Encoder Synchronization
» Synchronization to Belt Speed
» Position Streaming
» Analog Position Target
» Analog Parameter Scaling
» Winding Function Block
» Force Control Technology Function
» Customer-Specific Functions

X2:	Motor Phases
X32:	Brake
X33:	Safety Relais (1S Option only)
X3:	Motor Encoder

X11: Master Encoder OUT
X10: Master Encoder IN
X8: CMD (RS485 / CAN) OUT
X7: CMD (RS485 / CAN) IN
S5: Bus Termination

X13: External Position Sensor

LED State Display
X19: Config RS232

X4: Logic Supply / IO Connection

S1: Adress Selectors
S2:   "
LED RT Bus State Display
X17: RealTime ETHERNET
X18:   "
X16: ETHERNET Configuration
X15:   "

X20: Analog IN
X9: Profibus (only -DP)

X1: DC Busbar / Regeneration Resistor

X30: Motor Supply Mains

INDUSTRIAL ETHERNET

Series E1400 drives allow integration of LinMot linear motors in control concepts with industrial ETHERNET interfaces. The user can integrate Series E1400 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 any problem.

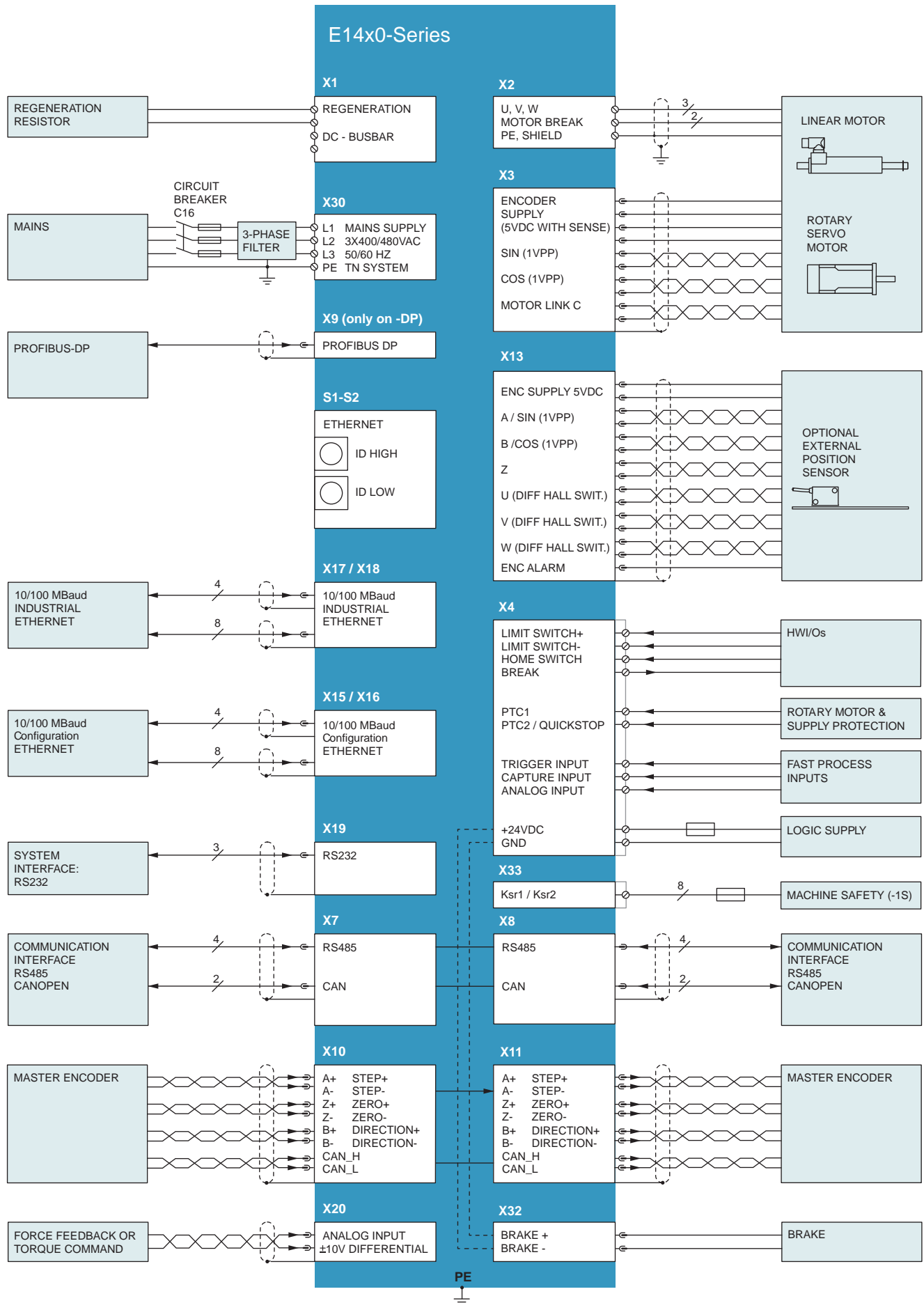Series E1400 Servo Drives support the following industrial ETHERNET protocols:

» Profinet
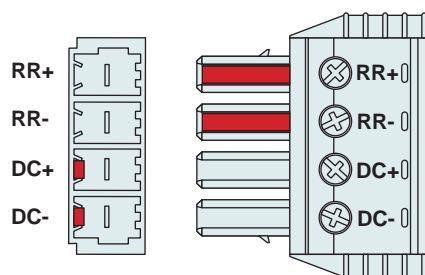» ETHERNET IP
» PowerLink
» EtherCat
» Sercos III
» Profibus

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

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LinMot®

E14x0-Series

X1
REGENERATION RESISTOR — REGENERATION

DC - BUSBAR

X30
MAINS — CIRCUIT BREAKER C16 — 3-PHASE FILTER
L1 MAINS SUPPLY
L2 3X400/480VAC
L3 50/60 HZ
PE TN SYSTEM

X9 (only on -DP)
PROFIBUS-DP — PROFIBUS DP

S1-S2
ETHERNET
ID HIGH
ID LOW

X17 / X18
10/100 MBaud INDUSTRIAL ETHERNET — 4 / 8 — 10/100 MBaud INDUSTRIAL ETHERNET

X15 / X16
10/100 MBaud Configuration ETHERNET — 4 / 8 — 10/100 MBaud Configuration ETHERNET

X19
SYSTEM INTERFACE: RS232 — 3 — RS232

X7
COMMUNICATION INTERFACE RS485 CANOPEN — 4 / 2 — RS485 / CAN

X10
MASTER ENCODER
A+ STEP+
A- STEP-
Z+ ZERO+
Z- ZERO-
B+ DIRECTION+
B- DIRECTION-
CAN_H
CAN_L

X20
FORCE FEEDBACK OR TORQUE COMMAND — ANALOG INPUT ±10V DIFFERENTIAL

X2
U, V, W
MOTOR BREAK
PE, SHIELD — 3 / 2 — LINEAR MOTOR / ROTARY SERVO MOTOR

X3
ENCODER SUPPLY (5VDC WITH SENSE)
SIN (1VPP)
COS (1VPP)
MOTOR LINK C

X13
ENC SUPPLY 5VDC
A / SIN (1VPP)
B /COS (1VPP)
Z
U (DIFF HALL SWIT.)
V (DIFF HALL SWIT.)
W (DIFF HALL SWIT.)
ENC ALARM — OPTIONAL EXTERNAL POSITION SENSOR

X4
LIMIT SWITCH+
LIMIT SWITCH-
HOME SWITCH
BREAK — HWI/Os

PTC1
PTC2 / QUICKSTOP — ROTARY MOTOR & SUPPLY PROTECTION

TRIGGER INPUT
CAPTURE INPUT
ANALOG INPUT — FAST PROCESS INPUTS

+24VDC
GND — LOGIC SUPPLY

X33
Ksr1 / Ksr2 — 8 — MACHINE SAFETY (-1S)

X8
RS485
CAN — 4 / 2 — COMMUNICATION INTERFACE RS485 CANOPEN

X11
A+ STEP+
A- STEP-
Z+ ZERO+
Z- ZERO-
B+ DIRECTION+
B- DIRECTION-
CAN_H
CAN_L — MASTER ENCODER

X32
BRAKE +
BRAKE - — BRAKE

PE

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X1 — DC BUSBAR / REGENERATION RESISTOR

Nr	Designation
RR+	Positive connection for Regeneration Resistor
RR-	Negative connection for Regeneration Resistor
DC+	DC busbar +
DC-	DC busbar -

For coupling the DC busbar of different drives, contact support@linmot.com for additional information.

It's not allowed to power the drives through DC+ and DC-!

Screw Terminals:
» Tightening torque: 0.7 - 0.8 Nm (6.2 – 7.0 lbin)
» Use a cross-head screw driver (PH1)
» Use 60/75°C copper conductors only
» Conductor cross-section: 0.25–4 mm² (depends on Motor current)/AWG 24-12
» Stripping length 10 mm

## X30 — MOTOR SUPPLY MAINS
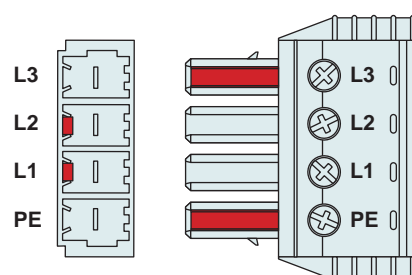
Nr	Designation
L1 - L3	3 x 400/480VAC 50/60 Hz
PE	Protective Earth

Screw Terminals:
» Tightening torque: 0.7 - 0.8 Nm (6.2 – 7.0 lbin)
» Use a cross-head screw driver (PH1)
» Use 60/75°C copper conductors only
» Conductor cross-section: 2.5–4 mm² (depends on Motor current) / AWG 24 -12
» Stripping length 10 mm

X2 — MOTOR PHASES
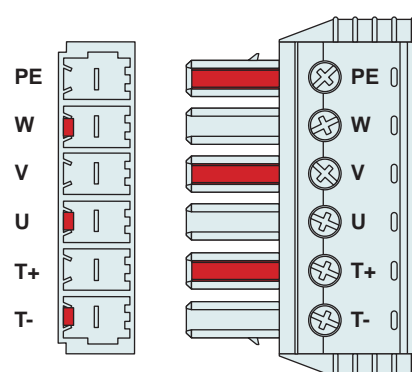
Nr	Designation
PE	Protective Earth
W	Motor Phase W
V	Motor Phase V
U	Motor Phase U
T+	Temperature Sensor KTY+ (on DC- voltage level!)
T-	Temperature Sensor KTY- (on DC- voltage level!)

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.
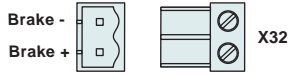
Attention:
An isolated thermistor is necessary! Especially LinMot D01 and D02 Motors can not be connected!
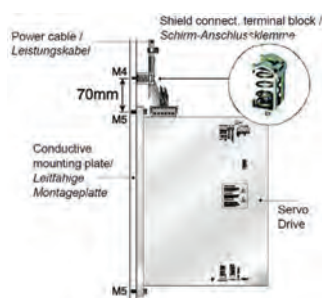
Screw Terminals:
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» Use 60/75°C copper conductors only
» Conductor cross-section: 0.25–4 mm² (depends on Motor current)/AWG 24 -12
» Stripping length 10 mm

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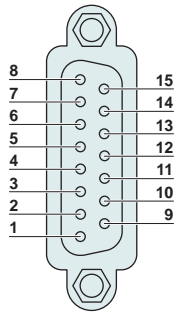
X32   MOTOR BRAKE

Brake -
Brake +

X32

| Brake - |
| Brake + |

The brake is powered internally by 24VDC from X4!
It's suitable for driving inductive loads up to 1.5A (preliminary).
The V1 Drives had a separate connector for the brake supply (X31).

X3   MOTOR ENCODER (MOTOR LINK C)

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

DSUB-15 (m)

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

X4   LOGIC SUPPLY / IO CONNECTION

X4. 11
X4. 10
X4. 9
X4. 8
X4. 7
X4. 6
X4. 5
X4. 4
X4. 3
+24VDC
DGND

1 LOGIC SUPPLY / CONTROL 11
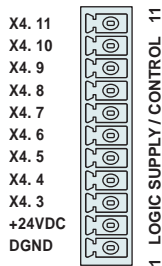
Spring cage connector

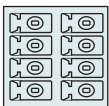| Nr	Description		
11	Input	Quickstop	Quickstop, PTC2 Input
10	I/O	X4.10	Configurable IO, PTC 1 Input
9	I/O	X4.9	Configurable IO
8	I/O	X4.8	Configurable IO
7	I/O	X4.7	Configurable IO, Analog Input for EasySteps Application
6	I/O	X4.6	Configurable IO, Trigger Input
5	I/O	X4.5	Configurable IO
4	I/O	X4.4	Configurable IO, Analog Input (configurable as high imp. Input)
3	I/O	X4.3	Configurable IO
2	+24VDC	Supply	Logic Supply 22-26 VDC
1	GND	Supply	Ground

Inputs (X4.3 .. X4.11):   shortcut 24V / 5mA (Low Level: –0.5 to 5VDC, High Level: 15 to 30VDC)
Outputs (X4.3 .. X4.10):   24V / max.100mA, Peak 370mA (will shut down if exceeded)

Supply 24V / type. 1A / max. 2.5A (if all outputs "on" with max. load.)
»   Use 60/75°C copper conductors only
»   Conductor cross-section max. 1.5 mm^2
»   Stripping length: 10 mm

X33   SAFETY RELAYS (ONLY WITH THE -1S OPTION)

X33. 4/8 Ksr+
X33. 3/7 Ksr-
X33. 2/6 Ksr f+
X33. 1/5 Ksr f-

X33 STO RELAYS

Spring cage connector

Nr	Description	
4/8	Ksr +	Safety Relay 1 / 2 Input positive
3/7	Ksr -	Safety Relay 1 / 2 Input negative
2/6	Ksr f+	Safety Relay 1 / 2 feedback positive
1/5	Ksr f-	Safety Relay 1 / 2 feedback negative

»   Use 60/75°C copper conductors only
»   Conductor cross-section max. 1.5mm^2 (AWG 16)
»   Stripping length: 10 mm
»   Never connect the safety relays to the logic supply of the drive!
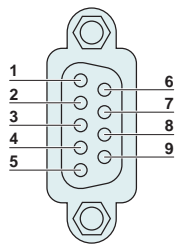
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X7-X8   CMD (RS485/CAN)
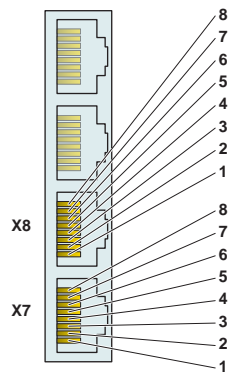
Nr	Description	
1	RS485_Rx+	A
2	RS485_Rx-	B
3	RS485_Tx+	Y
4	GND	
5	GND	
6	RS485_Tx-	Z
7	CAN_H	
8	CAN_L	
Case	Shield	

X8

X7

RJ-45

Use twisted pair (1-2, 3-6, 4-5, 7-8) cable for wiring.
The built in RS485 and CAN terminations can be activated by S5.2 and S5.3. X7 is internally connected to X8 (1:1 connection)

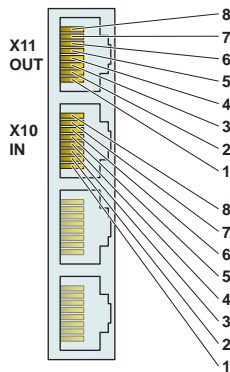## X9   PROFIBUS DP (ONLY AVAILABLE ON E1430-DP-QN)

Nr		Description	
1		Not connected	
	6	+5V	(isolated)
2		Not connected	
	7	Not connected	
3		RxD/TxD-P	
	8	RxD/TxD-N	
4		CNTR-P	
	9	Not connected	
5		GND	(isolated)
Case		Shield	

DSUB-9 (f)

Max. Baud rate: 12 Mbaud

X10-X11   MASTER ENCODER IN (X10) / MASTER ENCODER OUT (X11)

X11 OUT

X10 IN

Nr	Incremental	Step/Direction	EIA/TIA 568A colors
1	A+	Step+	Green/White
2	A-	Step-	Green
3	B+	Direction+	Orange/White
4	Z+	Zero+	Blue
5	Z-	Zero-	Blue/White
6	B-	Direction-	Orange
7	CAN_H	CAN_H	Brown/White
8	CAN_L	CAN_L	Brown
Case	Shield	Shield	

RJ-45

Use twisted pair (1-2, 3-6, 4-5, 7-8) cable for wiring.

Master Encoder Inputs: Differential RS422, max. 25 M counts/s, 40ns edge separation
Master Encoder Outputs: Amplified RS422 differential signals from Master Encoder IN (X10)

The CAN bus can be terminated with S5.4.
All devices, which are connected to X10/X11 must be referenced to the same ground.

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X13   EXTERNAL POSITION SENSOR DIFFERENTIAL HALL SWITCHES
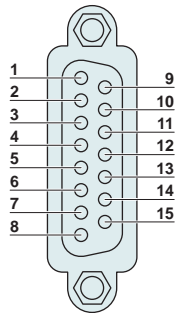
Nr		Description		SSI / BiSS / EnDat	
1		+5V DC		+5V DC	
	9		A+		A+
2		A-		A-	
	10		B+		B+
3		B-		B-	
	11		Z+		Data+
4		Z-		Data-	
	12		Encoder Alarm		Encoder Alarm
5		GND		GND	
	13		U+		nc
6		U-		nc	
	14		V+		nc
7		V-		nc	
	15		W+		Clk+
8		W-		Clk-	
Case		Shield		Shield	

DSUB-15 (f)

Position Encoder Inputs (RS422):   Max Input Frequency: 25 M counts/s with quadrature decoding, 40ns edge separation

Encoder Simulation Outputs (RS422):   Max Output Frequency: 4 M counts/s with quadrature decoding, 250ns edge separation

Differential Hall Switch Inputs (RS422):   Input Frequency: <1kHz
Enc. Alarm In: 5V / 1mA
Sensor Supply: 5VDC max. 100mA / 9VDC 100mA (SW selectable)

X15-X16   ETHERNET CONFIGURATION 10/100 MBIT/S

X16

X15
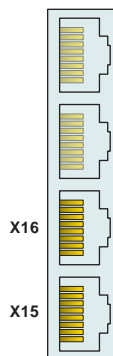
RJ-45

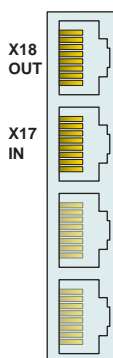| Nr	Description
X16	Internal 2-Port 10BASE-T and 100BASE-TX Ethernet Switch with Auto MDIX.
X15	

X17 - X18   REALTIME ETHERNET 10/100 MBIT/S

X18 OUT

X17 IN

RJ-45

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

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X19   SYSTEM

X19

RJ-45
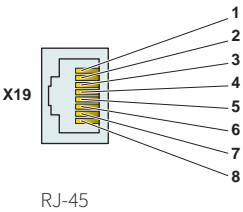
Nr	Description
1	Do not connect
2	Do not connect
3	RS232 Rx
4	GND
5	GND
6	RS232 Tx
7	Do not connect
8	Do not connect
case	Shield

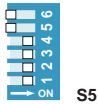Use isolated USB-RS232 converter (Art.-No. 0150-2473) for configuration over RS232.

X20   ANALOG IN (+-10V DIFFERENTIAL ANALOG INPUT)

X20

RJ-45
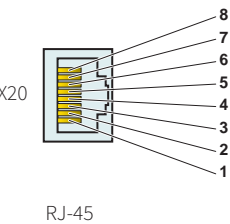
Nr	Description
1	Do not connect
2	Do not connect
3	Analog In-
4	GND
5	GND
6	Analog In+
7	Do not connect
8	Do not connect
case	Shield

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S5   BUS TERMINATION / ANIN2 PULL DOWN

Switch	E1400
S5	Switch 6: Override Configuration Ethernet to DHCP
	Switch 5: Bootstrap: Must be off for normal operation
	Switch 4: CAN termination on ME (120R between pin 7 and 8 on X10/X11) on/off
	Switch 3: CAN termination on CMD (120R between pin 7 and 8 on X7/X8) on/off
	Switch 2: Termination resistor for RS485 on CMD (120R between pin 1 and 2 on X7/X8) on/off
	Switch 1: AnIn2 pull down (4k7 Pull down on X4.4). Set to ON, if X4.4 is used as digital output.

Factory setting: all switches "on" except S5.5 (Bootstrap) and S5.6 (Override to DHCP)

LEDS   STATE DISPLAY

Error 🔴🟢 **24VOK**
Warn 🟡🟡 **EN**

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

LEDS   RT BUS LED

BUS 🔴🟢 **BUS**
Error   **OK**

BUS OK	Green	OK
BUS Error	Red	Error

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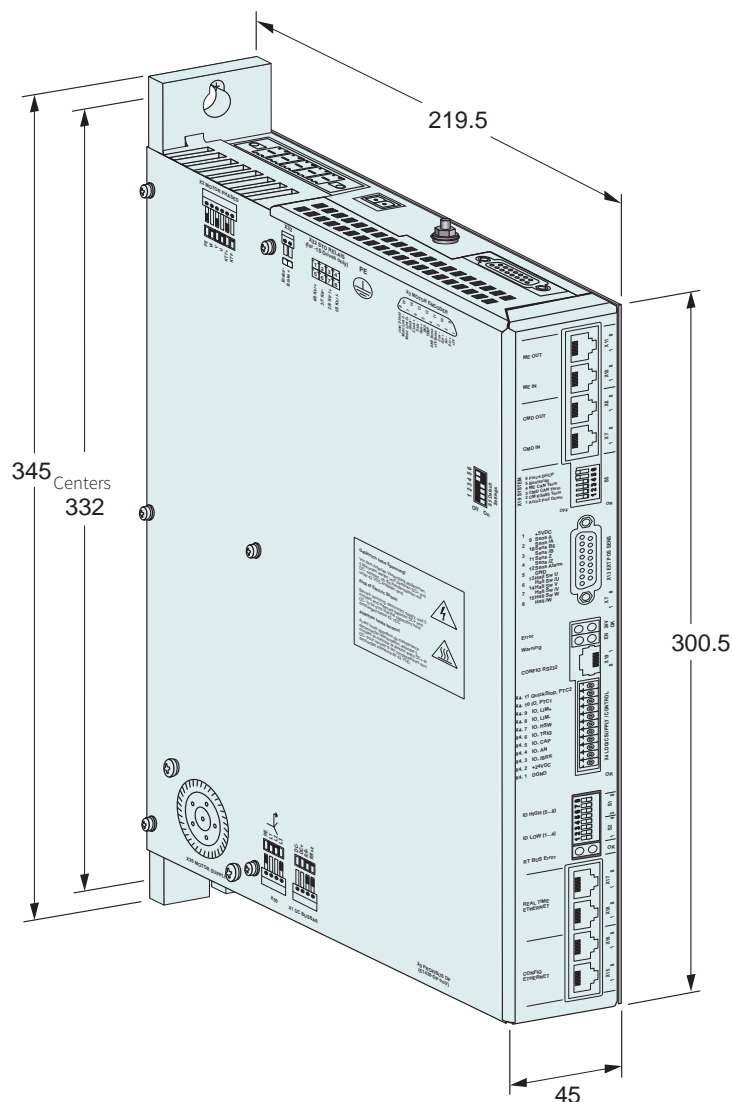Please see the corresponding manual for further information.

S1 - S2   ADRESS 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.

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219.5

345 Centers

332

300.5

45

Dimensions in mm

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E1400		
Width	mm (in)	45 (1.8)
Height	mm (in)	300 (11.8)
Height with fixings	mm (in)	345 (13.6)
Depth	mm (in)	219.5 (8.7)
Weight	kg (lb)	3.7 (8.2)
Mounting	mm (in)	2 x M5, Distance 332 (13.07)
Case IP Code	IP	20
Storage temperature	°C	-25…40
Transport temperature	°C	-25…70
Operating temperature	°C	0…40 at rated data 40…50 with power derating
Relative humidity		95% (non-condensing)
Pollution	IEC/EN 60664-1	Pollution degree 2
Shock resistance (16 ms)	-1S option	3.5g
Vibration resistance (10-200Hz)	-1S option	1g
Max. case temperature	°C	90
Max. power dissipation	W	100
Mounting place		In the control cabinet
Mounting position		vertical
Distance between Drives (fan cooling is integrated on V2 Drives)	mm (in)	≥ 15 (0.6) left and right ≥ 200 (8) top / bottom

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Servo Drives

Item	Description	Part Number
E1400-GP-QN-0S	GENERAL PURPOSE Drive (3x400/480VAC/ 28A / 50/60Hz)	0150-1779
E1430-DP-QN-0S	PROFIBUS-DP Drive (3x400/480VAC/ 28A / 50/60Hz)	0150-1786
E1450-DS-QN-0S	ETHERCAT CoE (3x400/480VAC/ 28A / 50/60Hz)	0150-2411
E1450-EC-QN-0S	ETHERCAT Drive (3x400/480VAC/ 28A / 50/60Hz)	0150-1784
E1450-IP-QN-0S	ETHERNET IP Drive (3x400/480VAC/ 28A / 50/60Hz)	0150-1782
E1450-LU-QN-0S	LinUDP Drive (3x400/480VAC/ 28A / 50/60Hz)	0150-2494
E1450-PD-QN-0S	PROFIdrive Drive (3x400/480VAC/ 28A / 50/60Hz)	0150-2621
E1450-PL-QN-0S	POWERLINK Drive (3x400/480VAC/ 28A / 50/60Hz)	0150-1791
E1450-PN-QN-0S	PROFINET Drive (3x400/480VAC/ 28A / 50/60Hz)	0150-1783
E1450-SC-QN-0S	SERCOS III Drive (3x400/480VAC/ 28A / 50/60Hz)	0150-1785
E1450-SE-QN-0S	SERCOS over ETHERCAT Drive (3x400/480VAC/ 28A / 50/60Hz)	0150-1899
E1400-GP-QN-1S	GENERAL PURPOSE Drive (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2351
E1430-DP-QN-1S	PROFIBUS-DP Drive (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2352
E1450-DS-QN-1S	ETHERCAT CoE (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2412
E1450-EC-QN-1S	ETHERCAT Drive (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2353
E1450-IP-QN-1S	ETHERNET IP Drive (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2354
E1450-LU-QN-1S	LinUDP Drive (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2495
E1450-PD-QN-1S	PROFIdrive Drive (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2622
E1450-PL-QN-1S	POWERLINK Drive (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2355
E1450-PN-QN-1S	PROFINET Drive (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2356
E1450-SC-QN-1S	SERCOS III Drive (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2357
E1450-SE-QN-1S	SERCOS over ETHERCAT Drive (3x400/480VAC/ 28A / 50/60Hz / STO)	0150-2358

Accessories

Item	Description	Part Number
DC01-E1400/X4/X30	Drive Connector Set for E1400-0S	0150-3452
DC01-E1400/X4/X30/X33	Drive Connector Set for E1400-1S	0150-3453
DC01-E1400/X1	Drive Connector Regeneration / Busbar	0150-3445
DC01-E1400/X30	Drive Connector 3x400VAC Supply	0150-3449
DC01-E1400/X32	Drive Connector Brake	0150-3450

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