

Linear regulated power supplies unipolar

Series NLN from 6,5 V to 500 V / 35 W to 1400 W



Design example

NLN 1400 - 20
20V / 60A

Features:

- Output voltage and output current are fast programmable
- No output capacitor
- All units are short circuit proof and allow unlimited operation with full current in short circuit condition
- Voltage and current regulation with automatic and sharp transition; c
- Voltage and current setting with 10-turn potentiometers with precision scale; the adjusting knob can be locked
- 4½ digit DVM for voltage and current (for table-top models)
- Sense terminals for the compensation of voltage drop on the load lines, for units up to 350V nominal voltage.
- The rated voltage always refers to the output terminals
- Suitable also for inductive and capacitive loads
- Standard starting current limitation from 700W nominal power onwards

Function:

The mains voltage is transformed to the appropriate level and rectified. The rectified voltage charges a bank of capacitors of the intermediate circuit to a constant voltage, which is given via a set of power transistors to the output. The series transistor defines the final stability of the output voltage and the regulation speed. Optionally a set of power transistors parallel to the output can act as a current sink to provide active pull down ability. The design of linear regulated power supplies is optimized for fast programming speed.

Design:

- For 35W nominal power - ½19" table-top case,
- other models - 19" table-top case (19" rack adaptors available)
- Cooling: Convection or built-in fan with air outlet on the rear

Output:

- Output isolation:
The output is floating. Operating voltage with respect to earth: max. ±500V.
Each of the output terminals may be connected to earth.

Output terminals:

4 mm safety connectors up to 20A on the rear panel. For higher currents clamps installed on the rear

Technical Data:

- Mains connection:
up to 1400W nominal power: 230V ±10% 47Hz to 63Hz
for 2800W and higher: 400V ±10% 47Hz to 63Hz, three-phase
- Ambient temperature:
0°C to +40°C
- Power loss:
at nominal load approx. 25%, during short circuit at nominal current approx 125% of the nominal power.

The following data applies for voltage and current regulation, and refers to the rated value (unless otherwise stated): (For explanations please refer to Definitions and Terms on page 61.)

- Setting range:
from approx. 0,1% to 100%
- Setting resolution:
 $\pm 1 \times 10^{-4}$
- Residual ripple:
 $< 5 \times 10^{-4}$ pp + 10mVpp
- Recovery time:
 $< 50 \mu\text{s}$ for load changes from 10% to 100% or from 100% to 10%
- Setting time at nominal load:
 $< 1\text{ms}$ for full range
- Deviation:
for ±10% mains voltage variation:
 $< \pm 2 \times 10^{-5}$
for no load / full load:
 $< 2 \times 10^{-4}$
over 8 h under constant conditions:
 $< \pm 2 \times 10^{-4}$
within the temperature range:
 $< \pm 2 \times 10^{-4} / \text{K}$

Possible Options:

- Analogue programming (The positive output has to be earthed; see also page 52)
- Analogue programming, floating (see page 52)
- Computer interface - IEEE 488, RS 232, RS 422, Profibus DP (more on request) (see page 54)
- Active pull-down control. Parallel to the output is a set of power transistors operating as a current sink. (see page 56)
- Higher programming speed

More options and special solutions on request. Some options may involve changes to the description of the unit - especially concerning the mechanical design.

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Type	Voltage	Current	Width	Height	Depth	Weight
NLN 35 - 6,5	0 - 6,5 V	0 - 5 A	½19" / 222 mm	3 U / 133 mm	350 mm	5 kg
NLN 140 - 6,5	0 - 6,5 V	0 - 10 A	19" / 443 mm	3 U / 133 mm	350 mm	10 kg
NLN 350 - 6,5	0 - 6,5 V	0 - 30 A	19" / 443 mm	4 U / 177 mm	450 mm	19 kg
NLN 700 - 6,5	0 - 6,5 V	0 - 60 A	19" / 443 mm	4 U / 177 mm	550 mm	38 kg
NLN 1400 - 6,5	0 - 6,5 V	0 - 120 A	19" / 443 mm	7 U / 310 mm	550 mm	50 kg
NLN 35 - 12,5	0 - 12,5 V	0 - 2,5 A	½19" / 222 mm	3 U / 133 mm	350 mm	5 kg
NLN 140 - 12,5	0 - 12,5 V	0 - 8 A	19" / 443 mm	3 UH / 133 mm	350 mm	10 kg
NLN 350 - 12,5	0 - 12,5 V	0 - 20 A	19" / 443 mm	4 U / 177 mm	450 mm	19 kg
NLN 700 - 12,5	0 - 12,5 V	0 - 50 A	19" / 443 mm	4 U / 177 mm	550 mm	38 kg
NLN 1400 - 12,5	0 - 12,5 V	0 - 80 A	19" / 443 mm	7 U / 310 mm	550 mm	50 kg
NLN 35 - 20	0 - 20 V	0 - 1,5 A	½19" / 222 mm	3 U / 133 mm	350 mm	5 kg
NLN 140 - 20	0 - 20 V	0 - 6 A	19" / 443 mm	3 U / 133 mm	350 mm	10 kg
NLN 350 - 20	0 - 20 V	0 - 15 A	19" / 443 mm	4 U / 177 mm	450 mm	19 kg
NLN 700 - 20	0 - 20 V	0 - 30 A	19" / 443 mm	4 U / 177 mm	550 mm	35 kg
NLN 1400 - 20	0 - 20 V	0 - 60 A	19" / 443 mm	7 U / 310 mm	550 mm	50 kg
NLN 35 - 35	0 - 35 V	0 - 1 A	½19" / 222 mm	3 U / 133 mm	350 mm	5 kg
NLN 140 - 35	0 - 35 V	0 - 4 A	19" / 443 mm	3 U / 133 mm	350 mm	10 kg
NLN 350 - 35	0 - 35 V	0 - 10 A	19" / 443 mm	4 U / 177 mm	450 mm	19 kg
NLN 700 - 35	0 - 35 V	0 - 20 A	19" / 443 mm	4 U / 177 mm	550 mm	35 kg
NLN 1400 - 35	0 - 35 V	0 - 40 A	19" / 443 mm	7 U / 310 mm	550 mm	50 kg
NLN 35 - 65	0 - 65 V	0 - 0,5 A	½19" / 222 mm	3 U / 133 mm	350 mm	5 kg
NLN 140 - 65	0 - 65 V	0 - 2 A	19" / 443 mm	3 U / 133 mm	350 mm	10 kg
NLN 350 - 65	0 - 65 V	0 - 5 A	19" / 443 mm	4 U / 177 mm	450 mm	19 kg
NLN 700 - 65	0 - 65 V	0 - 10 A	19" / 443 mm	4 U / 177 mm	550 mm	35 kg
NLN 1400 - 65	0 - 65 V	0 - 20 A	19" / 443 mm	7 U / 310 mm	550 mm	50 kg

On request we deliver power supplies of this type also with higher power.

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Design example

NLN 22500M - 15
15V / 1500A für 0,5s

Special design:
Intermediate storage of energy
Adjustable internal resistance

Type	Voltage	Current	Width	Height	Depth	Weight
NLN 35 - 125	0 - 125 V	0 - 0,25 A	½19" / 222 mm	3 U / 133 mm	350 mm	5 kg
NLN 140 - 125	0 - 125 V	0 - 1 A	19" / 443 mm	3 U / 133 mm	350 mm	10 kg
NLN 350 - 125	0 - 125 V	0 - 2,5 A	19" / 443 mm	4 U / 177 mm	450 mm	19 kg
NLN 700 - 125	0 - 125 V	0 - 5 A	19" / 443 mm	4 U / 177 mm	550 mm	30 kg
NLN 1400 - 125	0 - 125 V	0 - 10 A	19" / 443 mm	7 U / 310 mm	550 mm	50 kg
NLN 35 - 200	0 - 200 V	0 - 0,15 A	½19" / 222 mm	3 U / 133 mm	350 mm	5 kg
NLN 140 - 200	0 - 200 V	0 - 0,6 A	19" / 443 mm	3 U / 133 mm	350 mm	10 kg
NLN 350 - 200	0 - 200 V	0 - 1,5 A	19" / 443 mm	4 U / 177 mm	450 mm	19 kg
NLN 700 - 200	0 - 200 V	0 - 3 A	19" / 443 mm	4 U / 177 mm	550 mm	30 kg
NLN 1400 - 200	0 - 200 V	0 - 6 A	19" / 443 mm	7 U / 310 mm	550 mm	50 kg
NLN 35 - 350	0 - 350 V	0 - 0,1 A	½19" / 222 mm	3 U / 133 mm	350 mm	5 kg
NLN 140 - 350	0 - 350 V	0 - 0,4 A	19" / 443 mm	3 U / 133 mm	350 mm	10 kg
NLN 350 - 350	0 - 350 V	0 - 1 A	19" / 443 mm	4 U / 177 mm	450 mm	19 kg
NLN 700 - 350	0 - 350 V	0 - 2 A	19" / 443 mm	4 U / 177 mm	550 mm	25 kg
NLN 1400 - 350	0 - 350 V	0 - 4 A	19" / 443 mm	7 U / 310 mm	550 mm	50 kg
NLN 35 - 500	0 - 500 V	0 - 0,06 A	½19" / 222 mm	3 U / 133 mm	350 mm	5 kg
NLN 140 - 500	0 - 500 V	0 - 0,25 A	19" / 443 mm	3 U / 133 mm	350 mm	10 kg
NLN 350 - 500	0 - 500 V	0 - 0,6 A	19" / 443 mm	4 U / 177 mm	450 mm	19 kg
NLN 700 - 500	0 - 500 V	0 - 1,2 A	19" / 443 mm	4 U / 177 mm	550 mm	25 kg
NLN 1400 - 500	0 - 500 V	0 - 2,5 A	19" / 443 mm	7 U / 310 mm	550 mm	50 kg

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