

QUICK-TRIP PRACTICAL EXAMPLE

A technician needs to rack out a feeder breaker for maintenance. In so doing, he is the minimum 18" away from any potential arc flash source in the cubicle. As the breaker is being racked out, a 12,000 amp arcing fault occurs inside the cubicle. The 2000A main breaker sees the fault and trips, subsequently clearing the fault in the feeder breaker cubicle.

The two graphs below illustrate the dramatic impact that arc-clearing time has on incident energy levels.

Given that: **F = 12kA** and **D = 18 in.**

Graph 1: QUICK TRIP OFF shows the trip time characteristics of the main breaker.

- The AC-PRO will cause the main breaker to clear the 12kA fault in .556 seconds (based on a Short-Time Delay of .20 seconds with I^2t IN). The resulting arc duration will be: **t = .556**
- The resulting incident energy is: **$E_i = 25.8022$**
- The Hazard Risk Category is: 4

Graph 2: QUICK-TRIP ON shows the trip time characteristics of the main breaker.

- The AC-PRO will now cause the main breaker to clear the 12kA fault .05 seconds (based on the Instantaneous QT or I QT Pick-Up setting of 8000 amps). The resulting arc duration will be: **t = .05**
- The resulting incident energy is: **$E_i = 2.3203$**
- Hazard Risk Category reduced to: 1

