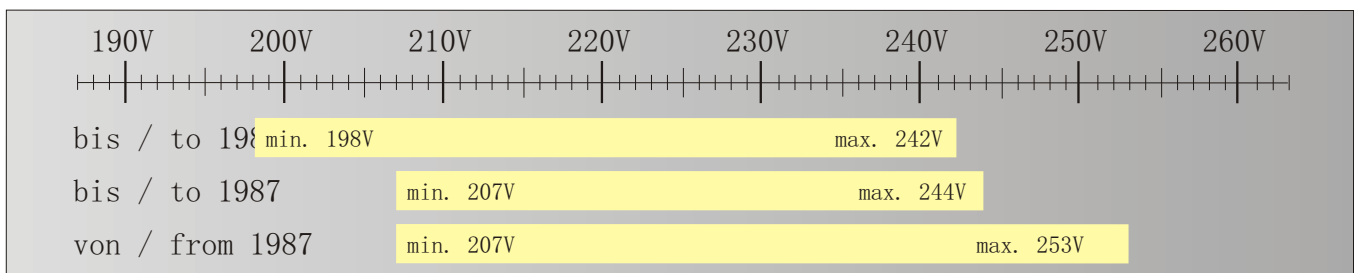


说明

内置变压器的供电电源是电力控制系统中能量传输的重要连接载体。分布式变压器将高电压转换为高低不同的二次电压。根据需要，使用整流电路可将该电压转化为直流形式。

母线电压

由于各个国家不同的供电电压,供电电源必须适用于各种应用环境。许多国家的母线电压水平都符合国际标准DIN IEC 38。特别设的FEAS电源覆盖了不同电压水平范围。国际母线电压情况如下表示。



变压器

任何直流电源的核心都是分布式变压器。这个变压器保证初、次侧电压隔离并提供一个低电压(最大50Vac),该电压用于控制电路或整流电路提供电源。当系统用电设备需要产生一个符合VDE0551/EN60742/IEC742标准的安全的低电压时,特定的安全变压器必须有一个独立的绕组线圈。在初、次侧绕组间的额定测试电压应为3.75K Vac。并且在测试电压范围内,输入侧交流电压最小为200V,最大为450V。根据VDE0550标准,隔离变压器是加强初、次侧绕组间隔离的变压器。

整流电路

对单相来说,全波电路和整流桥式电路应用是最广泛的。根据整流桥电路的要求,交流侧电路所选择的熔断器值应该是直流电路的1.6倍。

Introduction

With transformer equipped power supplies are important connecting links for the energy supply of electrical control systems. The distribution transformer brings the high line-voltage down to an usable secondary voltage level. In referce to the requirements this voltage might be converted into direct current (DC) by using rectifier units.

Mains line voltage

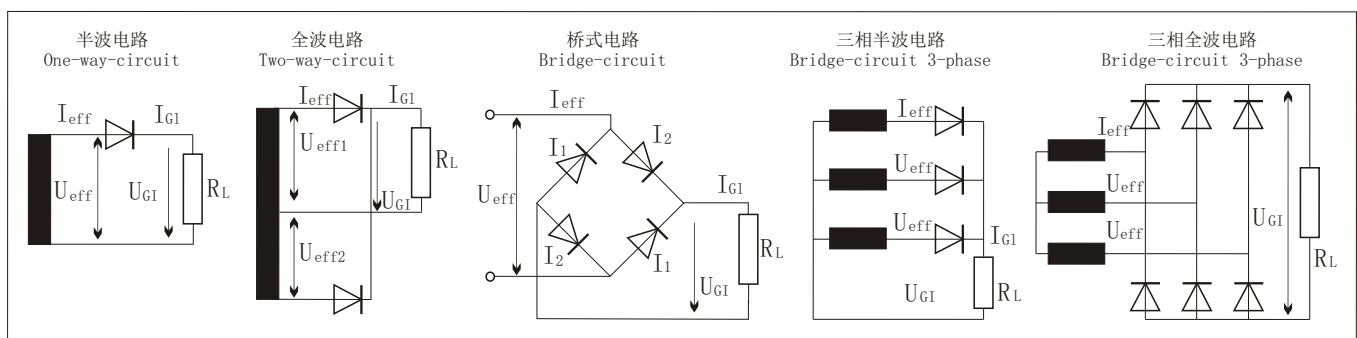
IN dependence on the differential line voltages in several countries, power supplies must be adapted on this circumstances. The International Standard DIN IEC 38 has been achieved in order to standardize for many countries their main line voltage level. FEAS power supply units are especially designed to cover the whole range of different voltage levels. The scheduled realization of rearrangement of international main line voltages is shown as follows.

Transformer

The centre piece of any dc power supply is the distribution transformer. This transformer assured the isolation between the primary and secondary voltages and supplies the low voltage (max. 50Vac) which will be used to provide the power for control circuits or rectifier units. To generate a safety-low-voltage accoording to VDE 0551/EN 60742/IEC 742 a special safety-transformer, equipped with separated winding coils, is needed in any case. The test voltage rate for this transformer should be 3,75 kVAC between the primary and secondary windings. It is relevant, that during this test an AC-voltage rate from min. 200V and max.450V is applied on the input side. Isolating transformers according to VDE 0550 are transformers with reinforced isolation between the primary and secondary windings.

Rectifier circuits

With single phase, the "two-way-circuit" and the "rectifier-bridge-circuit" are the most popular applications. In case, the rectifier-bridge-circuit is requested, the selected fuse value for the ac-circuit must be 1,6 times higher than for the dc-side.

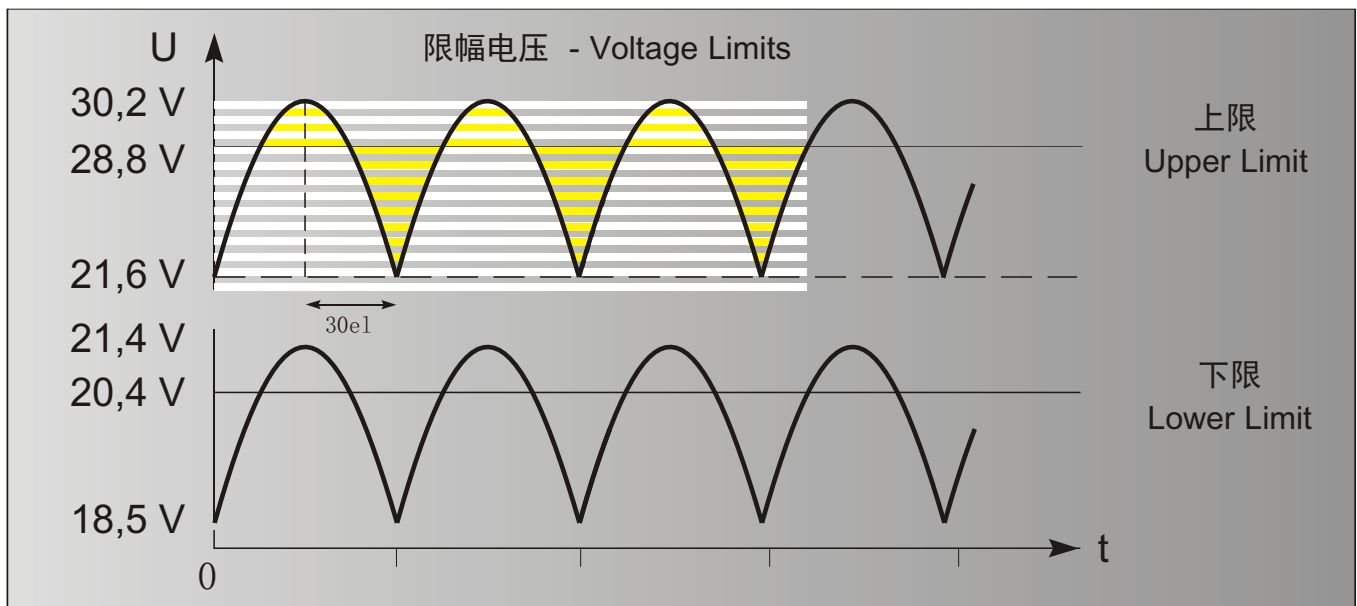


滤波直流电源

带滤波电路的直流电源是不可调节电路，其中变压器向二次侧传送低电压。该低电压通过整流可转换为单相脉动电压，并用电解电容器滤除纹波。该电压是变压器二次侧电压的1.42倍。输出电压会随负载的变化而变化，通过简单的控制电路可使输出电压基本维持不变。DIN19240标准是为电力用户了解正常工作时的电压偏差。

DC Power Supplies - Smoothed

Smoothed dc power supplies are unregulated units in which the transformer provides the secondary low voltage. This low ac voltage will be converted by the rectifier into a pulsing dc voltage and afterwards smoothed by electrolytic capacitors. The value of this dc voltage is approximate 1,42 times higher than the transformer secondary voltage. In dependency of the alternating loads the output voltage level will fluctuating accordingly. A great variation of the output voltage can be easy maintained with simple control circuits. The DIN 19240 describes the voltage tolerances clearly for electrical consumers to ensure a problemfree function within the release range.



纹波

对于直流电源来说，输出电流的纹波是一个相当重要的指标，技术说明见DIN41755标准。纹波是指输出交流电压有效值相对于输出直流电压的百分比关系。

Residual ripple

A rather important criterion for dc power supplies is the residual ripple of the output current. A technical definition is written under DIN 41755. Ripple means the relation between the effective value and the overlaying ac-voltage in reference to the output dc voltage.

