# It's Not Your Fault… but You Have to Find it!

*Stop guessing about circuit breaker tripping issues!*

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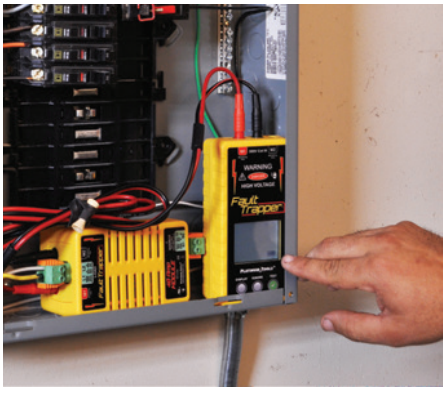

The bane of every electricians' existence is the "No Fault Found" scenario: the condition where a circuit breaker will trip without warning and regardless of what you've tried, it keeps tripping. You hope when you got the call, that it would be a cake walk; an overloaded circuit, maybe a bad breaker but a day passes, two days… a week later after repeating your troubleshooting routine multiple times, you give up and tell your customer that you have to rewire the entire circuit because there was, "No Fault Found."

These situations are vexing and finding the root cause of the tripping in the first place can be a hassle. You didn't wire the site so each scenario is different, and the time and cost of finding the problem varies from job to job, leaving you in a precarious situation.

Today's tools and testers can only bring you so far to fixing a fault in a line. Without a consistent or reliable way for circuit breakers or connected electronics to "see" certain potentially dangerous events, you are unaware that a fault may be dependent on specific factors and conditions that happen when you are not there.

You're at a point where in order to be able to tell why something's happened, you need to know what, when and where it happened. All three of these data points are crucial to make sure an electrical line is safe and will not fail or trip circuit breakers due to arc faults or intermittent shorting conditions.


## Where Are We Headed?

Circuit breakers are improving. Beyond industry requirements, which specify the broadened usage of a new type of sensor called an Arc Fault Circuit Interrupter (AFCI), technology is ever changing and evolving for the better, sometimes keeping up with the industry, and sometimes taking a giant leap forward ahead of new standards.

One such advancement has been the introduction of Spread Spectrum Time Domain Reflectometry (SSTDR) to monitor live circuits. SSTDR is designed to be able to see within an electrical line, ignoring the ambient noise created by the power being delivered and see impedance discontinuities that are created with the aforementioned electrical problems such as opens, shorts and arc faults. Patented algorithms and unique methods of application make SSTDR the only technology capable of getting the vision necessary within a live cable/circuit to find faults and show where they are originating from.

With such rapid advancement of technology, it's only a matter of time before SSTDR will reside in circuit breakers, "smart" meters, power transformers, switchgear, and possibly everyday appliances and entertainment devices. The result will be a safer and more transparent electrical system that will save lives and make electricity easier to use from all sources.

Until then, there needs to be a stop-gap that will allow technicians a way to find shorts at any given time and even for non-sustained events, especially if the intermittent problem does not trip the circuit breaker. Unknown problems are the worst of all as those tend to be the ones that cause the most damage since they can't be fixed until it's too late.

With electrical events that happen randomly, or that don't occur when you are at the site, unattended continuous monitoring has become crucial, but painfully non-existent, until now.

## Enter the New Fault Trapper™

For the first time with a portable or installed tester, a technician can now detect the type of fault, timestamp when the fault happens, and locate the position of an electrical "event" that causes intermittent/persistent circuit breaker trips and No Fault Found (NFF) conditions…the critical information needed to reduce call backs for circuit breaker trips.

Utilizing SSTDR technology, the Fault Trapper™ is the first of a new class of live circuit monitoring testers intended to locate the distance to a circuit anomaly that is either intermittently causing a change in the circuit's characteristics or blowing the circuit breaker itself. Running on system, inline power for extended battery life, it captures time and distance to Opens, Shorts, and Arc Faults before saving the event information in memory for later investigation. The last faults can be viewed off-line using the back-up battery. The in-line 40 Amp Module isolates the

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circuit being monitored from the breaker panel and all other breakers.

As mentioned earlier, the Fault Trapper™ can now capture and save both types of events separately. If the circuit breaker trips, the backup battery powers the Fault Trapper™ to allow for an orderly shutdown. The last faults can be viewed using the battery power. The In-Line Adapter isolates the circuit being monitored from the breaker panel and all other breakers.

The Fault Trapper™ is optimized to detect shorts and opens in a dedicated circuit whether or not it trips the circuit breaker. If there's an intermittent short or open up to the receptacle, it will detect it.

And what is most beneficial is the fact that Fault Trapper can be left in place for unattended monitoring of the circuit for hours, days weeks, or even months. All that's needed is to just set it up, press the Start button to begin monitoring, and walk away. Come back later or the next day/week to find out the why, when, and, where's of circuit breaker trips and NFF conditions. It runs off system power so it does not draw on its internal battery, which is there to only light up the unit when the "display" button is pushed to see what happened when the breaker trips.


The Fault Trapper™ is easy to install, no cutting or stripping of wires, and can be installed in less than 2 minutes. Once set, it will monitor an electrical line of up to 500 feet in length, and capture electrical events that happen along the line or at the load. Even if the breaker does not trip, any energy event will be recorded so that the contractor can see what occurred even though the circuit breaker did not get enough energy to trip itself.

The Fault Trapper (P/N TFT100) connects to a 120V/240V AC circuit between the tripped circuit breaker and the load. It is small enough to fit inside the panel for extended monitoring, and is TUV and CE-tested to comply with UL and EU safety standards for devices used inside a load center.

## Conclusion

Once again, the industry will get to a point when circuit breakers will be entirely self-contained and include its own monitoring technologies. Until then, whenever that may be in the years, or even decades ahead, there are an extremely limited amount of options to keep the amount of once potentially unrecognizable hazards and call backs to a minimum. Fortunately, there is a field solution in the form of the Fault Trapper™, available now from Platinum Tools. For more information visit www.platinumtools.com or call 800-749-5783. ❑