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Test And Training Set User Manual

Centurion Recloser

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1. OVERVIEW

The Test and Training Set (TTS) is used to test the MJ-R control cubicle for Siemens Reclosers. By also simulating the operation of the switchgear portion of the recloser, it can be useful for personnel training as well.

The TTS consists of a carrying case with two cables. It incorporates a switchgear simulator and interposing current transformers (CTs) to allow current injection into the control cubicle to be tested.

Two modes of connection to the control cubicle are possible.

Stand alone mode where the TTS is connected to the control cubicle in place of the switchgear.

Parallel operation mode where both the TTS and the switchgear are connected to the control cubicle.

2. Stand Alone Mode

This mode is typically used for maintenance or training. All features of the control cubicle can be tested except the AUTO/MANUAL load break switch status.

In this mode, the switchgear cable is removed from plug P1 in the control cubicle and TTS cable N05-207 is connected. The TTS then acts as a switchgear simulator and can be tripped/closed by the control cubicle. Current can be injected through the terminals to test control cubicle measurement and protection functions. When the switchgear simulator is tripped, injection current is interrupted.

Note: The control cubicle will not permit operation of the TTS switchgear simulator until the "SWITCH DATA VALID" indication is shown on the control cubicle. This may take up to 3 minutes when the TTS is first connected.

3. Parallel Operation Mode

This mode is typically used for in-service testing with minimal disruption to the switchgear.

In this mode, the TTS is connected to the current injection point at the top of the control cubicle using cable N05-208. The switchgear remains connected to the control cubicle through plug P1 and the TTS is used solely as a means of secondary current injection.

In parallel operation mode the control cubicle still controls the switchgear so if sufficient current is injected into a recloser control cubicle it will trip the

recloser. This allows checking of the combined recloser and control cubicle operation.

Note: In order to avoid interruption of power to customers, the switchgear should be bypassed prior to conducting a trip test.

Any current injected using the TTS will add as a vector sum to the current flowing in the switchgear. For example, if the injected current and line current are opposing phases, the current seen by the control cubicle will be reduced by the injection. Because of this, it may be beneficial to bypass the switchgear to improve the accuracy of the injection.

Note: In this mode the injection current is not interrupted when the switchgear operates.

4. Current injection specifications

Limit 2A continuous - equivalent to 800A primary current on switchgear.

Limit 10A for 3 seconds - equivalent to 4kA primary current on switchgear.

Limit 30A for 0.5 second - equivalent to 12kA primary current on switchgear.

Accuracy on TTS interposing CTs over secondary injection range 0.05A to 10A - equivalent to primary current range 20A to 4kA.

Stand Alone Mode - accuracy 2% of value
Parallel Operation Mode - accuracy 3% of value

Burden less than 1VA at 1A injection.

If current injection exceeds these limits the overcurrent protection operates to interrupt the injection circuit.

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