

Micro-ohmmeter testing with MOM2 / DLRO-H200 and inductive loads

Testing on circuit breakers having a current transformer in the loop



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Problem	Some customers have noticed problems with the MOM/DLRO when testing on some breakers. The resistance readings might be too high in some cases. This can lead to a situation where a fully functional breaker is rejected and taken out of service.
Cause	<p>For most of the breakers the MOM/DLRO is as accurate as other types of micro-ohmmeters but if there is a current transformer (CT) in series with the breaker contact to be tested, then it is advisable to make some basic checks.</p> <p>Encapsulated or dead tank breakers are the most common types which have a current transformer in the loop.</p> <p>The technical reason is that the CT must be saturated before it is possible to get a reliable result. To get a transformer saturated it needs time and current.</p> <p>The time required to drive the CT in saturation depends on current level and secondary side burden. The time is usually several seconds if secondary side is shorted.</p>
Solution	<p>If possible make a visual check to be sure that there is no current transformer in the loop. If this is not possible like in encapsulated breakers then make the following check:</p> <ol style="list-style-type: none"> 1] Make two tests, one with 0.1 seconds and one with 3 seconds setting. If the values are equal then there is no current transformer in the loop. <p>If you get different readings it might be a need for a “workaround”.</p> <ol style="list-style-type: none"> 1] If possible increase the current and / or test time. 2] Increase the burden on the current transformer by connect a 5 to 10 ohm resistor across the winding. 3] Repeat the measurement several times in the same direction until a stable value is reached. 4] Demagnetize the CT before putting the circuit breaker in service again.