

# General Terms & Conditions of Sale/Maintenance of Solid-State Control

## Governing Law and Forum

The agreement evidenced hereby and all disputes arising thereunder will be governed by and interpreted in accordance with the internal laws and will be subject to the exclusive jurisdiction of the courts of the state, province or other governmental jurisdiction in which Seller's principal place of business resides, but specifically excluding the provisions of the 1980 UN Convention on Contracts for the International Sales of Goods. Should any term or provision hereof be held wholly or partly invalid or unenforceable under applicable law, the remainder of the agreement evidenced hereby will not be affected thereby.

## Assignment

The agreement evidenced hereby may not be assigned by either party without the written consent of the other (which consent will not be unreasonably withheld). However, consent will not be required for internal transfers and assignments as between Seller and its parent company, subsidiaries or affiliates as part of consolidation, merger or any other form of corporate reorganization.

## Language

The parties acknowledge that they have required that the agreement evidenced hereby be drawn up in English. Les parties reconnaissent avoir exigé la rédaction en anglais du Contrat. In the event of a conflict between the English and other language versions, the English version will prevail.

## Maintenance of Solid-State Control

This section is excerpted from Allen-Bradley publication SGI-1.1, Safety Guidelines for the Application, Installation, and Maintenance of Solid-State Control. It is formatted so that explanatory comments from Rockwell Automation appear in blue headings along with the corresponding parts of Section 5 of NEMA Standards Publication No. ICS 1.1-1987, titled Safety Guidelines for the Application, Installation, and Maintenance of Solid-State Control. The text from the NEMA Standard has been reprinted verbatim, with NEMA's permission captioned "NEMA Standard Text." "Explanatory Information," contains the Rockwell Automation comments. The comments provide information to help readers better understand the characteristics of industrial equipment employing solid state technology. NEMA text is provided solely as a convenience to the reader, and Rockwell Automation assumes no responsibility for its completeness or validity.

NEMA Standards Publication No. ICS 1.1-1984, Rev. No. 1 – October 1987, is available from the National Electrical Manufacturers Association, 2101 L Street, N.W., Washington, DC 20037. Allen-Bradley

publication SGI-1.1 is available from your local Rockwell Automation office.

## NEMA Standard Text Section 5 Preventive Maintenance and Repair Guidelines

### 5.1 General

A well-planned and executed maintenance program is essential to the satisfactory operation of solid-state electrical equipment. The kind and frequency of the maintenance operation will vary with the kind and complexity of the equipment as well as with the nature of the operating conditions. Maintenance recommendations of the manufacturer or appropriate product standards should be followed.

Useful reference publications for setting up a maintenance program are NFPA 70B-1983, Maintenance of Electrical Equipment, and NFPA 70E-1983, Electrical Safety Requirements for Employee Workplaces.

### 5.2 Preventive Maintenance

The following factors should be considered when formulating a maintenance program:

1. Maintenance must be performed by qualified personnel familiar with the construction, operation, and hazards involved with the control.
2. Maintenance should be performed with the control out of operation and disconnected from all sources of power. If maintenance must be performed while the control is energized, the safety related practices of NFPA 70E should be followed.
3. Care should be taken when servicing electrostatic sensitive components. The manufacturer's recommendations for these components should be followed.
4. Ventilation passages should be kept open. If the equipment depends upon auxiliary cooling, e.g., air, water, or oil, periodic inspection (with filter replacement when necessary) should be made of these systems.
5. The means employed for grounding or insulating the equipment from ground should be checked to assure its integrity (see 4.5).
6. Accumulations of dust and dirt on all parts, including on semiconductor heat sinks, should be removed according to the manufacturer's instructions, if provided; otherwise, the manufacturer should be consulted. Care must be taken to avoid damaging any delicate components and to avoid displacing dust, dirt, or debris in a way that permits it to enter or settle into parts of the control equipment.
7. Enclosures should be inspected for evidence of deterioration. Accumulated dust and dirt should be removed from the top of the enclosures before opening doors or removing covers.

8. Certain hazardous materials removed as part of maintenance or repair procedure (e.g., polychlorinated biphenyls (PCB) found in some liquid filled capacitors) must be disposed of as described in Federal regulations.

### C.5.2 Preventive Maintenance [Explanatory Information (Supplementary Comments—Not part of NEMA Standards Publication No. ICS 1.1)]

Lithium batteries are frequently used for memory backup in solid state equipment due to their excellent shelf life and high energy-to-weight ratio. Lithium is a highly reactive metal that can cause burns if there is contact with skin. The batteries are sealed so there is seldom a problem of contact with lithium as long as reasonable care is exercised when handling them. They should only be used in their intended application and not subjected to rough handling. When batteries are replaced in equipment, the batteries removed should be disposed of in accordance with the battery supplier's instructions.

The Department of Transportation has certain regulations that prohibit shipment of equipment with batteries installed if the batteries contain 0.5 grams or greater of lithium. The batteries must be removed from equipment and shipped separately in a container approved by the Department of Transportation. Additional Department of Transportation restrictions apply to the shipment of lithium batteries.

NEMA Standards Publication No. ICS 1.3-1986, Preventive Maintenance of Industrial Control and System Equipment, is recommended for personnel responsible for maintenance of equipment.

### 5.3 Repair

If equipment condition indicates repair or replacement, the manufacturer's instruction manual should be followed carefully. Diagnostic information within such a manual should be used to identify the probable source of the problem, and to formulate a repair plan. The level of field repair recommended by the manufacturer should be followed.

When solid state equipment is repaired, it is important that any replacement part be in accordance with the recommendations of the equipment manufacturer. Care should be taken to avoid the use of parts which are no longer compatible with other changes in the equipment. Also, replacement parts should be inspected for deterioration due to "shelf life" and for signs of rework or wear, which may involve factors critical to safety.

After repair, proper start-up procedures should be followed. Special precautions should be taken to protect personnel from hazards during start-up.

## C.5.3 Repair [Explanatory Information (Supplementary Comments—Not part of NEMA Standards Publication No. ICS 1.1)]

Follow manufacturer's instructions exactly when replacing power semiconductors mounted on heatsinks since improper installation may become the source of further difficulties. Torque semiconductors or bolts retaining semiconductors to the value specified with a torque wrench. Too much pressure against a heatsink can damage a semiconductor, while too little can restrict the amount of heat transferred from the semiconductor to the heatsink, and resulting in operation at higher temperature with decreased reliability.

Exercise care when removing modules from a system during maintenance. Failed modules are frequently returned to the manufacturer for repair. Any physical damage sustained during removal may result in more expensive repair or render the module unrepairable if damage is too great.

Modules with electrostatic sensitive components should be handled by the edges without touching components or printed circuit conductors. Use packaging material supplied with the replacement module when shipping the module to the manufacturer for repair.

When the scope of repairs exceeds the manufacturer's recommendations for field repair, the module(s) should be returned to the manufacturer for repair. Doing so will help to ensure that only properly selected components are used and that all necessary hardware and firmware revisions are incorporated into the repair. Failure to make necessary updates may result in safety, compatibility, or performance problems, which may not become apparent for some time after the repaired module has been placed back in service. When firmware is protected by copyright law, updates can be provided legally only by the manufacturer or licensee.

## 5.4 Safety Recommendations for Maintenance Personnel

All maintenance work should be done by qualified personnel familiar with the construction, operation, and hazards involved with the equipment. The appropriate work practices of NFPA 70E should be followed.

## Product Compliance Information

For your quick reference, product certification information can be found at the following URL (<http://www.ab.com/certification/> <http://www.ab.com/certification/>) Actual product certification is indicated by the label(s) on the product and not by a listing on this web site or in product literature.

## UL Certification

Generally, Rockwell Automation pursues applicable UL certification for its products. There are four relevant types of certification granted by Underwriters Laboratories (UL):

- UL Recognized or Recognized to Canadian safety requirements under the Component Recognition Program of Underwriters Laboratories, Inc.:



**Actual UL recognition is indicated by the label on the product, and not by statements in this catalog or any product literature.**

- UL Listed, UL Listed to Canadian, or UL Listed to US and Canadian safety standards.



**Actual UL listing is indicated by the label on the product, and not by statements in this catalog or any product literature.**

## CSA Certification

Generally, Rockwell Automation pursues applicable CSA certification for its products. CSA certifies products for general use as well as for use in hazardous locations. Products in this catalog might be certified in one of these two ways:

- CSA Class I, Division 2 Hazardous Location Certification: This product is listed by the Canadian Standards Association as certified for use in Class I, Division 2, Group A, B, C, D, or non-hazardous locations only.



Although Rockwell Automation is only using the Class I Division 2 Group A, B, C, D designation on its products, it should be noted that this hazardous location classification is equivalent to the internationally defined Class I Zone 2 Group IIC area classification (see IEC publication 79-10). Therefore, products labeled Class I Division 2 Group A, B, C, D may be used in Class I Zone 2 Group IIC environments.

- CSA Certification: The product is certified by the Canadian Standards Association for non-hazardous locations.



**Actual CSA certification is indicated by the label on the product, and not by statements in this catalog or any product literature.**

## ISO 9001 Registration

Rockwell Automation has registered facilities encompassing more than 45 separate sites around the world to the ISO 9001 standard. This registration means that itsour quality system governing the design, development, manufacture, and delivery of itsour products has been verified by third-party audits.



## DEMKO Certification

A limited number of Allen-Bradley branded products have DEMKO certification. DEMKO certifies products for general use as well as hazardous locations. As a Notified Body for the European Hazardous Location Directives, DEMKO verifies that our products comply with the applicable European directives and standards for use in hazardous locations. Refer to the specific product nameplate for the actual hazardous location rating.



## CENELEC Intrinsically Safe (IS) Approval

A limited number of Allen-Bradley branded products have CENELEC IS Approval. CENELEC approves products for use in hazardous locations.



**Actual CENELEC Approval is indicated by the label on the product, and by statements in the installation publication for the product.**

## Compliance with European Union Directives

Allen-Bradley branded products covered by European Union Directives are intended for sale and use within the European market and conform to the essential requirements of these directives:

- Products specifically required to do so bear the CE marking per the relevant European Union Directives and CE marking regulations
- Declarations of Conformity for Allen-Bradley branded products are available as required
- The necessary technical documentation is on file within Rockwell Automation.



**Actual CE conformity is indicated by the label on the product or its packaging, and not by statements in this catalog or any product literature.**