

PESDs & AVTs:

Working Together for Smarter Electrical Safety

For years, Permanent Electrical Safety Devices (PESDs) and Absence of Voltage Testers (AVTs) have been seen as competing technologies in Lockout/Tagout (LOTO) safety programs. In reality, they are complementary tools, each with distinct advantages, ideal use cases, and aligned objectives: to reduce risk, improve efficiency, and ensure compliance. It's not about choosing one over the other. It's about knowing when and where to use each one.

Understanding the Tools

What is a PESD?

A PESD is a visual or test-point device installed on or near an electrical enclosure. It allows a qualified person to verify the presence or absence of voltage safely, often without opening the panel. Types of PESDs include:

- **Voltage Presence Indicators** (LED lights showing live power)
- **Thru-door Test Points** (Safe-Test Points, ChekVolt) for voltmeter use during absence of voltage testing



What is an AVT?

An AVT is an automated testing device that confirms the equipment is de-energized. AVTs perform their own internal diagnostics and output a clear PASS/FAIL status. They are designed so that task-qualified personnel (non-electricians) can confidently complete mechanical LOTO procedures without requiring an electrician to open the panel or use a meter.

Complementary, Not Competitive

When to Use a PESD

- **Electrical Work by Qualified Personnel:** PESDs support Live-Dead-Live testing using a meter, which is a requirement for NFPA 70E compliance before hands-on electrical work begins.
- **Detailed Troubleshooting:** Voltage indicators and test points enable electricians to detect phase loss, ground faults, and verify the presence of stuck blades during diagnostics.

- **Redundant Safety for Complex Tasks:** Even when an AVT is present, electricians may prefer to verify using a PESD and multimeter, adding another layer of certainty.

When to Use an AVT

- **Mechanical LOTO by Task-Qualified Personnel:** AVTs remove the burden of waiting for a qualified person to confirm absence of voltage. A maintenance tech performing routine service can safely initiate LOTO themselves after verifying the AVT status.
- **Improving Workflow & Reducing Delays:** For repetitive tasks such as clearing jams or replacing sensors, an AVT enables task-qualified personnel to respond quickly and safely, without interrupting operations for an electrician's callout.
- **Reducing Risk from Human Error:** AVTs eliminate the chance of incorrect meter readings or misinterpreting voltage status, especially important for workers who are trained in LOTO but not electrical diagnostics.

Use Case Scenarios

Role	Task	Best Tool
Electrician	Troubleshooting live panel	PESD (ChekVolt, Safe-Test Point)
Maintenance Tech	Changing a motor or pump	AVT
Qualified Person	Performing Live-Dead-Live test	PESD
Task-Qualified Person	Clearing a jam or sensor issue	AVT
Electrical Supervisor	Verifying compliance & redundancy	Both

Why Using Both is Smart Safety

Together, AVTs and PESDs create a layered safety program that accounts for:



**Different
user roles**



**Different
job types**



**Different
risk levels**

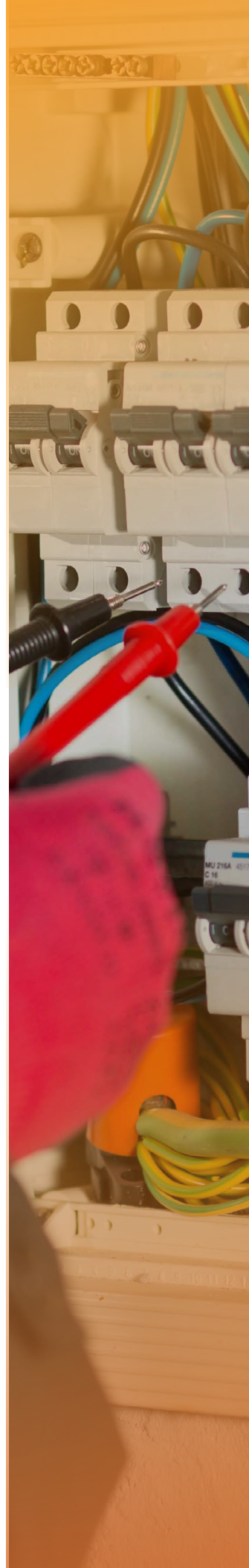
PESDs offer precision and control. AVTs offer speed and simplicity. They don't compete—they complete each other.

Compliance Considerations

NFPA 70E requires absence of voltage verification before Lockout/Tagout (LOTO) begins, using a properly rated and maintained test device.

PESDs support compliance with:

- **120.6(4):** Voltage LEDs stay illuminated until all hazardous energy is released, providing visual warning of live voltage.





- **120.6(7):** Touch-safe test points allow qualified persons to perform phase-to-phase and phase-to-ground absence-of-voltage testing using an adequately rated portable test instrument, while also enabling verification of the instrument's functionality on a known voltage source before and after the test, as required by the standard.

AVTs satisfy Exception No. 1 to 120.6(7), which allows their use in the absence of voltage verification if the AVT is listed for this purpose, installed according to the manufacturer's instructions, and verified operational via internal testing.

Note: AVTs must be tested regularly. PESDs require meter validation against a known voltage source (proving unit).

Takeaway: One Toolbox, Multiple Tools

Think of PESDs and AVTs like different tools in a well-stocked toolbox. You wouldn't use a screwdriver when you need a wrench, and you wouldn't send an electrician every time a conveyor belt needs adjustment.

Instead of asking, "Which device is better?" ask:



Who is performing the task? Qualified electricians may need detailed diagnostic tools. Task-qualified personnel may require rapid, safe verification without prior electrical training.



What kind of task are they doing? Is it electrical troubleshooting, or mechanical service, such as clearing a jam or replacing a sensor?



What is the risk level involved? Higher voltages or complex systems may require manual verification. Lower-risk, repetitive tasks may benefit from automated verification.

In many facilities, the right answer is a combination: AVTs for simplifying mechanical LOTO by task-qualified workers, and PESDs for giving electricians precise control during electrical work.