

## What You Need to Know About Category Ratings

*Using a properly rated test instrument on your next project can mean the difference between completing the task without incident or suffering a serious injury*

Test instruments that meet the requirements of IEC standard 61010-1 and the U.S. standards based on it, such as UL 61010B-1 and C22.2 No. 1010.1, provide transient protection levels far greater than the instrument's maximum rated input. This type of protection wasn't required in instruments designed to older standards like IEC 348 and UL 1244. Using a test instrument without this additional protection against transient overvoltages can result in serious injury or death.

### Category ratings defined.

Test instruments are rated on their ability to withstand a voltage spike, which is applied through a specified level of resistance.

The ratings are broken down by categories — CAT I, II, III, and IV.

CAT I-rated test instruments are signal-level tools for telecommunications and electronic equipment. Transient voltage risk is limited, but still exists, due to the distances between equipment locations and other equipment located between it and the primary electrical supply. The IEC no longer specifies protection levels for CAT I instruments. Under UL 3111-1, a Cat I 150V rated instrument must be protected to 800V. Under IEC 61010-1 2nd edition, a Cat I 150V meter could be protected only to 500V, as long as that information is in the user's manual.

CAT II-rated test instruments cover the local level of circuits for fixed or non-fixed power devices. This includes most lighting equipment, appliances, and 120V or 240V equipment inside a building.

CAT III-rated test instruments can withstand the transient voltage range found on most distribution circuits. These instruments are used primarily on fixed primary feeders or branch circuits. They're separated from CAT IV utility service or other high-voltage source equipment by at least one level or through transformer isolation.

CAT IV-rated test instruments are designed for testing on the primary supply source, which also includes 120V or 240V overhead or underground lines that power detached buildings or underground lines that power well pumps. The CAT IV rating covers the highest and most dangerous level of transient overvoltage electricians encounter when working on utility service equipment like exterior transformers.