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FLUKE®

How is a test lead like a shoelace?

The big importance of small details

Application Note

When was the last time you thought about your shoelaces? Probably the last time one broke. And chances are it was an inconvenience; you had to find a new shoelace, maybe you were late to work, or you had to make a trip to the store.

A small detail like a broken shoelace can have big consequences. Think about construction workers, athletes, dancers, soldiers or anyone else who can't perform their job without their shoes.

Then think about the test leads on a multimeter. Most users only think about test leads when they add an alligator clip. Many never give their leads a thought until one is broken and needs replacement.

But it's time to pay attention to the small details. International regulatory and standards bodies are. In March 2011, IEC/EN 61010-031 takes effect in Europe. This standard requires all test leads in CAT III and CAT IV environments to have no more than 4 mm (5/24 in) to exposed metal. This short tip length promotes safety in high-energy situations, but it has limitations in other environments. For one thing, a short test lead tip cannot reach inside a standard electrical outlet.

Test leads are essential to taking measurements with a multimeter, and users should pay attention to the details. If a test lead is lost or broken, you can't work. If your leads are damaged, they are potentially unsafe. And if they don't meet applicable laws and standards, using the wrong leads yourself or providing the wrong leads to a member of your work crew could have legal implications.

Fluke's new TL175 TwistGuard™ test leads let the user select the proper tip exposure for the job at hand. Test leads are a small item that can have large safety and productivity implications for test equipment users.

Fluke is paying attention to the details. The newest test leads from Fluke, TL175 TwistGuard™ Test Leads, provide five key benefits that will help you be more productive on your job:

- TL175 Test Leads are the only test leads in the world with a manually adjustable test tip guard for use in changing measurement situations.

By simply twisting the test lead, the user can change the exposed probe tip length from 19 mm (3/4 in) to 4 mm (4/25 in). Fully extended, the TL175 Test Leads are safety rated for CAT II 1000 V use. When retracted the test leads are safety rated for CAT III 1000 V and CAT IV 600 V.

- The new TL175 Test Leads are also Fluke's first leads with WearGuard™ insulation. Each test lead is covered by two layers of silicone insulation: red or black on the outside, and white on the inside. If the TL175 Test Leads become nicked or scuffed and white insulation is visible, the user has a visual warning that the test leads should be replaced.
- These test leads are designed to last longer than any other leads currently available. The dual-layer silicone insulation resists melting if it comes in contact with hot surfaces. The extra-heavy duty strain relief, built into both the probe-end and the plug-end, has been testing beyond 30,000 bends without failure.
- The TL175 Test Leads also offer screw threads at the base of the probe. This allows the user to add several screw-on clips, probes and specialty tips. The threads improve measurement reliability, while the wide range of probe tips enhances measurement productivity.
- The universal input plugs work with all popular brands of digital multimeters with 4 mm input jacks.

Test leads are a small detail, something that most users never think about. By using Fluke's newest leads, the TL175 Twist-Guard Test Leads, you can use your DMM and know that Fluke has already taken care of the details for you.

Fluke. *Keeping your world up and running.®*

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