

F5814

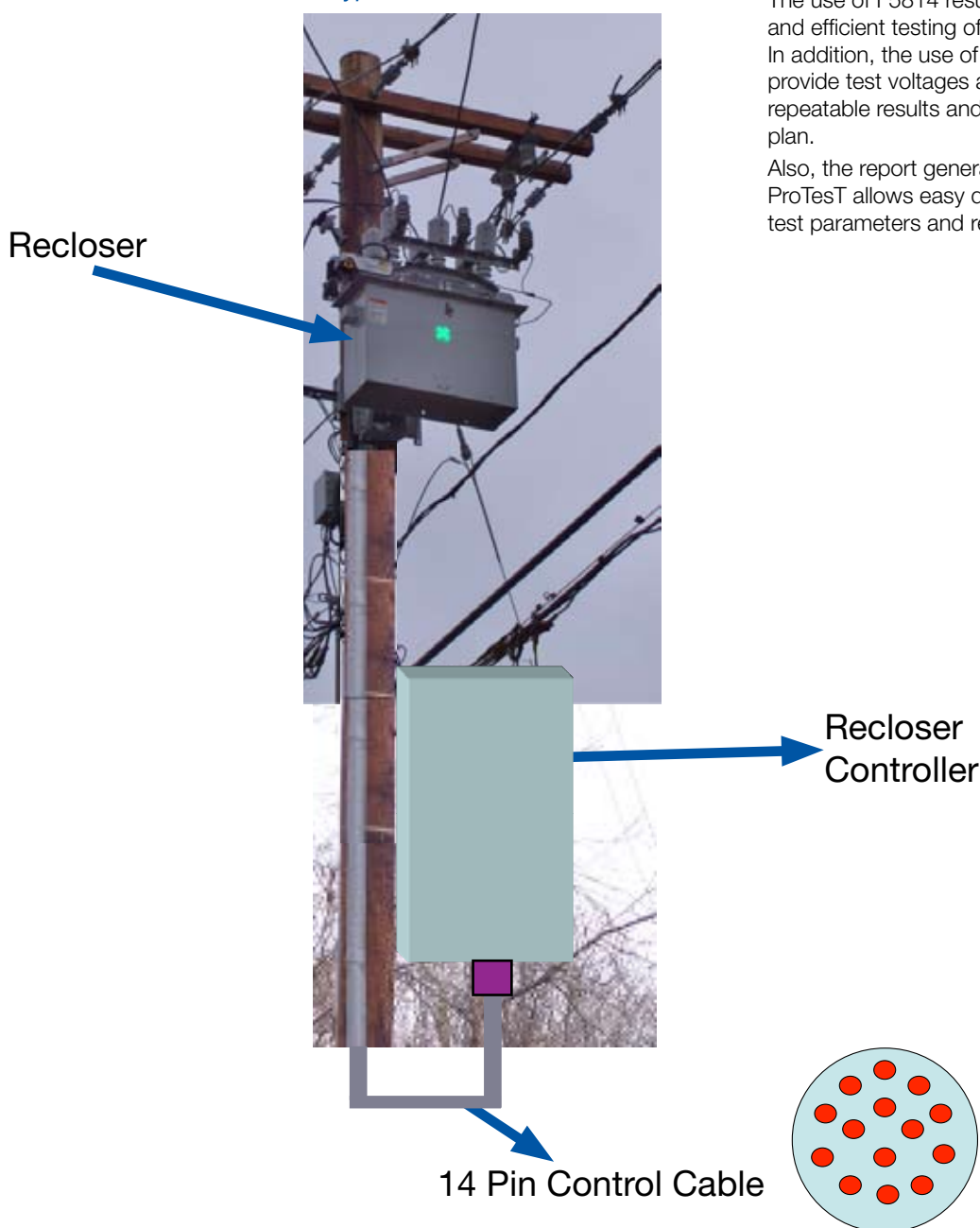


RECLOSER INTERFACE UNIT

Typically reclosers are installed on electric utility poles closer to the power conductors while the recloser controller is located on the same pole closer to the ground. The controller is connected to the recloser via a control cable. These control cables can have various configurations such as 14, 19, 26 or 32 pins. The F5814 supports a 14 pin cabled recloser.

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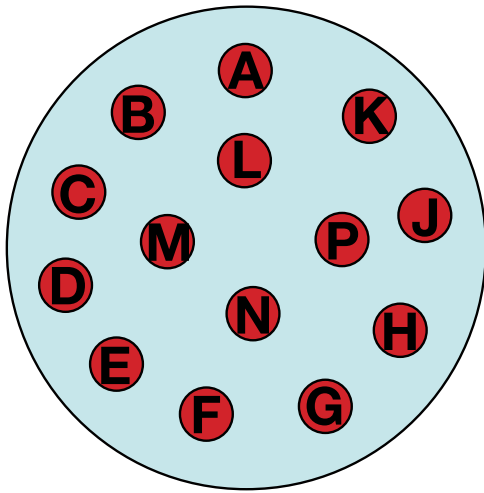
Typical Recloser installation



The use of F5814 results in an effective and efficient testing of 14 pin reclosers. In addition, the use of ProTesT macros to provide test voltages and currents yields repeatable results and a standardized test plan.

Also, the report generating feature of ProTesT allows easy documentation of the test parameters and results.

Typical pin designations of a 14 pin control cable are as follows:



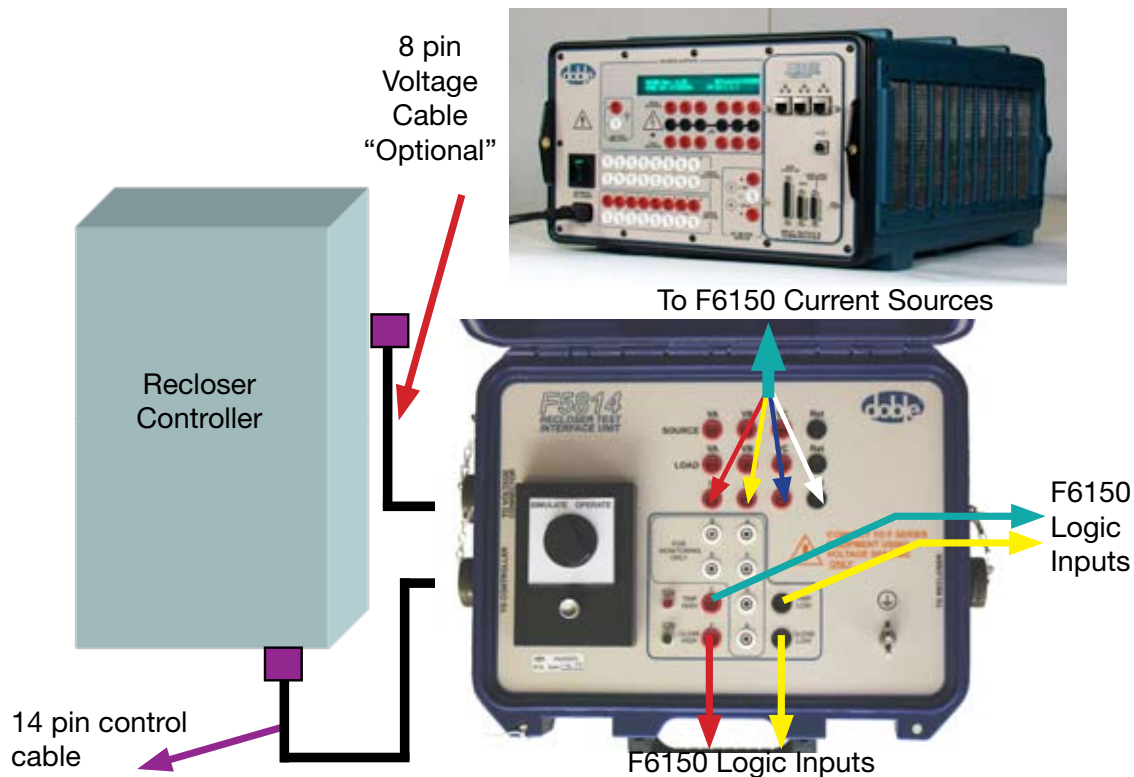
- | | |
|---------------------------------|---------------------------|
| A 24V dc | H Terminal I2 Current |
| B Monitored Trip Circuit Point | J Terminal I3 Current |
| C Trip | K Residual Current Return |
| D Monitored Trip Circuit Point | L Not used |
| E Close | M Recloser Ground |
| F Monitored Close Circuit Point | N Not Used |
| G Terminal I1 Current | P Not Used |

The control cable brings in the three secondary phase and neutral currents from the Cts located in the recloser to the recloser controller. These secondary currents are carried by pins G, H, J, and K. Pins C and E carry the trip signals from the recloser controller to the recloser where the trip and close coils for the recloser are located in a control box attached to the recloser. The 24 Vdc is contained in the recloser controller and this is used for providing the power to the trip and close coils.

In order to test the recloser and recloser controller, currents are injected by F6150 and the trip and close circuits are monitored by the F6150 logic inputs. Conventional test sets cannot inject current into the recloser controller directly since the currents are transmitted via a pinned cable. Also, the trip and close signals are available via the pinned cable. Hence a unit such as F5814 is needed to interface between the recloser/ recloser controller and the F6150 test simulator.

There are two modes in which F5814 can be used; SIMULATE or OPERATE mode.

The diagram below shows the testing in a SIMULATE mode.



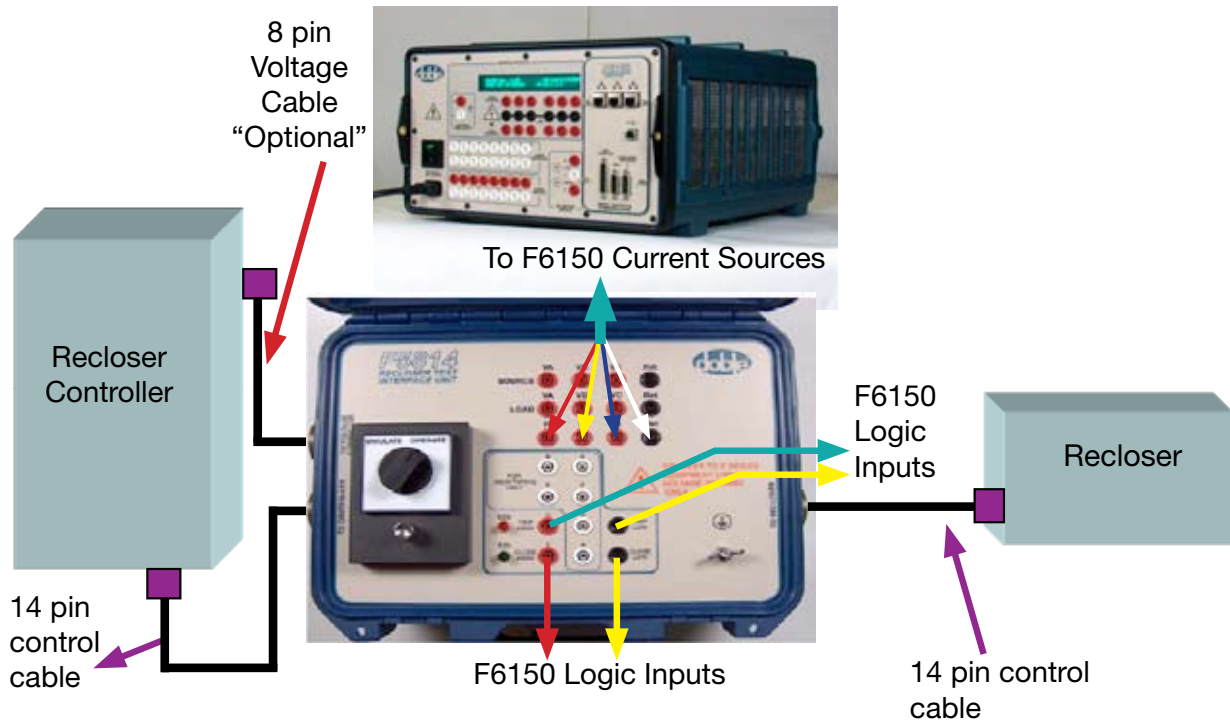
In this mode, the recloser is out of the circuit and hence the trip and close coils which are located in the recloser have to be simulated and this simulation is performed in the F5814. These simulated coils located in the F5814 react to the 24 Vdc that is provided by the recloser controller via the 14 pin control cable.

The currents, which under normal operation, are fed by the CTs located at the recloser, are supplied by F6150 via F5814 during the test.

The trip signals received by F5814 from the recloser controller are passed on to the logic inputs on the F6150. Hence, the F6150 supplies controlled currents and gets the status of tripping/closing of the respective simulated coils in the F5814.

The user can either use the Control panel or the macros within ProTesT to run various tests. These tests normally include the pickup test, testing of time overcurrent curves, and testing of various recloser open interval timings including lockout. For the last test SSIMUL macro is very useful.

In Operate mode, the recloser is brought into the test circuit as shown below in the diagram. Hence, when the trip and close signal is issued by the recloser controller, the recloser itself is opened and closed based on the signal provided.



In this mode the simulated trip and close coils in the F5814 are bypassed and the F5814 simply passes the signal that it receives from the controller to the recloser trip and close coils. However, it still registers the trip and close status and passes this information to the F6150. The testing regimen conducted in the OPERATE mode are similar to the SIMULATE mode.

If the recloser has Pts available on the load and the line side and the closing is supervised by sync check element in the recloser controller, an optional 8 pin voltage cable is provided. The diagrams above shows the connection of such an arrangement.

LEDs to display the 52a and 52b states are provided and signal monitoring terminals provide signal access to digital voltage meters or oscilloscope.



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