



# Doble RTS™

Universal Protection Testing System

Product Specifications and  
Features

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## About Doble RTS

Doble RTS (RTS) protection testing software helps standardize elements of your relay testing program. It is ideal for testing and capturing data during commissioning and field performance/compliance testing. RTS is vendor-neutral, which allows you to connect to a variety of relay test sets in your test equipment inventory.

## General Features

- Database-driven test system for testing relays or any other power system device. Multiple records source from and reside in a single database versus multiple separate files. Keeps historical results together with newest results. Records from electromechanical and microprocessor relays are kept in the same database, along with records of any other power system devices.
- Controls relay test sets from various manufacturers, including:
  - Doble (F2000 and F6000 series)
  - ISA (DRTS)
  - Manta (MTS 1700 and MTS 5000 series)
  - Megger® (EPOCH, PULSAR, MPRT and SMRT)
  - OMICRON (CMC and CMA)
  - SMC (PTE Range and Mentor)
- Library of more than 550 relay test routines
- FasTesT routine creation
  - Allows creation/editing of complex test procedures without the need for programming.

## Standardization

- Tests operate by performing standard fault calculations from settings. One relay test works for multiple relays with the settings as applied even if the settings vary from relay to relay.
- Relay packages of same relays can be copied/pasted/updated to multiple locations during setup of new database.
- Linking tools for “one-to-many” test routine management. One test routine can be *linked* to numerous test subject relays for standardized testing across a population of the same model/style of relays.
- Supports combined test routines of linked and stand-alone tests within the same routine. Gives flexibility for testing a population of same model/style relays with *both* standardized, common tests and scheme-specific tests.
- Barcode reader interface tool for automatic retrieval of test routine of test subject relay
- Folders for grouping tests within routines. Can have folders for steady state tests; worker procedures and job aids; dynamic tests; linked tests; stand-alone tests, etc.

## Relay Testing

- Relay test routines are specific to each relay model/style

- Relay test routines operate from the settings as applied to the test subject relay
- Test routines for microprocessor relays feature automated population of settings table data
- Test routines for microprocessor relays download settings from test subject relays
- Test routines for microprocessor relays extract settings from settings files
- Settings from Excel spreadsheets can be copied/pasted into/from settings table in test routine
- Scripting engine for coding fully-customized tests
  - Advanced functionality is accessed via simple, one line commands.
- COMTRADE playback
- End-to-end testing capabilities, even with mismatched test sets
- State sequence testing
- Standardizes creation of fault templates. Uses MS Excel for creating fault templates and importing to state sequencer.
- Fully-editable test parameters, timing curves, ramp rates, ramp actions, etc.

## General Asset Testing / Non-relay Testing

- Form creation/editing tools for custom test forms for testing any device
- Forms are intelligent, allowing advanced analysis of results for pass/fail criteria
- Form tools can be applied in three ways:
  - Create custom forms
  - Create tests that retrieve existing company-created test forms in Microsoft Word or Excel and other file formats
  - Create tests that retrieve third-party test results

## Storage

- All results—new and historical—are kept and are reportable
- Database keeps 'As Found' and 'As Left' results for every relay on the day it was tested
- Results data includes:
 

○ Pass/Fail/Attempted	○ Test run time	○ Notes/comments
○ /Skipped	○ Major issue flags	○ Automated or manual test run
○ Name of person who performed test	○ Minor issue flags	○ Graphs / test plots
	○ Applied/Measured Values	○ Embedded files
- User-definable fields for entering device nameplate data. Fields can be created for capturing information apart from nameplate like test set calibration date, firmware version, maintenance interval, next test date, etc.
- File attachments can be loaded and associated to discrete test routines and settings
- User-defined import options for automatically configuring fault states from state simulation file imports

## User Preferences

- Editable user options for individual user preferences (e.g., font size, print options, tab displays, test-related settings, etc.)

## Management

- Database merging tools for consolidating and disseminating data among multiple databases
- Editable administrator options for company-wide standards among users (e.g., additional “save result” options, display for non-operational results, minimum “merge” days for results, options for specific relay data fields, etc.)
- Database tools for “all at once” record modification by administrators; for management of databases among users.

## Security

- Test routines can be “keyed” to companies to prevent IP theft of company-written test routines
- Can make specific tests REQUIRED; user will get message upon exiting
- Auto-synchronization with Doble PowerBase™
- Flexible security options (known as “constants”) can be assigned to individual users/groups so that access to specific program features can be controlled

## Licensing

### Keys

- USB dongle keys or software keys
- Basic keys (programmed for manual-use only) and Pro keys (programmed for full automation)

## Test Set Drivers

Driver	Supported Software Features					Supported Test Sets			
	Manual Control	Steady State	Dynamic State	Comtrade Playback	Transducer				
Doble	✓	✓	✓	✓	✓	F6150 F6150A	F6150E F6150SV	F6300	
	✓	✓	✓			Doble F2000 series			
ISA		✓				DRTS 6 DRTS 34	DRTS 64 DRTS 66		
		✓				MTS-5000* <i>*Comtrade playback performed through Manta MTS-5000/5100 test set interface</i>		MTS-5100*	
Megger	✓	✓	✓	✓	✓	SMRT 36	MPRT 8430	MPRT 8445	
	✓	✓				Multi-Amp / AVO Pulsar			
		✓				Multi-Amp Epoch			
Omicron (Requires CM Engine)	✓	✓	✓	✓	✓	CMC 56 CMC 151 CMC 156	CMC 156 EP CMC 256-3 CMC 256-6	CMC 256 Plus CMC 353 CMC 356	CMA 56 CMA 156 CMS 156
SMC		✓			✓	EuroSMC Mentor 12			
		✓				Tres / PTE Range			

## Keyed Software Features

### **Manual Control Interface** (included on Basic and Pro keys)

Control the output of individual current and voltage amplifiers of the connected test equipment, as well as the internal timer and outputs. Configure, apply and maintain configured values as desired.

### **Modbus Communications** (included on Pro keys only)

The Modbus module allows internal commands written within RTS to be utilized to communicate with a device using the Modbus protocol. The Modbus option is required to run a Beckwith test procedure in a fully automated condition using RTS 7. Modbus commands will be added to the GE SR and UR series relays.

### **Steady State Test Operations** (included on Pro keys only)

Locate specific operate values of the relay using various ramping styles (e.g., Linear Ramp, Pulse, Binary Search or Step operations). This is the common method used to test electro-mechanical and electronic relays. The methodology can also be applied to digital relays to verify the proper operation of individual elements.

### **PowerBase Live Testing** (included on Basic and Pro keys)

This module allows RTS to directly access PowerBase records. Testing can be done with a "live" database connection to PowerBase or "offline" for sites with poor or no network connectivity. If multiple setting versions exist for a given record in PowerBase, the RTS user can select which version to use. When testing "live," test results (along with any modified device data or settings) are immediately uploaded to the PowerBase approval queue. When testing offline, test results are kept in the local database until the RTS user synchronizes with PowerBase.

### **Dynamic State Test Operations** (included on Pro keys only)

Determine relay operations using applied states that represent system conditions. This methodology is perfect for system, scheme and logic testing. Dynamic State test procedures support use of GPS satellite equipment to control the start time of a selected test procedure.

### **COMTRADE File Playback** (included on Pro keys only)

Determine relay operation by replaying captured fault data uploaded from a COMTRADE format file. The methodology is used to replay the most accurate system condition possible. The COMTRADE file itself is created outside of the Doble RTS 7 product. COMTRADE file test procedures support the use of GPS satellite equipment to synchronize the execution time of the file.

### **Transducer Interface** (included on Pro keys only)

The Transducer Interface allows a user to create transducer tests. The current implementation of the interface supports 4 transducer types: Voltage, Current, Watt, and VAR. The interface supports a maximum of 18 test points. It includes suggested connections based on the selected transducer.

### **Routine Protection Options** (included on Basic and Pro keys)

Companies can protect test procedures as proprietary content by utilizing the Routine Protection Options which are setup in RTS security. Administrators can choose specific routines, keys and users within their company's global control parameters. When enabled, this option authenticates the user's key and company credentials prior to allowing access to the protected routines.

## RTS Compatibility

RTS is a stand-alone, multi-platform, automated relay testing software program that provides a single computer-driven interface to control Doble, ISA, Manta, Megger, Omicron & SMC test equipment.

RTS replaces the need for many manufacturers' test set software programs, including AVTS, MasterTest, PowerTest, ProTesT, Protection Suite, PulseMaster, and UltraTest and many aspects of Test Universe.

### **System Requirements**

RTS requires a PC compatible computer with these minimum specifications:

- Pentium class processor
- 32 MB of RAM memory (64MB or greater recommended)
- 300 MB free disk space on hard drive
- SVGA monitor with 1024x768 minimum resolution
- Windows XP, XP (x64), Vista (x32), Vista (x64), Windows 7 (x32), Windows 7 (x64), Windows 8 or Windows 10
- Mouse or track ball (Windows compatible)