

Installation Guide Power Supply

ENG

S01-24/500 + S01-72/500



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1 General information

1.1 Introduction

Please observe the following safety instructions, the instructions on the appliance (the term "appliance" relates to a single power supply assembly) and the detailed data sheet to avoid any risk of personal injury or damage to the appliance or to other equipment which may be connected.

1.2 Explanation of symbols



Triangular warning symbols warn against a danger.



Round command symbols tell what to do.

1.3 Qualified personnel

All work such as transport, installation, commissioning and service is only allowed to be carried out by qualified personnel. Qualified personnel in the sense of the safety instructions in this documentation are persons who are familiar with the transport, installation, assembly, commissioning and operation of the product and who have the appropriate qualifications.

This manual must be read carefully before transport, installation, commissioning, service and all safety-related information must be adhered to.

1.4 Liability

NTI AG (as manufacturer of LinMot linear motors and MagSpring products) excludes all liability for damages and expenses caused by incorrect use of the products. This also applies to false applications, which are caused by NTI AG's own data and notes, for example in the course of sales, support or application activities. It is the sole responsibility of the user to check the information and information provided by NTI AG regarding their safety-relevant correctness. In addition, the entire responsibility for safety-related product functionality lies exclusively with the user. Product warranties are void if products are used with stators, sliders, servo drives or cables not manufactured by NTI AG unless such use was specifically approved by NTI AG. NTI AG's warranty is limited to repair or replacement as stated in our standard warranty policy as described in our "terms and conditions" previously supplied to the purchaser of our equipment (please request copy of same if not otherwise available). Further reference is made to our general terms and conditions.

1.5 Copyright

This work is protected by copyright.

Under the copyright laws, this publication may not be reproduced or transmitted in any form, electronic or mechanical, including photocopying, recording, microfilm, storing in an information retrieval system, not even for training purposes, or translating, in whole or in part, without the prior written consent of NTI AG.

LinMot® is a registered trademark of NTI AG.

2 Safety instructions



Do not open!
Do not use without a PE connection.
Disconnect power before installing or removing.
For built-in use only!

This warning also applies in the event that an internal fuse blows in the appliance.
The appliance should generally only be opened and/or repaired by the manufacturer.



Appliances are approved for operation based on the connected loads and technical data stated on the rating plate and the detailed data sheet only. Please read these carefully before installing the appliance and commencing operation and take note of any performance limitations, such as reduced output power (derating) in the event of high ambient temperatures.



All appliances must be connected to a mains supply offering voltage quality which complies with EN50160 standards. Operating the appliance via UPSs, current inverters etc. which do not meet these standards may result in damage to the appliance. In such cases, no guarantee claims will be accepted.



As a rule, appliances are intended for built-in use. They must be installed and connected by qualified personnel.



Ensure that the surrounding casing protects the appliance against fire!



Heat loss occurs during operation of the appliance. To ensure safe performance and avoid any possible risk of damage to the assembly itself and/or connected equipment, provision must be made for adequate heat dispersal. Please observe the relevant instructions in this document and the appliance.



Please take note of the information shown on the connection and pin configurations for this appliance! Pay particular attention to the information on the wire cross-section and torque and ensure that the wiring complies with prevailing standards.



If a load output is designed to take sensor cables, these must be connected to the corresponding load lines to ensure safe operation of the appliance.



Appliances may be connected in parallel if this option is given in the technical data; max. three identical appliances, otherwise please consult LinMot. Advice should normally be obtained from LinMot before connecting appliances in series.



Trim potentiometers may not be used on appliances unless the relevant setting range is given in the technical data and on the appliance, and the maximum output power is not exceeded.



All appliances have been tested for compliance with the prevailing insulation and high-voltage standards. Any additional tests of this kind which may be required should not be carried out without the consent of the appliance manufacturer, LinMot. As there could be a potential risk of damaging or destroying components in the appliance, it may be necessary to take special precautions prior to such tests.

3 Technical Data

	S01-24/500	S01-72/500
Input		
Input voltage range Vi	90...132VAC / 180...264 V automatical switchover	
Power frequency	50/60Hz	
Efficiency	typ. 86%	typ. 88%
Input current limitation	≤ 70A _{peak} typ. in cold state, ≤ 150A _{peak} in hot state	
Fuse - internal	16ATH / 250VAC	
Fuse - external	16 A (IEC), 20 A (USA) trip characterstic C, D or K	
Output		
Preset range Vo	22 - 29VDC, factory setting 24VDC ± 0.5% (Vo will be saved after 1s)	54 - 80VDC, factory setting 72VDC ± 0.5% (Vo will be saved after 1s)
Max. Ouputpower	480W - Powerboost 720W (Vo ≥ Vo _{nom})	
Powerboost (only in boostmode)	Boost 500ms up to 150% I _{nom} possible, after that min. 500ms break necessary	
Operation indicator	green LED for ok / red LED for error	
Ripple	120mV _{ss} typ.	
Noise voltage (20MHz)	200mV _{ss} typ.	
Temperature coefficient	≤ 0,025% / K	
Switch on / switch off	No Vo overshoot (soft-start)	
Start-up delay	< 1,5s (at 230VAC)	
Rise time	40 ms typ.	80 ms typ.
Back feeding voltage	up to 35Vdc	up to 100 Vdc
Serial connection	yes (max. 2 identical power supplies)	
Parallel connection	yes, only in parallel mode (max. 3 identical power supplies)	
Regulation		
Line regulation	< 0.2% for Vo at Vi _{min} - Vi _{max}	
Load regulation	< 0.5% for Vo at Io 0 - 100% boost mode < 3.0% for Vo at Io 0 - 100% parallel m.	
Response time	typ. 1ms at Io 20 - 80%	
Protection and Controlling		
Overvoltage protection (OVP)	approx. 31 Vdc	approx. 88 Vdc
Undervoltage monitoring	approx. 18 Vdc	approx. 52 Vdc
	automatical repeating	
Current limitation	105 - 140% I _{nom} (see diagram) output permanent short-circuit proof	
Overtemperature protection	Switches off if inside temperature is too high, reconnection with hysteresis	
Relay contact	Relay contact (max. 80V / 1A / 30W), changing at Vo < 18V / 35V / 52V or OVP from OK to FAIL (red LED)	
Remote OFF	External switch-off with with 4-60Vdc/5mA	

Safety / Standards	
	IEC60950 / UL60950 / UL508 / CSA22.2-60950 / CSA22.2-107.1 / IP20, safety class 1 / pollution degree 2
EMC	
Mains feedback / PFC	EN 61000-3-2 Class A only with ext. PFC 12mH/4, 5A/230VAC
Flicker	EN 61000-3-3
Interference immunity	EN 61000-6-2 Industrial generic standard
ESD	EN 61000-4-2 8/15KV
Electrical fields	EN 61000-4-3 noise level 10V/m (Krit. A)
Burst	EN 61000-4-4 4KV (Krit.A)
Surge	EN 61000-4-5 4/2KV (Krit.A)
HF Immunity	EN 61000-4-6 noise level 10V (Krit.A)
Voltage drop	EN 61000-4-11
Interference emission	EN 61000-6-4 Industrial generic standard EN 55011 Class B, Radiation depends on assembly
Weight	
	1.0 kg

4 Operating data



Temperature range

- 25°C...70°C (integral, temperature-regulated fan, sucking in air from below)

Derating

- 3% / K at +60°C (see diagram chapter 7)



Due to the integrated fan, the SPH500 can be installed in any position. The passage of air must not be obstructed by installation.

The distance to the air vents must be at least 20 mm. Fire protection must be ensured via the outer casing system.



Protect the products against moisture, humidity, condensation and dirt.

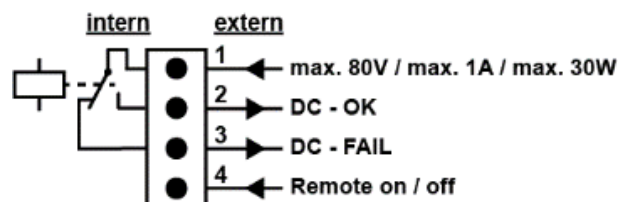
5 Mechanics

5.1 Connection

Mains input: 4-pol terminal
1.5 - 4/6 mm² strand / wire
tightening torque 0.6 - 0.7 Nm

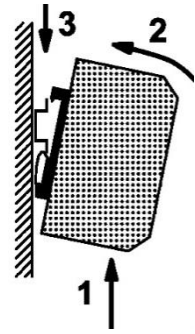
Load output: 4-pol terminal
1.5 - 4/6 mm² strand / wire
tightening torque 0.6 - 0.7 Nm

Control signals: 4-pol terminal, pluggable
0.1 - 0.5 mm² strand / wire



5.2 Mounting

It can be mounted on a 35mm mounting rail according DIN EN50022, by means of a wall or universal bracket on a mounting plate.
There should be a distance of at least 20 mm between the air inlets and outlets and the surrounding devices. Please ensure that the air extracted is not immediately sucked in again.



6 Explanation of symbols



L1 / N

PE

+ / -

Relay OK/FAIL

Control signal OFF

DIP - switch

UP / DOWN - switch

Protective Earth

Do not use supply without PE-connection!

Mains phase / neutral conductor

Functional Earthing

Loadoutput (Vo)

Monitoring connections

External on/off

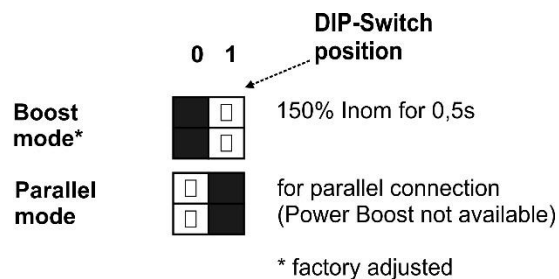
Selection boost- and parallelmode

Adjust the output voltage

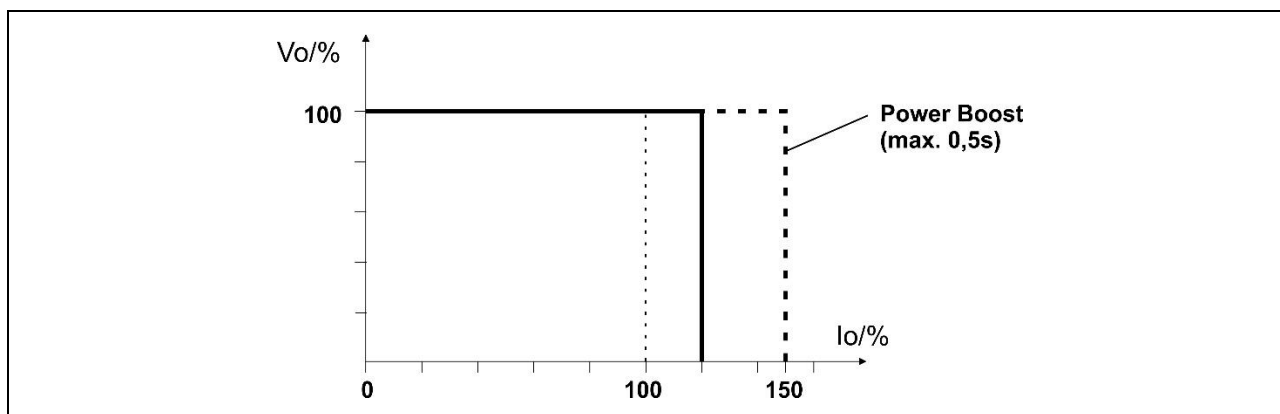


7 Notes

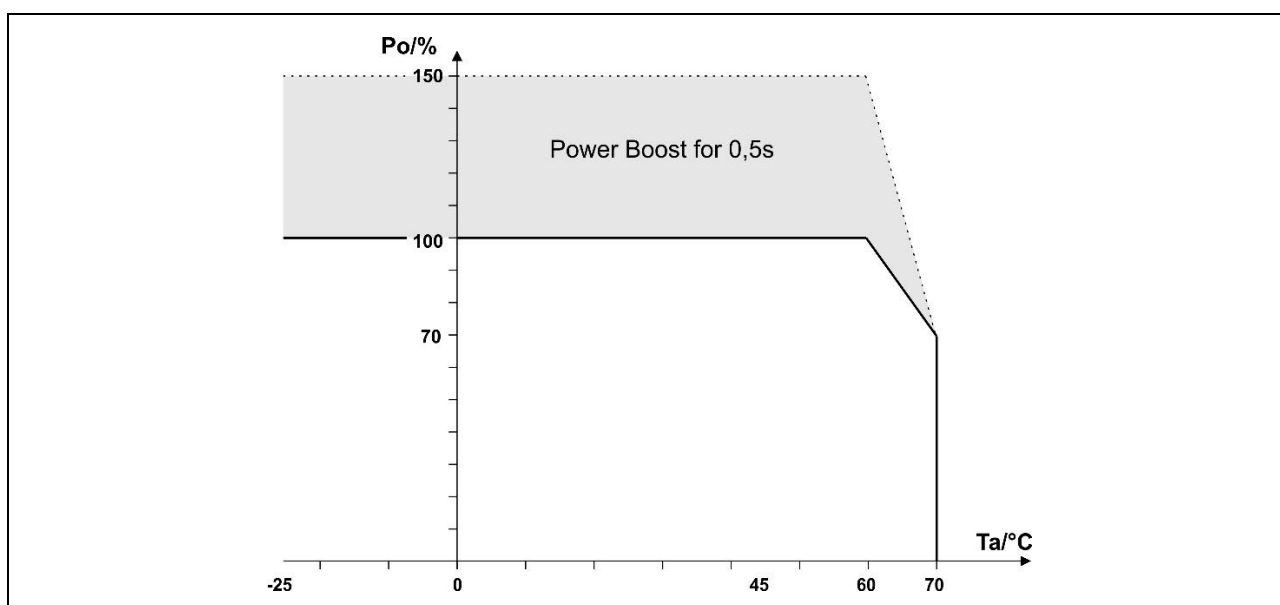
7.1 DIP-switch position



7.2 Current limiting characteristics (typ.)



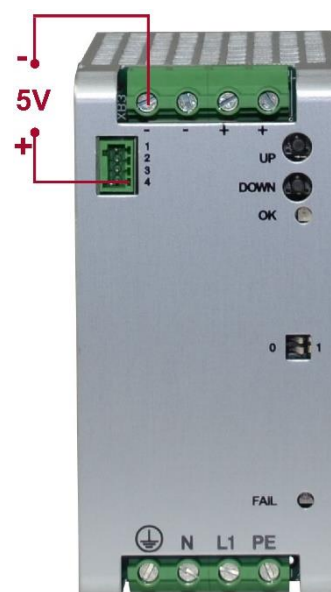
7.3 Derating



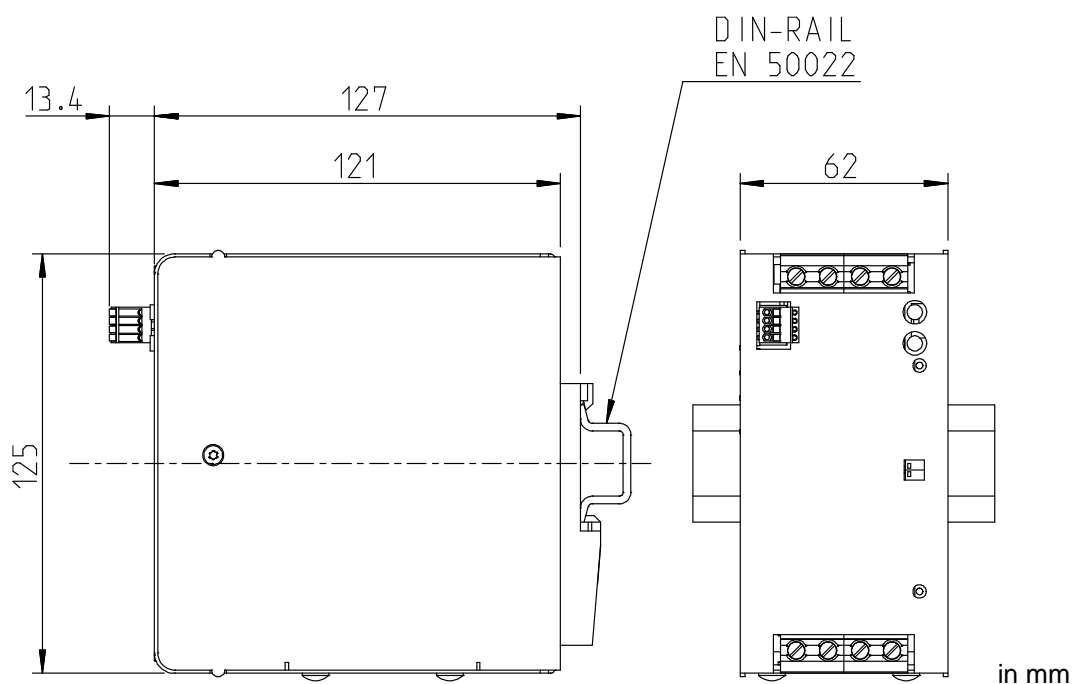
7.4 Remote ON/OFF

Connecting an external DC source:

Connect positive pole of the DC source to pin 4. Connect negative pole (GND) of the DC source to the negative output connector of the S01-500. Adjust 5V.



8 Dimensions



9 International Certificates

9.1 UL-Listing



9.2 UL Recognized Component



10 Declaration of Conformity and CE-marking

Wir
We
Nous

NTI AG
Bodenaeckerstrasse 2
8957 Spreitenbach

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product
declarons sous notre seule responsabilité que le produit

Produkt	Art-Nr.
Schaltnetzteil 24V/500W, 1x120/230VAC	0150-2480
Schaltnetzteil 72V/500W, 1x120/230VAC	0150-1874

konform ist mit den Anforderungen der Richtlinien,
is conform to the provisions of directives,
est conforme aux exigences des directives,

2014/35/EU (LVD) + 2014/30/EU (EMCD)

gestützt auf die folgenden Normen,
based on the following standards,
base aux normes suivants,

EMCD	EN61000-6-2:2005 / AC:2005 EN61000-6-3:2007 + A1:2011 / AC:2012
LVD	EN 61010-1:2010 / A1:2019 EN 61010-2-201:2018

Jahr der CE-Kennzeichnung:

Year of CE marking:




Annee du marquage CE: **2017**

Spreitenbach, 10.10.2023




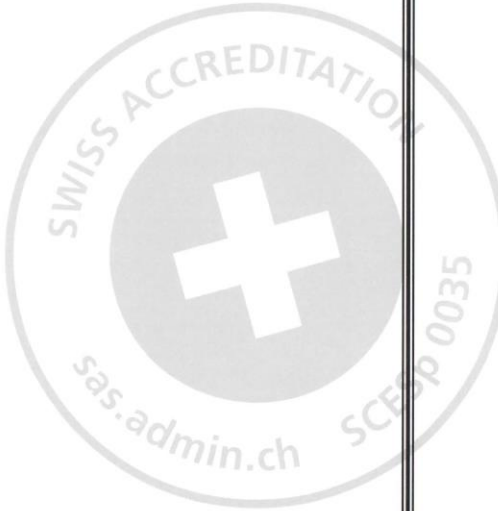


Dr.-Ing. Ronald Rohner
CEO NTI AG

11 CB Test Certificate

		Ref. Certif. No. CH-11137
IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME		
CB TEST CERTIFICATE		
Product	Switch mode power supply for build in use	
Name and address of the applicant	NTI AG, LinMot & MagSpring Bodenackerstrasse 2, 8957 Spreitenbach Switzerland	
Name and address of the manufacturer	NTI AG, LinMot & MagSpring Bodenackerstrasse 2, 8957 Spreitenbach Switzerland	
Name and address of the factory	NTI AG, LinMot & MagSpring Bodenackerstrasse 2, CH-8957 Spreitenbach Switzerland	
<small>Note: When more than one factory, please report on page 2</small>		
Ratings and principal characteristics	See page 2	
Trademark / Brand (if any)	<input type="checkbox"/> Additional information on page 2 ---	
Customer Test Facility (CTF) Stage used	./.	
Model / Type Ref.	S01-24/500 S01-48/500 S01-72/500 S01-24/1000 S01-48/1000 S01-72/1000	
Additional information (if necessary may also be reported on page 2)	National Differences specified in the CB Test Report	
A sample of the product was tested and found to be in conformity with	IEC 61010-1:2010 IEC 61010-2-201:2017	
As shown in the Test Report Ref. No. which forms part of this Certificate	20CH-01462.S01, .S02, .S11, .S12	
This CB Test Certificate is issued by the National Certification Body		
		Eurofins Electric & Electronic Product Testing AG Luppmenstrasse 3 8320 Fehraltorf SWITZERLAND
Date: 2020-11-23		Signature: Martin Plüss 

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	Ref. Certif. No. CH-11137
<p>Additional information</p> <p>Ratings and principal characteristics</p> <div data-bbox="616 546 1300 687"><p>S01-xx/500: Input: 100-120 V, 9 A; 200-240 V, 4.5 A; 50-60 Hz Output: 24 VDC, 20 A; 48 VDC, 10 A; 72 VDC, 6.7 A</p><p>S01-xx/1000: Input: 3x 380-500 V, 3.1 A; 50/60 Hz, Input voltage range: 3x 340-550 VAC Output: 24 VDC, 40 A; 48 VDC, 20 A; 72 VDC, 13.5 A</p></div> <div data-bbox="906 763 1406 1272"></div> <p>This CB Test Certificate is issued by the National Certification Body</p> <div data-bbox="284 1682 1305 1845"><p>eurofins Eurofins Electric & Electronic Product Testing AG Luppenstrasse 3 8320 Fehraltorf SWITZERLAND</p><p>Date: 2020-11-23</p><p>Signature: Martin Plüss </p></div>	

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ALL LINEAR MOTION FROM A SINGLE SOURCE

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