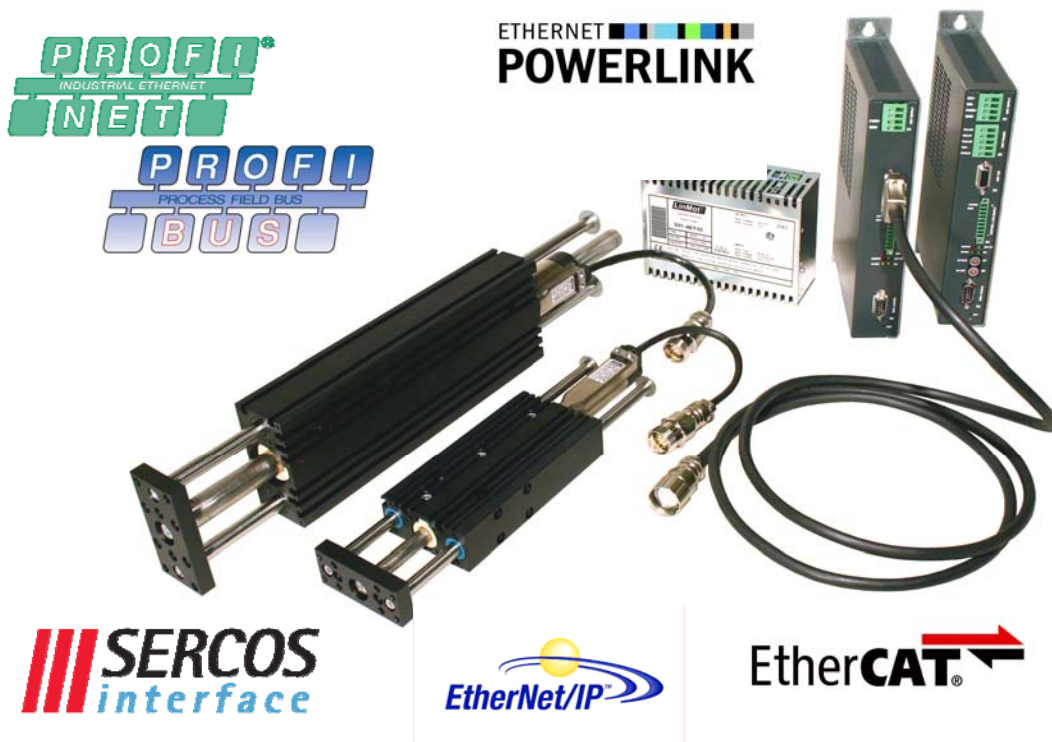

LinMot®

Documentation for installing the following Controllers:

E1200-GP-UC
E1230-DP-UC
E1250-PL-UC
E1250-EC-UC
E1250-PN-UC
E1250-IP-UC
E1250-SC-UC



Servo Controller Data Sheet & Installation Guide

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Note

The information in this documentation reflects the stage of development at the time of press and is therefore without obligation.

NTI AG reserves itself the right to make changes at any time and without notice to reflect further technical advance or product improvement.

Document version 3.11a / January, 2010

Table of Content

IMPORTANT SAFETY NOTES FOR E1200 SERIES CONTROLLERS.....	4
SYSTEM OVERVIEW.....	5
FUNCTIONALITY AND INTERFACES	6
POWER SUPPLY AND GROUNDING	7
DESCRIPTION OF THE CONNECTORS / INTERFACES	8
ERROR CODES	12
PHYSICAL DIMENSION	12
POWER SUPPLY REQUIREMENTS	13
REGENERATION OF POWER / REGENERATION RESISTOR.....	13
ORDERING INFORMATION	14
INTERNATIONAL CERTIFICATIONS.....	14
DECLARATION OF CONFORMITY CE-MARKING	15
CONTACT ADDRESSES	16

Important safety notes for E1200 series controllers

CAUTION!



In order to assure a safe and error free operation, and to avoid severe damage to system components, all system components must be directly attached to a single ground bus that is earth or utility grounded (see chapter Power Supply and Grounding).



Each system component should be tied directly to the ground bus (star pattern), rather than daisy chaining from component to component. (LinMot motors are properly grounded through their power cables when connected to LinMot controllers) (see chapter Power Supply and Grounding).



All connectors must not be connected or disconnected while DC voltage is present. Do not disconnect system components until all LinMot controller LED's have turned off. (Capacitors in the power supply may not fully discharge for several minutes after input voltage has been disconnected). Failure to observe these precautions may result in severe damage to electronic components in LinMot motors and/or controllers.

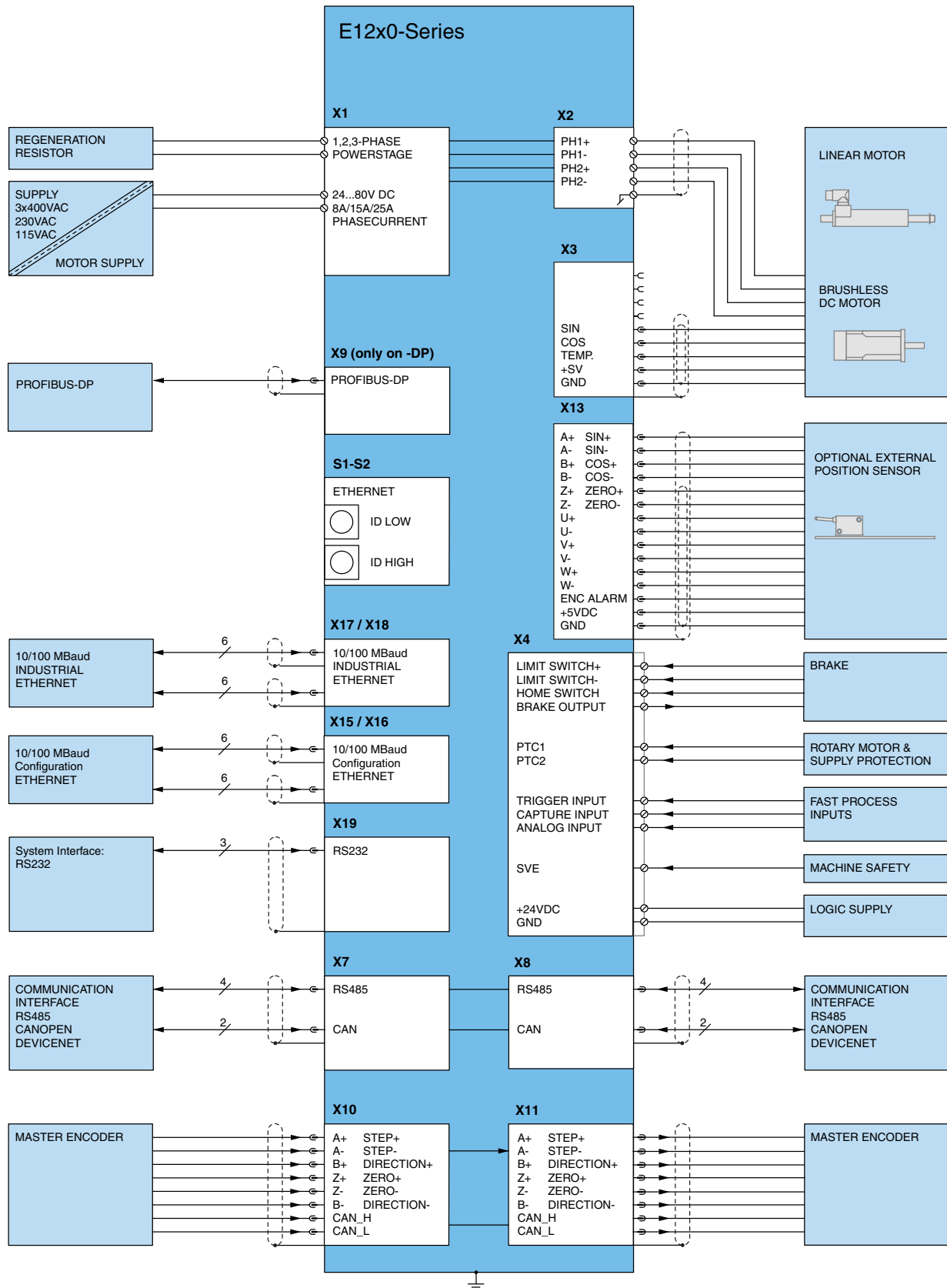


Do not switch Power Supply DC Voltage. All power supply switching and E-Stop breaks should be done to the AC supply voltage of the power supply.



Do not connect or disconnect the motors from controllers with voltage present. Wait to connect or disconnect motors until all LinMot controllers LED's have turned off. (Capacitors may not fully discharge for several minutes after power has been turned off). Failure to observe these precautions may result in severe damage to electronic components in LinMot motors and/or controllers.

System Overview

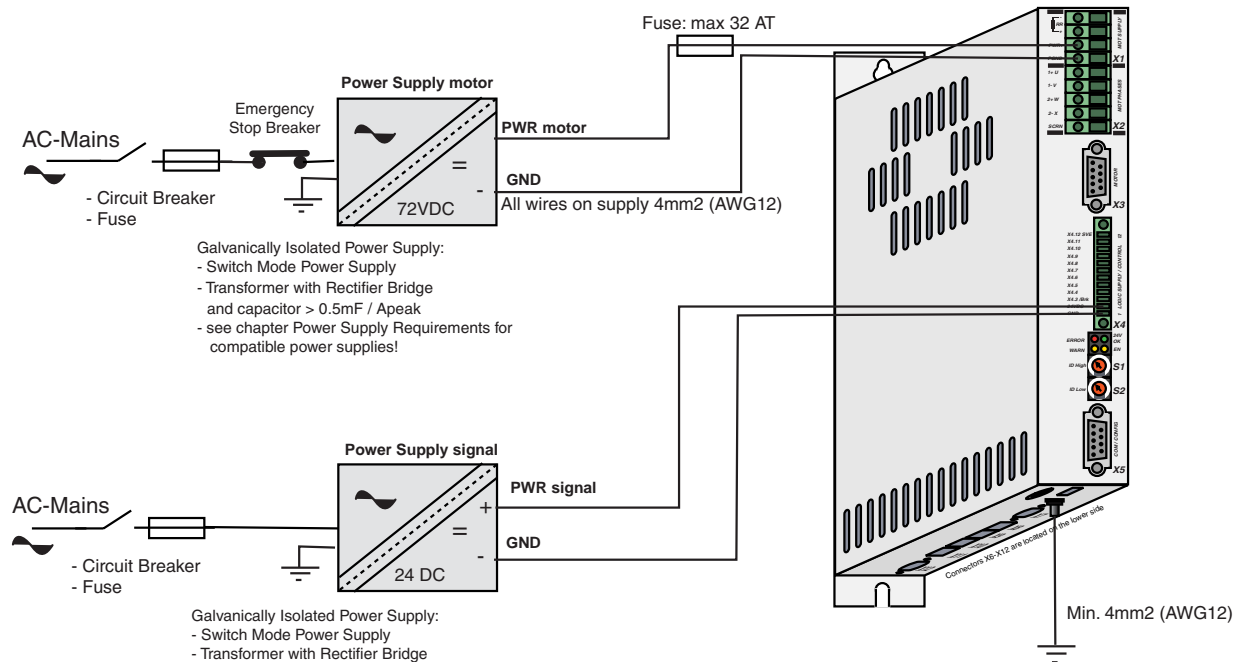


Typical Servo System E12x0-XX: Servo Controller, Linear Motor and Power Supply.

Functionality and Interfaces

	E1250-PL-UC	E1250-PN-UC	E1250-SC-UC	E1250-IP-UC	E1250-EC-UC	E1230-DP-UC	E1200-GP-UC
Supply Voltage							
Motor Supply 72VDC (24...85VDC)	•	•	•	•	•	•	•
Logic Supply 24VDC (22...26VDC)	•	•	•	•	•	•	•
Motor Phase Current							
32A _{peak} / 12A _{rms}	•	•	•	•	•	•	•
Controllable Motors							
LinMot P01-23x...	•	•	•	•	•	•	•
P01-37x...	•	•	•	•	•	•	•
P01-48x...	•	•	•	•	•	•	•
DC Motors	•	•	•	•	•	•	•
Brushless DC / EC Motors	•	•	•	•	•	•	•
Command Interface							
CANopen	•	•	•	•	•	•	•
DeviceNet	•	•	•	•	•	•	•
LinRS	•	•	•	•	•	•	•
POWERLINK	•						
PROFINET		•					
SERCOS III			•				
ETHERNET IP				•			
ETHERCAT					•		
PROFIBUS-DP						•	
Programmable Motion Profiles (Curves)							
Up to 100 Motion Profiles	•	•	•	•	•	•	•
Programmable Command Table							
Command Table with up to 255 entries	•	•	•	•	•	•	•
External Position Sensor							
Incremental RS422 up to 2 MHz	•	•	•	•	•	•	•
Synchronisation							
Master Encoder In/Out RS422 up to 2 MHz	•	•	•	•	•	•	•
Configuration							
Ethernet 10/100Mbit/s (2 Port Switch integrated)	•	•	•	•	•	•	•

Power Supply and Grounding



*Inside of the E1200 controller the *PWR motor GND* and *PWR signal GND* is connected together and to the GND of the controller housing. It is recommended that the *PWR motor GND* is NOT grounded at another place than inside of the controller to reduce circular currents.



In order to assure a safe and error free operation, and to avoid severe damage to system components, **all system components* must be well grounded to either a single earth or utility ground.** This includes both LinMot and all other control system components to the same ground bus.



Each system component* should be tied directly to the ground bus (**star pattern**), rather than daisy chaining from component to component. (LinMot motors are properly grounded through their power cables when connected to LinMot controllers.)

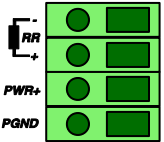
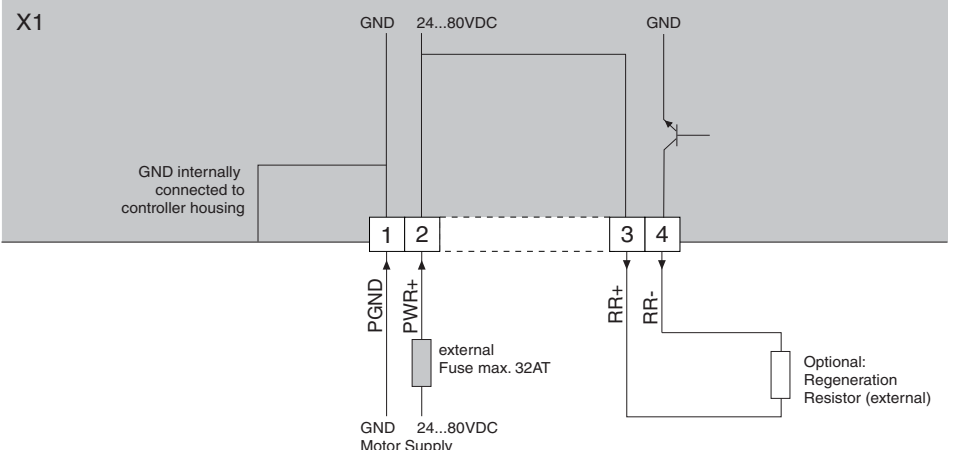
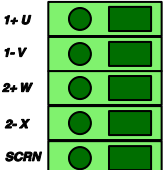
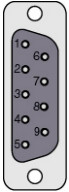


Power supply connectors must not be connected or disconnected while DC voltage is present. Do not disconnect system components until all LinMot controller LED's have turned off. (Capacitors in the power supply may not fully discharge for several minutes after input voltage has been disconnected). Failure to observe these precautions may result in severe damage to electronic components in LinMot motors and/or controllers.

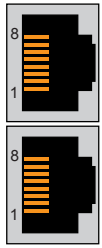
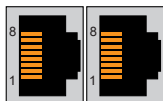
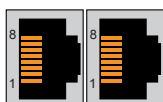

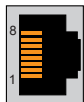


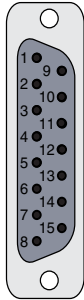
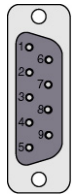

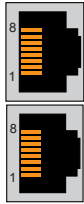
Do not switch Power Supply DC Voltage. All power supply switching and E-Stop breaks should be done to the AC supply voltage of the power supply. Failure to observe these precautions may result in severe damage to controller.

Description of the Connectors / Interfaces

X1:	Motor Supply / Regeneration Resistor																																		
																																			
Screw Terminals	<p>External Regeneration Resistor (RR01-10/60, Art. Nr. 0150-3088)</p> <p>External Fuse: max. 32AT (for example RK5 Class Fuse Bussmann FRN-R-30)</p> <p>Supply nominal 72VDC (24...85VDC) (for UL 30..85VDC) See chapter Power Supply Requirements for compatible power supplies.</p> <p>Absolute max. Rating 72VDC +20%.</p> <p>If motor supply voltage is exceeds 90VDC, the controller will go into error state.</p> <ul style="list-style-type: none"> - Tightening torque: 0.5 - 0.6 Nm - Screw thread: M3 - Use 60/75°C copper conductors only - Conductor cross-section: 2.5 - 4mm² / AWG 14 – 12, if possible, use 4mm². - Stripping length: 14mm - Max. length: 4m 																																		
X2:	Motor Phases																																		
	<table border="1"> <thead> <tr> <th></th><th>LinMot Motor:</th><th>3-phase EC-Motor:</th></tr> </thead> <tbody> <tr> <td>1+ U</td><td>Motor Phase 1+ red</td><td>Motor Phase U</td></tr> <tr> <td>1- V</td><td>Motor Phase 1- pink</td><td>Motor Phase V</td></tr> <tr> <td>2+ W</td><td>Motor Phase 2+ blue</td><td>Motor Phase W</td></tr> <tr> <td>2- X</td><td>Motor Phase 2- grey</td><td>Motor Phase X</td></tr> <tr> <td>SCRN</td><td>Shield</td><td></td></tr> </tbody> </table>			LinMot Motor:	3-phase EC-Motor:	1+ U	Motor Phase 1+ red	Motor Phase U	1- V	Motor Phase 1- pink	Motor Phase V	2+ W	Motor Phase 2+ blue	Motor Phase W	2- X	Motor Phase 2- grey	Motor Phase X	SCRN	Shield																
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X3:	Motor Encoder																																		
	<table border="1"> <thead> <tr> <th></th><th>LinMot Motor:</th><th>3-phase EC-Motor:</th></tr> </thead> <tbody> <tr> <td>1</td><td></td><td></td></tr> <tr> <td>2</td><td></td><td></td></tr> <tr> <td>3</td><td>+5VDC</td><td>+5VDC (Hall Supply)</td></tr> <tr> <td>4</td><td>Sensor Sine</td><td>Hall 1</td></tr> <tr> <td>5</td><td>Temp. In</td><td>Hall 3</td></tr> <tr> <td>6</td><td></td><td></td></tr> <tr> <td>7</td><td></td><td></td></tr> <tr> <td>8</td><td>AGND</td><td>AGND (Hall Supply)</td></tr> <tr> <td>9</td><td>Sensor Cosine</td><td>Hall 2</td></tr> <tr> <td>case</td><td>Shield</td><td></td></tr> </tbody> </table>			LinMot Motor:	3-phase EC-Motor:	1			2			3	+5VDC	+5VDC (Hall Supply)	4	Sensor Sine	Hall 1	5	Temp. In	Hall 3	6			7			8	AGND	AGND (Hall Supply)	9	Sensor Cosine	Hall 2	case	Shield	
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case	Shield																																		
DSUB-9 (f)	<p>Note: Use +5V (X3.3) and AGND (X3.8) only for motor internal Hall Sensor supply (max. 100mA).</p> <p>Caution: Do NOT connect AGND (X3.8) to shield or earth!</p>																																		

Motor Wiring			
<div><div><div>X2</div><div><div>NCDS</div><div>X-2</div><div>AN-2</div><div>A-1</div><div>A+1</div></div><div><div>SHIELD</div><div>PH2-</div><div>PH2+</div><div>PH1-</div><div>PH1+</div></div></div><div><div>Outer shield</div><div>Phase 2- (grey)</div><div>Phase 2+ (blue)</div><div>Phase 1- (pink)</div><div>Phase 1+ (red)</div></div></div> <div><div>X3</div><div><div>1</div><div>6</div><div>2</div><div>7</div><div>3</div><div>8</div><div>4</div><div>9</div><div>5</div></div><div><div>Caution: Do not connect X3.1/2/6/7</div><div><div>+5VDC</div><div>AGND</div><div>Sine</div><div>Cosine</div><div>Temp.</div></div><div><div>black</div><div>green</div><div>yellow</div><div>inner shield</div><div>white</div><div>red</div><div>pink</div><div>blue</div><div>grey</div></div></div></div>			
X4:	Control/Supply		
<div><div>X4.12 SVE</div><div>X4.11</div><div>X4.10</div><div>X4.9</div><div>X4.8</div><div>X4.7</div><div>X4.6</div><div>X4.5</div><div>X4.4</div><div>X4.3 /Brk</div><div>24VDC</div><div>GND</div></div> <div>1 LOGIC SUPPLY / CONTROL 12</div>	<div><div>12</div><div>11</div><div>10</div><div>9</div><div>8</div><div>7</div><div>6</div><div>5</div><div>4</div><div>3</div><div>2</div><div>1</div></div>	<div><div>Input</div><div>I/O</div><div>I/O</div><div>I/O</div><div>I/O</div><div>I/O</div><div>I/O</div><div>I/O</div><div>I/O</div><div>I/O</div><div>+24VDC</div><div>GND</div></div> <div><div>SVE</div><div>X4.11</div><div>X4.10</div><div>X4.9</div><div>X4.8</div><div>X4.7</div><div>X4.6</div><div>X4.5</div><div>X4.4</div><div>X4.3/Brk</div><div>Supply</div><div>Supply</div></div>	<div><div>Power Stage Enable (HW Enable)</div><div>Configurable IO, PTC2 Input</div><div>Configurable IO, PTC1 Input</div><div>Configurable IO</div><div>Configurable IO</div><div>Configurable IO</div><div>Configurable IO, Trigger Input</div><div>Configurable IO</div><div>Configurable IO, Analog Input (configurable as high imp. Input)</div><div>Configurable IO, Brake Driver 1A</div><div>Logic Supply 22-26 VDC</div><div>Ground</div></div>
<div>Phoenix MC1,5/12-STF- 3,5</div>	<div><div>Inputs (X4.3 .. X4.12):</div><div>Outputs (X4.4 .. X4.11):</div><div>Brake Output (X4.3):</div></div> <div><div>24V / 5mA (Low Level: -0.5 to 5VDC, High Level: 15 to 30VDC)</div><div>24V / max.100mA, Peak 370mA (will shut down if exceeds)</div><div>24V / max.1.0A</div></div> <div><div>Input X4.12: SVE (Safety Voltage Enable) must be high for enabling the power stage.). If it goes low for more than 0.5ms the PWM generation of the power stage is disabled by hardware.</div><div>Supply 24V / typ. 400mA / max. 2.1A (if all outputs "on" with max. load.)</div><div>- Tightening torque: min 0.22Nm</div><div>- Screw thread: M2</div><div>- Use 60/75°C copper conductors only</div><div>- Conductor cross-section max. 1.5mm²</div><div>- Internal Fuse (F2): 3AT (slow blow, Schurter OMT125, 3404.0118.xx, UL File Number: E41599)</div><div>CAUTION: For continued protection against risk of fire, replace only with same type and rating of fuse.</div></div>		
LED	State Display		
<div><div><div>Green</div><div>Yellow</div><div>Yellow</div><div>Red</div></div><div><div>Green</div><div>Yellow</div><div>Yellow</div><div>Red</div></div></div>	<div>Green</div> <div>Yellow</div> <div>Yellow</div> <div>Red</div>	<div>24V Logic Supply OK</div> <div>Motor Enabled / Error Code Low Nibble</div> <div>Warning / Error Code High Nibble</div> <div>Error</div>	
S1, S2:	Baud Rate / Address Selectors		
<div><div>High</div><div>Low</div><div>S1</div><div>S2</div></div>	<div>S1</div> <div>S2</div>	<div>Bus ID High</div> <div>Bus ID Low</div>	<div>(0...F)</div> <div>(0...F)</div>

X10 / X11		Master Encoder IN (X10) / Master Encoder OUT (X11)		
		<u>Incremental:</u>	<u>Step/Direction:</u>	<u>EIA/TIA 568A colors:</u>
		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 (GP)	CAN_H (GP)	Brown/White
		8 CAN_L (GP)	CAN_L (GP)	Brown
	case	Shield	Shield	
RJ-45	Use twisted pair (1-2, 3-6, 4-5, 7-8) cable for wiring. <u>Master Encoder Inputs:</u> Differential RS422, max. Input Frequency 2MHz, 240ns edge separation <u>Master Encoder Outputs:</u> 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.			
X15 – X16		Config Ethernet 10/100Mbit/s		
	X15 X16	Internal 2-Port 10BASE-T and 100BASE-TX Ethernet Switch HP Auto MDIX		
X17 – X18		RealTime Ethernet 10/100Mbit/s		
	X17 X18	Specification depends on RT-Bus Type. Please refer to according documentation.		
X19		System		
		1 Reserved, do not connect 2 Reserved, do not connect 3 RS232 RX 4 GND 5 GND 6 RS232 TX 7 Reserved, do not connect 8 Reserved, do not connect case Shield	Use Adaptercable AC01-RJ45/Df-2.5-RS1 (0150-2143) for Configuration over RS232	
X20		Analog In (+-10V Differential Analog Input)		
		1 Reserved, do not connect 2 Reserved, do not connect 3 Analog In- 4 GND 5 GND 6 Analog In+ 7 Reserved, do not connect 8 Reserved, do not connect case Shield		

X13:	External Position Sensor Differential Hall Switches		
	<div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div><div>6</div><div>7</div><div>8</div><div>case</div></div> <div><div>9</div><div>10</div><div>11</div><div>12</div><div>13</div><div>14</div><div>15</div></div>	<div><div>+5V DC</div><div>A+</div><div>B+</div><div>Z+</div><div>Encoder Alarm</div><div>U+</div><div>V+</div><div>W+</div><div>W-</div><div>Shield</div></div>	
DSUB-15 (f)	<div><div>Position Encoder Inputs:</div><div>RS422</div><div>Max Input Frequency: 2MHz, 4 M counts/s with quadrature decoding, 240ns edge separation</div><div>Encoder Simulation Outputs:</div><div>RS422,</div><div>Max Output Freq.: 2.5MHz, 5 M counts/s with quadrature decoding, 200ns edge separation</div><div>Differential Hall Switch Inputs:</div><div>RS422, Input Frequency: <1kHz</div><div>Enc. Alarm In:</div><div>5V / 1mA</div><div>Sensor Supply:</div><div>5VDC max 100mA</div></div>		
X9:	PROFIBUS DP (only available on E1230-DP-UC)		
	<div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div><div>6</div><div>7</div><div>8</div><div>9</div><div>case</div></div>	<div><div>Not connected</div><div>Not connected</div><div>RxD/TxD-P</div><div>CNTR-P</div><div>GND</div><div>+5V</div><div>Not connected</div><div>RxD/TxD-N</div><div>Not connected</div><div>Shield</div></div> <div><div></div><div></div><div></div><div></div><div>(isolated)</div><div>(isolated)</div><div></div><div></div><div></div></div>	
DSUB-9 (f)	Max. Baud rate: 12Mbaud		
S5:	Bus Termination / Analn2 Pulldown		
	<div>Switch 1: Anln2 Pulldown (4k7 Pulldown on X4.4). Set to ON, if X4.4 is used as digital Output.</div> <div>Switch 2: Termination Resistor for RS485 on CMD (120R between pin 1 and 2 on X7/X8) on/off</div> <div>Switch 3: CAN Termination on CMD (120R between pin 7 and 8 on X7/X8) on/off</div> <div>Switch 4: CAN Termination on ME (120R between pin 7 and 8 on X10/X11) on/off</div> <div>Factory setting: all switches "off"</div>		
X7 - X8	RS485/CAN		
	<div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div><div>6</div><div>7</div><div>8</div><div>case</div></div>	<div><div>RS485_Rx+</div><div>RS485_Rx-</div><div>RS485_Tx+</div><div>GND</div><div>GND</div><div>RS485_Tx-</div><div>CAN_H</div><div>CAN_L</div><div>Shield</div></div> <div><div>A</div><div>B</div><div>Y</div><div></div><div></div><div>Z</div><div></div><div></div></div>	
RJ-45	<div>Use twisted pair (1-2, 3-6, 4-5, 7-8) cable for wiring.</div> <div>The built in CAN and RS485 terminations can be activated by S5.3 and S5.2.</div> <div>X7 is internally connected to X8 (1:1 connection)</div>		

Error Codes

<div> <div> <div>Error</div> <div>Warn</div> </div> <div> <div>24V OK</div> <div>EN</div> </div> </div>			Description
ERROR	WARN	EN	
OFF	Warning	Operation Enabled	Normal Operation. Warnings and Operation Enabled are displayed
On	● ~ 2Hz 0..15 x Error Code High Nibble	● ~ 2Hz 0..15 x Error Code Low Nibble	Error: The Error Code is shown by a blink code with "WARN" and "EN". The Error Byte is divided into Low and High Nibble. "WARN" and "EN" are blinking together. The error can be acknowledged. (ex.: WARN blinks 3x, EN blinks 2x; Error Code = 32h)
● ~ 2Hz	● ~ 2Hz 0..15 x Error Code High Nibble	● ~ 2Hz 0..15 x Error Code Low Nibble	Fatal Error: The Error Code is shown by a blink code with "WARN" and "EN". The Error Byte is divided into Low and High Nibble. "WARN" and "EN" are blinking together. Fatal Errors can only be acknowledged by a reset or power cycle (ex.: WARN blinks 3x, EN blinks 2x; Error Code = 32h)
● ~ 4Hz	● ~ 2Hz 0..15 x Error Code High Nibble	● ~ 2Hz 0..15 x Error Code Low Nibble	System Error. Please reinstall firmware or contact support.

The meaning of the Error Codes can be found in the Usermanual_MotionCtrl_Software_E1200 and the user manual of the loaded interface software. These documents are provided together with LinMot-Talk E1100 and can be downloaded from www.linmot.com.

Physical Dimension

E1200 Series single axis controller		
Width	mm (in)	40 (1.6)
Height	mm (in)	270 (10.6)
Height without fixings	mm (in)	233 (9.2)
Depth	mm (in)	180 (7.1)
Weight	Kg (lb)	1.5 (3.3)
Case	IP	20
Storage Temperature	°C	-25...40
Transport Temperature	°C	-25...70
Operating Temperature	°C	0...40 at rated data (UL) 40...50 with power derating
Relative humidity		95% (non-condensing)
Max. Case Temperature	°C	65
Max. Power Dissipation	W	30
Distance between Controllers	mm (in)	20 (0.8) left/right 50 (2) top/bottom

() dimensions in inch

Power Supply Requirements

Motor Power Supply

The calculation of the needed power for the Motor supply is depending on the application and the used motor. The nominal supply voltage is 72- 80 VDC. The possible range is from 24 to 85VDC, for UL from 30 to 85 VDC.



ATTENTION: The motor supply can rise up to 95 VDC when braking. This means that everything connected to that power supply needs a voltage rating of 100 VDC. (Additional capacitors, etc...). Due to high braking voltage and sudden load variations of linear motor applications, **only specially designed power supplies can be used.**

Compatible Power supplies:

Item	Description	Art. No.
T01-72/420	72VDC, 15A peak, 420VA, 3x400VAC	0150-1966
T01-72/420-US	72VDC, 15A peak, 420VA, 3x230VAC	0150-1967
T01-72/900	72VDC, 30A peak, 900VA, 3x400VAC	0150-1842
T01-72/900-US	72VDC, 30A peak, 900VA, 3x230VAC	0150-1843
T01-72/1500	72VDC, 2x30A peak, 1500VA, 3x400VAC	0150-1844
T01-72/1500-US	72VDC, 2x30A peak, 1500VA, 3x230VAC	0150-1845
S01-72/1000	72VDC, 27A peak, 1000VA, 3x340-550VAC	0150-1872
S01-72/500	72VDC, 10A peak, 500VA, 1x120/230VAC	0150-1874



For compatibility with other power supplies, contact support@linmot.com

Signal Power Supply

The logic supply needs a regulated power supply of a nominal voltage of 24 VDC. The voltage must be between 22 and 26 VDC.

Current consumption: min. 200mA (no load on the outputs)
 typ. 1.1A (all 10 outputs "on" with 100mA load and /Break with no load)
 max. 2.1A (all 10 outputs "on" with 100mA load and /Break with 1A load)

Regeneration of Power / Regeneration Resistor

There are two possibilities to deal with power regeneration:

Option A: Connect an additional capacitor to the motor power supply. It is recommended to use a capacitor $\geq 10'000 \mu\text{F}$ (install capacitor close to the power supply!)

Option B: Install a Regeneration Resistor to X1 (RR+ and RR-). The threshold value of the voltage depends on the used motor voltage power supply. The max. threshold value must not exceed 88 VDC.


For UL applications, use option A.

Item	Description	Art. No.
Capacitor	Capacitor 10'000 μF / 100 V	0150-3075
Regeneration Resistor	RR01-10/60 (10 Ohm, 60 W)	0150-3088
Regeneration Resistor	RR01-10/150 (10 Ohm, 150 W)	0150-3090

Ordering Information

Servo Controller	Description	Art. No.
E1250-PL-UC	POWERLINK Servo Controller 72VDC/32A	0150-1760
E1250-PN-UC	PROFINET Servo Controller 72VDC/32A	0150-1762
E1250-EC-UC	ETHERCAT Servo Controller 72VDC/32A	0150-1763
E1250-SC-UC	SERCOS III Servo Controller 72VDC/32A	0150-1764
E1250-IP-UC	ETHERNET IP Servo Controller 72VDC/32A	0150-1761
E1230-DP-UC	PROFIBUS-DP Servo Controller 72VDC/32A	0150-1766
E1200-GP-UC	GENERAL PURPOSE Servo Controller 72VDC/32A	0150-1771
Adaptercable for Configuration over RS232 (on X19)	AC01-RJ45/Df-2.5-RS1 (0150-2143)	0150-2143

International Certifications

Certifications	
cULus	Planned
Europe 	See chapter "declaration of conformity CE-Marking".

Declaration of Conformity CE-Marking

Manufacturer: NTI AG
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 Tel.: +41 (0)56 419 91 91
 Fax: +41 (0)56 419 91 92

Products: LinMot® Controllers

Type	Art.-No.	Type	Art.-No.	Type	Art.-No.
E1250-PL-UC	0150-1760				
E1250-PN-UC	0150-1762				
E1250-EC-UC	0150-1763				
E1250-SC-UC	0150-1764				
E1250-IP-UC	0150-1761				
E1230-DP-UC	0150-1766				
E1200-GP-UC	0150-1771				

The product must be mounted and used in strict accordance with the installation instruction contained within the User's Manual, a copy of which may be obtained from NTI Ltd.

I declare that as the authorized representative, the above information in relation to the supply/manufacture of this product is in conformity with the stated standards and other related documents in compliance with the protection requirements of the EMC Directive (89/336/EEC) and is marked in accordance with the CE Marking Directive (93/68/EEC).

Standards Complied with:

EN 61000-6-2			Immunity for industrial environment
	EN 61000-4-2	Class A	Electrostatic discharge immunity (ESD)
	EN 61000-4-3	Class A	Radiated electromagnetic field immunity
	EN 61000-4-4	Class A	Fast transients / burst immunity (EFT)
	EN 61000-4-5	Class A	Slow transients immunity (Surges)
	EN 61000-4-6	Class A	Conducted radio frequency immunity
EN 61000-6-4			Emission for industrial environment
	EN 55022	Class A	Radiated Emission

Company
 NTI Ltd.

Zurich, June 16, 2009



 R. Rohner / CEO NTI AG

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Please visit <http://www.linmot.com/> to find a distributor near you.

Smart solutions are...

