

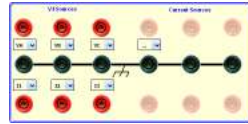
# CUSTOM OPTIONS

Features to Customize Your Doble Power System Simulators

## HIGH BURDEN TESTING

### F6810 Convertible Voltage/Current Sources

The F6810 option allows you to properly test high-burden, ground over current relays, these are the protection devices that are relied on the most when everything else fails to detect high resistance faults. This option can be used in a current mode with a unique direct coupled power amplified design. It provides multiple ranges, each capable of delivering full power during testing. It also gives your test set high compliance voltages that can be used for high power testing at low current range.



### F6005 Enhanced ratings

The F6005 enhanced power rating option allows for expanded range and power output (VA) of the power current amplifiers. The output range and power of the currents are increased to provide high power for an extended period of time.



## IEC 61850 TESTING

### F6860 GSE Configurator

The F6860 and Doble 61850 TesT software simplify IEC 61850 compliant protection testing. The F6860 allows you to connect the F6150 test set to the station communication network to test an IED or a scheme of multiple IEDs.



This enables the test set to receive messages and status information from all IEDs connected to the network while simultaneously simulating one or more IEDs and publishing messages to the IEDs under test. It also tests hybrid systems that include GSE messages and conventional hard-wired logic connections. The GSE software reads IEC 61850 SCL files, scans the network for messages and simplifies configuration of the input and output messages. This option includes Doble 61850 TesT Basic Software.

*Available only in the F6150sv.*

### F6870 Sampled Values

The F6870 option simulates up to 3 streams of sampled values per UCA2 9-2 LE implementation guidelines. Each stream has 4 voltages and 4 currents with a total of 24 sources.



Primary values are used per IEC 61850 standard for parameter setting of IEDs and for displaying test quantities of voltage, current and impedance. It supports hybrid protection systems using IEC 61850 sampled values, conventional currents and voltages from VTs and CTs, as well as low-level analog outputs.

*Available only in the F6150sv.*

## MANUAL TESTING

### F6011

#### Mobile Control Panel Application

The F6011 Mobile Control Panel Application runs basic, manual protection testing from any device connected to a web browser. Whether you are testing with a PC, tablet or smart phone, Doble's F6011 option allows you to connect to and control your Doble power system simulator without the need for additional software.



### F6803

#### Internal Wi-Fi

The F6803 Wi-Fi option, as per 802.11 B&G, is for easier testing in space restricted areas. This option is necessary if you want to use the F6011 with tablet devices.



### F6800

#### Transducer Interface

The F6800 transducer interface gives you the capability to test energy meters and transducers. Perform simple performance verification tests and develop a library of automated tests based on specific practices and test results using Protection Suite Software. Develop detailed reports for compliance requirements. This option includes Protection Suite Basic Software.



## AUTOMATED TESTING

### F6910

#### Advanced Automation and Communication

The F6910 automates protection testing using an external computer. This option can be used to perform automated testing with Doble protection testing software or any third party software system.



## SPECIALIZED FUNCTIONS

### F6351

#### Amplifier conversion

Doble's adaptive product design allows your current F6150e/sv to function as an F6350e amplifier with a simple switch within the firmware. This option includes F6 Multi-Amp Configurator Software.



### F6820

#### Analog Input Measurement

Doble's Analog Input Measurement (AIM) option gives you the ability to record external analog or digital signals using your test set's logical inputs. You can also record the internal analog signal generated by the test set. The AIM option allows you to evaluate the performance of a protection scheme in the field or lab. It can also be used during commissioning. Logic-input connections can be used to record the transformer's output and can determine the correct polarity connection to the protection scheme for NERC required VT & CT verifications (phasing or load checks).



### F6885

#### GPS Receiver Interface

The F6885 synchronizes multiple F6000 instruments with a GPS satellite system. Testing capabilities include Phasor Measurement Units, IEC 61850 time stamped relay results, end-to-end testing and testing of communication equipment. See Doble's F6051, F6052 and F6895 for time synchronization hardware options.



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