



## Frequently Asked Questions:

### 1 Summary:

In difference to the European Community the USA and Canada do not have a common organization for norms so far. In both countries there are several independent organizations and companies working on national norms/standards, which are sometimes in direct competition. This can cause a lot of confusion especially at foreigner companies.

In a first step this document describes the requirements for frequency inverters being sold to the USA and Canada market.

In a second step this document introduces the two major organizations that are working on electrical standards, components/product approval and certifications for the American and Canadian market, as it is almost impossible to introduce all of them. The two companies are the “Canadian Standards Association (CSA)” and the American “Underwriters Laboratories Inc. (UL)”. Both companies, the CSA and the American UL signed a Memorandum of Understanding (latest update: April 2006). This memorandum defines the mutually acceptance for tests and investigations in accordance to defined standards.

### 2 USA Market:

#### 2.1 Legal regulation in the USA

Most of the electrical products are subject to the federal law of the USA that obligates the product being approved and registered before launching it to the market. It must be shown by evidence that the product meets all legal requirements (safety, health, environmental,) **and has been approved accordingly**. The federal legal requirements for registration-obligated products are listed in the “Code of Federal Regulations (CFR)”.

#### 2.2 Authorities

There are several federal authorities with individual responsibilities as for example:

- Food and Drug Administration (FDA) that belongs to the “U.S. Department of Health and Human Services” and is responsible for medical products and radiation protection.
- Occupational Safety and Health Administration (OSHA), which belongs to “Department of Labour” and is responsible for industrial safety. OSHA published the “National Electrical Code”.



These authorities nominate the so called “Nationally Recognized Testing Laboratories (NRTL)”.

These NRTLs are accredited for over the US as there is for instance: The NRTLs accredits several organizations for approval electrical components and product: Canadian Standard Association (CSA), Communication Certification Laboratory Inc. (CCL), Curtis-Strauss LLC (CSL), MET Laboratories Inc. (MET), National Technical Systems Inc. (NTS), TÜV Süd America Inc. (TUV AM), TÜV Rheinland of North America Inc. (TUV), Underwriters Laboratories Inc. (UL), and others .....

### 3 Canadian Markets:

#### 3.1 Legal regulation in Canada

In Canada the federal as well as the local law obligates that all electrical products in the market must comply with the “Canadian Electrical Code CEC Part 1”. As proof for compliance with the “Canadian Electrical Code CEC Part 1” the certification by CSA was the one and only one in the past. Until 1994 it was only allowed to launch CSA approved products on the market. With effect from 1994 this situation changed. Other Testing Laboratories like “Underwriter Laboratories (UL)” for instance had been accredited by the “Standard Council of Canada (SCC)” and are authorised to certify products for the Canadian market. However, in the daily business people may not as for approval in accordance to “Canadian Electrical Code CEC Part 1”, they may simply ask for CSA approval. But this doesn’t mean that they ask for approval by the Canadian Standard Association exclusively, they just want to confirm that the products is approved for the Canadian market and meets all legal requirements.

#### 3.2 Authorities

In Canada the legal authority for norms on product safety is with the Standard Council of Canada (SCC). The SCC accredits

- Organizations to work out standards
- Certification organizations (CO)
- Testing organizations (TO)
- Quality approval organizations

The SCC accredits as CO for electrical components and product:

Air-Conditioning & Refrigeration Institute, Canadian Standard Association (CSA), Curtis-Strauss LLC (CSL), MET Laboratories Inc. (MET), National Technical Systems Inc. (NTS), TÜV Süd America Inc. (TUV AM), TÜV Rheinland of North America Inc. (TUV), Underwriters Laboratories Inc. (UL), and others .....

All above mentioned organizations/companies are authorised to approve electrical components and products for Canadian Market.



## 4 Approval Organizations:

### 4.1 CSA

Company name:	CSA (Canadian Standards Association)
Year of foundation:	1920
Accreditation:	NRTL (USA), SCC (Canada)
Certification mark:	CSA (NRTL)-Mark for the USA, CSA-Mark for Canada
Head office:	Rexdale (Toronto)
Activities:	- Accreditation - Create national norms for acknowledged industry for Canadian market



For electrical components like inverters the "Canadian Electrical Code CEC Part 1" is the binding legal basis. CSA is authorised by Canadian government to approve and certify electrical products in accordance to the "Canadian Electrical Code". CSA listed product means a product has been tested and meets applicable standards for safety and/or performance, including the applicable standards written or administered by the American National Standards Institute (ANSI), **Underwriters Laboratories (UL)**, Canadian Standards Association (CSA), NSF International (NSF), and others.

### 4.2 UL/cUL

Company name:	UL (Underwriters Laboratories Inc.)
Year of foundation:	1894
Accreditation:	NRTL (USA), SCC (Canada)
Certification mark:	UL-Mark for the USA, cUL-Mark for Canada
Head office:	Northbrook, Illinois
Activities:	- Accreditation - Create national norms for acknowledged industry - Represents USA at international norm committee



UL are the leading organization for "electrical safety" in the USA, an important member of all boards of the "National Electrical Code" and substantially involved in harmonizing international IEC standards. More than 600 different product standards do almost cover the complete portfolio of electrical products and applications. Further UL are acting as accredited product test laboratory, accredited certification office and as an authorized plant inspector. Products approved by UL are marked with a corresponding logo. The most important ones are described below. The UL listed products means that UL has been tested and has evaluated representative samples of that product and determined that they meet UL requirements. For instance an UL listed drive (frequency inverter) is intended for use in unclassified (ordinary) locations in accordance with Articles 430 and 440 of ANSI/NFPA 70, "National Electrical Code."



The UL Listing Mark is one of the most common UL Marks. If a product carries this mark, it means UL found that representative samples of this product meet UL's safety requirements. These requirements are primarily based on UL's own published standards for safety. This type of mark is seen commonly on appliances and computer equipment, furnaces and heaters, fuses, electrical panel boards, smoke and carbon monoxide detectors, fire extinguishers and sprinkler systems, personal flotation devices like life jackets and life preservers, bullet resistant glass, and thousands of other products.



UL Classified Mark appears on representative samples of products that UL has evaluated but only with respect to specific properties, a limited range of hazards or suitability for use under limited or special conditions. Typically, products classified by UL fall into the general categories of building materials and industrial equipment. Examples of types of equipment classified by UL include immersion suits, fire doors, protective gear for fire fighters and industrial trucks.



This Classification Mark is used for products intended for the Canadian marketplace. It indicates that UL has used Canadian standards to evaluate the product for specific hazards or properties. Examples of C-UL Classified products include air filter units, firestop devices, certain types of roofing systems, and others.

cUL Mark is applied to products for the Canadian market. The products with this type of Mark have been evaluated to Canadian safety requirements, which may be somewhat different from U.S. safety requirements. You will see this type of Mark on appliances and computer equipment, vending machines, household burglar alarm systems, lighting fixtures, and many other types of products.



The Presidents of CSA Group and UL signed an Agreement on Acceptance of Components and a **Memorandum of Understanding**.

The Memorandum of Understanding agreement between the two organizations simplifies the process for electrical industry customers desiring both CSA and UL marks obtain dual CSA and UL certification through a single test program. That means if someone requires CSA or UL, in fact he requires the product to follow certain norms/standards. According to above explanation this can be approved by the "Canadian Standards Association" (CSA) or by the "Underwriters Laboratories Inc." (UL). To indicate a product being approved by UL for the compliance with the "Canadian Electrical Code" the product is marked cUL.



## 5 Requirements and what is available on MEANWELL drives

All electrical components and products on the USA market must comply with “Code of Federal Regulations (CFR)”. For drives (frequency inverters) the UL508 standard specifies the most relevant application parameters in order to comply with CFR. Drives approved in accordance to UL508 can be judged as products that are in line with the CFR and are approved for usage on the USA market.

Our HLG series of MEANWELL drives are approved for UL508 by the accredited test laboratory Underwriters Laboratories Inc. and there for approved for usage on the USA market.

All electrical components and products on the Canadian market must comply with the "Canadian Electrical Code CEC Part 1". For drives (frequency inverters) the “CAN/CSA C22.2 No. 14” standard specifies the most relevant application parameters in order to comply with the "Canadian Electrical Code”. Drives approved in accordance to “CAN/CSA C22.2 No. 14” can be judged as products that are in line with the "Canadian Electrical Code” and are approved for usage on the Canadian market.

MEANWELL drivers are approved for “CAN/CSA C22.2 No. 14” by the accredited test laboratory Underwriters Laboratories Inc. and there for approved for usage on the Canada market.

