

Operating with DC input voltage

AC/DC input range of 1...3ph on PULS switched-mode power supplies

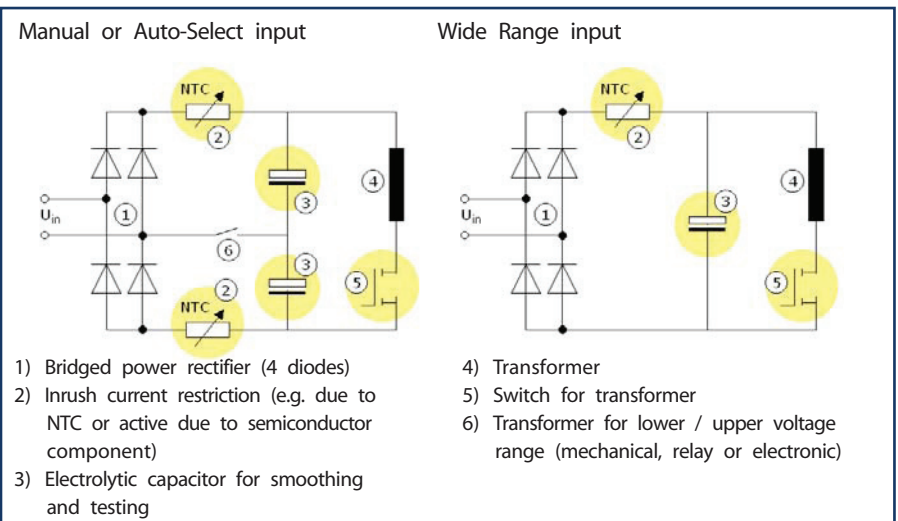
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(engineering/business management degree)

Power supplies already work internally on the primary side with direct voltage. This is the reason why supplying direct voltage (DC) to the supply terminal is a possible alternative to using an alternating current supply (AC).

Restrictions with regard to the maximum level of the DC input voltage have been revealed as a result of combining the electrical design of the power supply (e.g. the transformer principle used or the pin configuration of the input terminals to the input power rectification).

Switched-mode power supply,
1- and 3-phase

The diagram shows the input circuit of a switched-mode power supply. Once with a voltage circuit to select the upper or the lower input voltage range and as a Wide Range input.

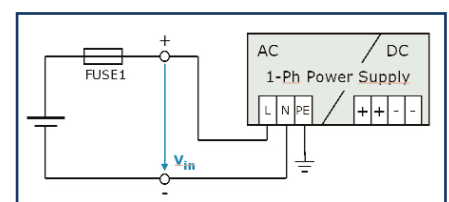


Single Phase Line

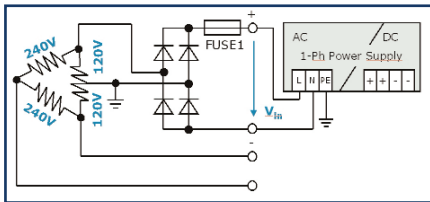
Caution: As a rule, the plus terminal is wired to the "L" connection and the minus terminal is wired to the "N". However, some devices must be connected in the reverse sequence: In other words, the plus terminal to "N" and the minus terminal to "L". Please refer to the respective data sheets for more detailed information. If the

power supply has a manual voltage selection switch (Manual Select), then this must be in the switch position for the upper voltage range.

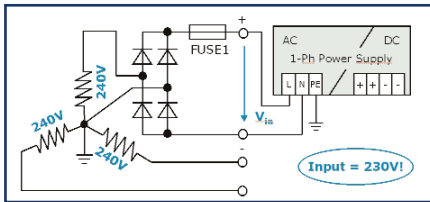
2a) Battery supply



2b) Delta connection with power rectifier



2c) Star connection with rectification

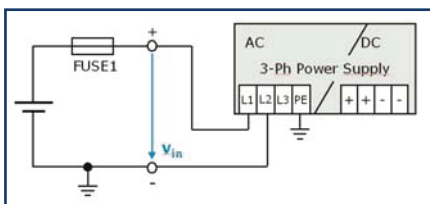


3-Phase-units

The DC supply can selectively occur via two of the three connection terminals "L1", "L2", or "L3".

One connection terminal remains unused here.

3a) Battery supply, grounded minus terminal



Restricted maximum DC input voltage

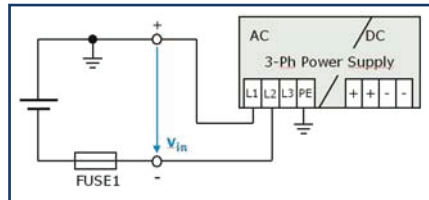
SL20.310: $U_{max} = DC 670V$

SL10.300: $U_{max} = DC 540V$

Random connection to L1, L2, L3

3b) Battery supply, grounded plus terminal

Restricted maximum DC input voltage



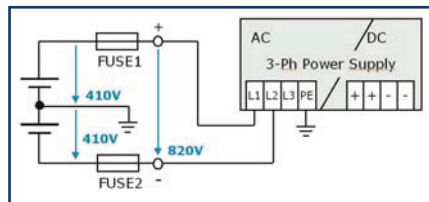
SL20.310: $U_{max} = DC 510V$

SL10.300: $U_{max} = DC 580V$

Random connection to L1, L2, L3

3c) Battery supply, grounded neutral

No restriction, DC input voltage according to Data Sheet



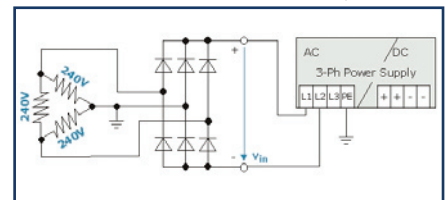
SL20.310: $U_{max} = DC 820V$

SL10.300: $U_{max} = DC 820V$

Random connection to L1, L2, L3

3d) Rectified 3 phase line, grounded outer conductor

No restriction if the power supply is



designed for grounded outer conductors (IT network).

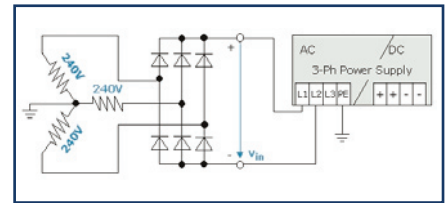
DC input voltage according to Data Sheet

SL20.310: $U_{max} = DC 820V$

SL10.300: $U_{max} = DC 820V$

3e) Rectified 3 phase star -type network, grounded neutral

No restrictions, DC input voltage according to Data Sheet



SL20.310: $U_{max} = DC 820V$

SL10.300: $U_{max} = DC 820V$