

## Product Announcement

### New! TDR100 Circuit Breaker Test System



**TDR100:**  
Circuit Breaker  
Test System

Ensures simple,  
accurate and  
efficient timing  
for circuit  
breakers.



Doble's new TDR100 Circuit Breaker Test System is the simplest and most effective way to assess the condition of circuit breakers and switching devices. Its state-of-the-art design and simplicity of operation allows you to test all types of circuit breakers quickly and easily.

### INTRODUCTION

The TDR100 uses state-of-the-art electronics and provides quick and reliable results. Packaged in a compact, portable and sturdy case, the TDR100 tests the circuit breakers with one break per phase. A simple built-in, user-friendly interface allows quick testing of circuit breakers in the field as well as in the factory. The TDR100 can also be used to measure the operating time of protective relays. The TDR100 Circuit Breaker Test System is backed by more than twenty-five years of diagnostic experience in the analysis of circuit breakers.

### BENEFITS

- **Rapid Results** – the TDR100 is quick and easy to configure, giving results in seconds
- **Reliability and Ease of Use** – the TDR100 produces high quality results with high repeatability allowing for rapid and reliable decision making
- **Built-in data storage** – the TDR100 is a stand-alone instrument, which can store results of over 100 tests
- **Pre-defined Test Plans**– 32 different test plans can be stored on the instrument for easier testing
- **Immune to Interference** – accuracy of test results is unaffected by severe conditions of electrostatic and electromagnetic interference, as present in substation environments.
- **Rugged and Reliable** – the TDR100 is a single box solution, providing the accuracy of a laboratory instrument with durability for field use
- **Self-Diagnostics** – the availability of self-diagnostics on demand ensures the accuracy and validity of test results
- **Simple User-friendly PC interface** – a simple interface allows the test results to be uploaded to a PC. Test plans can also be downloaded to the TDR100

### DESCRIPTION

Packaged in a compact, portable and sturdy case, the TDR100 is the single-box solution for Circuit Breakers and Switching Devices in the field. The TDR100 provides accurate timing results for circuit breakers or switchgear, along with the timing of the insertion resistors on close, if installed on the apparatus. The powerful analysis algorithms built in to the TDR100 provide accurate timing results in milliseconds along with the bounce timing of the contacts during a close or trip operation. The TDR100 gives timing test results for all breaker operations: Trip, Close, Trip-Close or Trip-Free.

#### The TDR100 provides:

- Three dry contact timing channels
- Inputs for triggering a recording for trip or close
- Safety ground connection
- A built-in user interface (UI)

### Description continued--

The User Interface allows the user to define a test, perform that test and review test results quickly in the field.

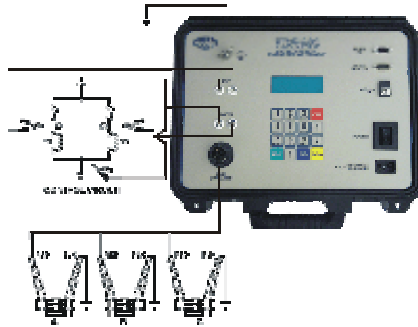
An optional 2.5-inch (6.25 cm) printer supplied with the TDR100 enables users to print complete test reports in the field without the need for a PC. Up to 128 test results can be stored in the TDR100, along with up to 32 pre-defined test plans.

A standard IBM-Compatible PC is used to download test plans, or upload test results for review, print or export to other applications such as database or spreadsheet applications. (A standard RS-232 or USB interface is provided for PC communication.)

The instrument can also store up to 32 test plans, which can be retrieved from the built-in User-Interface to quickly finish the test without manual intervention. This improves the productivity of the test personnel and increases the reliability of the system.

### CONNECTIONS

The TDR100 requires only basic connections to the breaker trip and close coils and terminals for the three phases. This diagram illustrates the connections. Safety is always a primary concern in the course of electrical measurements, and a TDR100 chassis ground is supplied to ensure a common ground between breaker and TDR100.



### TEST LEADS

Low interference connection cables are specifically designed for a noisy substation environment. Using high quality test leads ensures accurate test results and record of contact bounce for accurate diagnosis of the circuit breaker timings.

The TDR100 has a simple User Interface, which provides control of the test instrument and self-diagnostics in the field.

### STRUCTURED MENU APPROACH

The TDR100 uses a simple menu-driven interface, which guides the user through:

- Nameplate data entry
- Choice of test (Trip, Close, Trip-Close, Trip-Free)
- Performing a test
- Printing and Saving Results

The TDR100 User Interface is available in English, Spanish and Portuguese.

### BREAKER TIMING AND BOUNCE

Results for a particular test are given for both breaker timing and contact bounce, and insertion resistors on close.

### PC CONNECTION AND COMMUNICATION

A Microsoft™ Windows™ application running on your IBM compatible laptop allows for communication with the TDR100. The software is highly intuitive and requires minimum training on the part of the user for field use.

Communication with the TDR100 is via an RS232 cable or USB cable, both supplied with the instrument.

The TDR100 software application enables the user to:

- Enter and edit nameplate information
- Enter and edit breaker test plans
- Download test plans to the TDR100
- Upload data from the TDR100 for review and reporting

### TEST PLANS

Specific test plans for breakers may be entered through the PC software. These can be downloaded to the TDR100 and used repeatedly in different locations.

### TDR100 Technical Specifications

<b>Dry contact input channels:</b>	3 Channels
<b>Trigger input voltage:</b>	20-300 V dc/peak AC
<b>Timing resolution:</b>	100 microseconds
<b>Timing accuracy of reading:</b>	0.05%
<b>Test record storage:</b>	128 timing records
<b>Test plan storage:</b>	32 test plans
<b>Maximum length of test:</b>	10S maximum (user selectable)
<b>Test Operations:</b>	Open, Close, Open-Close, Trip-Free
<b>Display:</b>	Vacuum Florescent Display, 4 line by 20 characters, sunlight viewable
<b>Keyboard:</b>	16 key heavy-duty keyboard
<b>Computer interface:</b>	USB or RS232
<b>Printer interface:</b>	Serial RS232
<b>Weight</b>	8.2 lbs (3.5 kgs)
<b>Dimensions:</b>	14.2 x 11.4 x 6.5 inches 36 x 29 x 17 cms



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Specifications are subject to change without notice.



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MKT-SL-TDR100-4/06