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## Design Considerations for IEC 61010-1: Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use

### 2 Day Seminar

#### Day 1:

9:00-10:30 – Introduction to IEC 61010-1. Topics discussed include the following:

- Differences between CSA C22.2 No. 61010-1, UL 61010-1, IEC 61010-1 and EN 61010-1.
- Scope of IEC 61010-1.
- Overview of IEC 61010-1's general requirements.
- Part 2 standards of IEC 61010-1.

10:45-12:00 – Getting to know IEC 61010-1. Topics include the following:

- Marking and Manual requirements.
- Symbols used.
- Determining accessible parts and their requirements.

13:00-14:30 – Basic requirements of insulation. Topics include the following:

- The importance of a block diagram.
- Defining various types of insulation and where each is used.
- Defining working voltage, creepage distance and clearances.
- How Pollution degree, Overvoltage Category, CTI values and Working Voltage affect Creepage Distance and Clearances.

14:45-16:00 – Testing for IEC 61010-1. Topics include the following:

- Single fault tests.
- Mechanical hazards.
- Fluid hazards.
- Radiation protection.
- Interlocks.
- Temperature testing and requirements.

#### Day 2:

9:00-10:30 – Creepage Distance and Clearance determination (in-depth). A sample product is evaluated to IEC 61010-1 to determine the requirements for spacings. The sample used is either one we provide, or one provided by the client. The following is prepared and discussed:

- Preparing the Block diagram.
- Determining the correct tables for creepage distance and clearances.
- Preparing the creepage distance and clearance requirements table.

10:45-12:00 – Selecting components and earthing according to IEC 61010-1. Topics include the following:

- Certifications used for components.
- Requirements for components.
- Component selection tips.
- Earthing and bonding requirements.

13:00-14:30 – Requirements to avoid the spread of fire. Topics include:

- Paths for compliance.
- Fire enclosure requirements.
- Flame ratings and what is required.

14:45-16:00 – Question Period.