UL standard

Overview

GAMMA instabus Devices comply with UL standard

Broad spectrum

UL standards are used in North America, but also in several other countries. This is of particular importance to European exporters of electrical switchgear equipment for machines who export to the USA, as their products will only be accepted if they meet the relevant UL standards. UL 508A describes the design of control cabinets and implementation of integral components with reference to other pertinent UL standards where applicable. It therefore represents the basic standard for all electrical systems used in North America. A wide range of GAMMA *instabus* devices comply with UL standards and are therefore suitable for implementation worldwide in both IEC/EN and UL applications within the framework of their specified use.

Further links

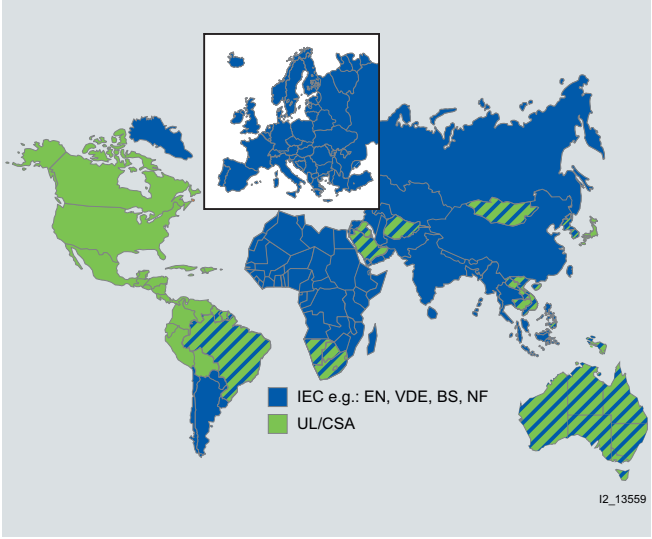
http://www.ul.com for general UL information

http://www.ul.com/database for UL-listed devices

http://www.ul-europe.com for UL information concerning Europe

http://www.siemens.com/gamma for information on GAMMA products

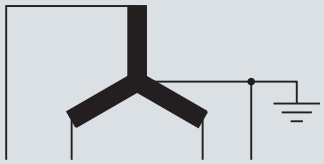
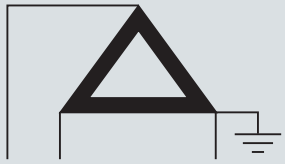
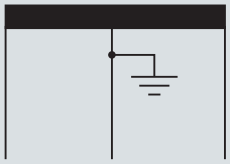
Overview of IEC – UL standards



Worldwide application of EN/IEC or UL standards

Low-voltage systems in the USA

While a variety of different systems are used in the USA, three-phase systems with 240 V and 480 V and 3 and 4-wire systems are the most common, with 208 V and 600 V playing a considerably smaller role. Residential buildings are primarily fitted with 120 to 240 V single-phase systems. A frequency of 60Hz is standard in North America.

Industry and commercial		**Residential**
		
3-phase, 4 wire	3-phase, 3 wire	1-phase, 3 wire
Three-phase wye, 4 wires Caution: The PE must not be used for electricity. There is no PEN conductor => N = "Grounded Conductor" (white or gray), separate wires must be used for PE and N.	Three-phase delta, 3 wires, grounded corner	Single-phase, 120 V/240 V, grounded midpoint
480 V Y/277 V[1)]	240 V	240 V, phase conductor
600 V Y/347 V[1)]	480 V	120 V, voltage against ground
240 V Y/131 V[1)]	600 V	
208 V Y/120 V[1)]		

[1)] Y describes the "Solidly grounded circuit". The "Y" value specifies the voltage between the phases (e.g. 480 V), the value after the slash specifies the voltage between the phase and the grounding (e.g. 277 V at 480 V voltage between the phases).

Explanation of UL symbols

All symbols and descriptions of UL symbols can be found on the Internet:
http://www.ul.com/mark/art.htm

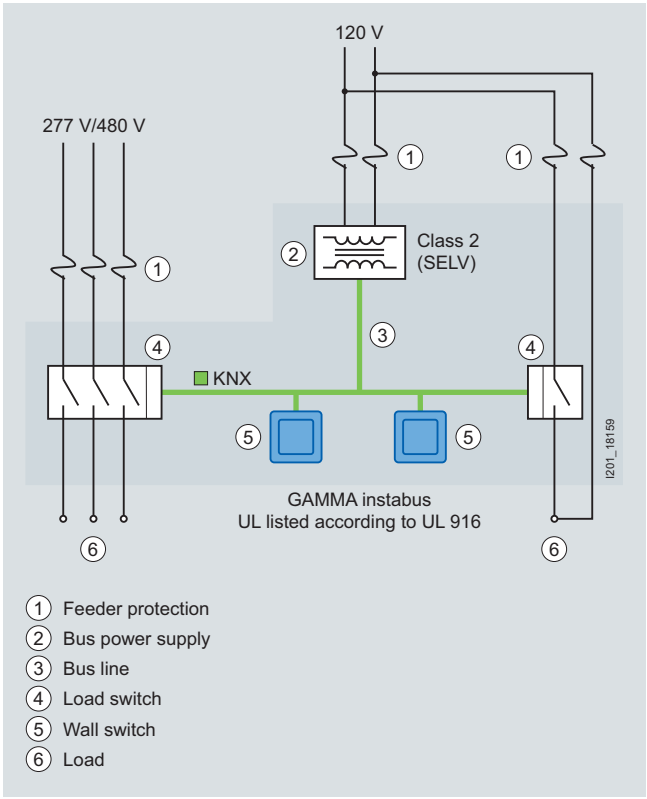
General information about UL can be found at:
http://www.ul.com

Symbol	Application
	**UL symbol** This is the most used UL symbol. If a product has this mark, it means that the device samples tested by UL have met the UL safety requirements. These requirements are largely based on the UL standards published by UL. This mark can be found on all types of devices, such as household appliances, computers, fuses, electrical switchgear, fire extinguishers, life belts and thousands of other devices.
	**c-UL symbol** This mark applies to the Canadian market. Products bearing this mark have been tested by UL in accordance with the Canadian safety requirements, which vary slightly from the US regulations in some points.
	**c-UL US symbol** This symbol was introduced at the beginning of 1998. It means that the device bearing this mark complies with both UL and Canadian regulations.
	**UR, c-UR and c-UR US symbol** Recognized Component Mark and Canadian Recognized Component Mark These symbols are seldom seen by consumers as they are affixed to special components that are part of a larger system or product. These components may have technical or design restrictions.
	The Component Recognition symbol can be on a large number of products, such as switches, power supplies, printed boards, switching devices and many other products. Products for Canada have an additional "c".
	The c-UR-us symbol was introduced in 1998 and means that the marked components meet both the UL and CSA regulations.

The "UL listed" symbol is applied to devices that can be installed universally and without further instructions or any restriction of their respective applicability, e.g. contactors to UL 508, miniature circuit breakers to UL 489, energy management devices according to UL 916 ...

The "UL Recognized" symbol is intended for devices that may only be installed by experts as components, e.g. miniature circuit breakers to UL 1077, time switches to UL 917, SITOR fuses, ...

UL standard



5TE6 804 socket outlets for distribution board mounting to UL 498

The socket outlets for mounting in distribution boards to DIN 43880 and on standard mounting rails to DIN 50022 have since become standard in modern switchgear assemblies/distribution boards. They are used for tasks such as the connection of plug-in communication devices in communication distribution boards, in switchgear assemblies for maintenance purposes or in private plants for the occasional use of devices with heavy starting duty and separate fusing.

To make installation easier, the touch-protected terminals L, N and PE are located on the side of the socket outlet.

The 5TE6 804 socket outlet is approved to UL 498 as a "receptacle for plugs and attachment plugs - component".

5SJ4 . . .-.HG. . miniature circuit breakers to UL 489

Within the sphere of influence of the ANSI (American National Standards Institute), miniature circuit breakers can be used as an all-round solution for protection tasks in distribution boards, control cabinets and control systems to UL 508A as "branch protectors". In particular, they are also approved for the protection of electrical circuits in heating, ventilating and cooling systems (HVAC).

The terminals are suitable for "field wiring". This means that the devices can be installed not only in factory-finished distribution boards and control cabinets, but also on-site in a customer system.

The rated voltage is 240 V AC and 60 or 125 V DC, whereby the 5SJ4 . . .-.HG40 series is designed for 240/120 V AC systems, 1-phase with "same polarity" connection (same potential at the input terminals) and the 5SJ4. . .-.HG41 series is also designed for 240 V AC systems, 3-phase with "opposite polarity" connection (different potential at the input terminals).

The 5SJ4 . . .-.HG42 range is suitable for use in 480Y/277 V AC systems and is available in 1-, 2- and 3-pole versions. Single-, two- and three-phase busbars in 3 lengths with 6, 12 or 18 pins are available as accessories for all device series. The infeed is via connection terminals, which are available in two versions, for direct infeed at either the busbar or the miniature circuit breakers. Pins that are not required can be covered with shock protection covers.
A handle locking device according to UL is also available as a further accessory.

This covers a wide range of protection tasks, both in residential and non-residential buildings, as well as in industry in electrical circuits to NEC (National Electric Code).

The tripping characteristics B, C and D to EN/IEC 60898 have been adapted so that they fall in the permissible tripping range according to UL 489, as well as for applications at 25 °C and 40 °C. This means that the devices are approved for use according to both standards. The enclosure dimensions of the devices correspond to DIN format.

This means that both device series are suitable for universal use worldwide to IEC or UL standards.

UL standard

5WG1 . . . energy management devices according to UL 916

The UL 916 requirements cover energy management equipment rated 600 V or less intended for installation in accordance with the National Electrical Code NFPA 70. This primarily applies to devices for the control of electrical loads to achieve the desired use of electrical power. Such equipment controls electrical loads by responding to sensors and actuators.

All devices that are powered by the bus voltage or by an external < 30 V DC and < 1.5 A power supply, and that are not connected to voltages greater than 30 V AC/DC, meet the conditions of Class 2 equipment. These devices can be used as energy management equipment according to UL 916 (energy management equipment accessories).