SA100RS
travel+

Switchgear Analyser
Breaker Testing

Switchgear Analyser

Introduction

Weis is a specialist company with over 40 years of experience in the commissioning, testing & maintenance of switchgear and power network fault monitoring within the Power Utility Industry.

Based on its successful SA100 Switchgear Analysers, Weis has developed a Reduced version without Screen (SA100RS) with fewer channels in half the size of chassis, providing a light weight, lower cost, robust switchgear test set for performance analysis on high, medium and low voltage circuit breakers with the options ...

SA100RS : Standard version.
SA100RS travel+ : 3 additional Travel channels.

In addition, Dynamic Timing of up to 1 break per phase is made available (external battery required per phase to provide constant current source).

OPTIONAL ITEMS

Cable Sets - A range of standard cable sets & special made cable sets are available on request.
Transducers - A full range of transducers and universal mounting arms are available on request.
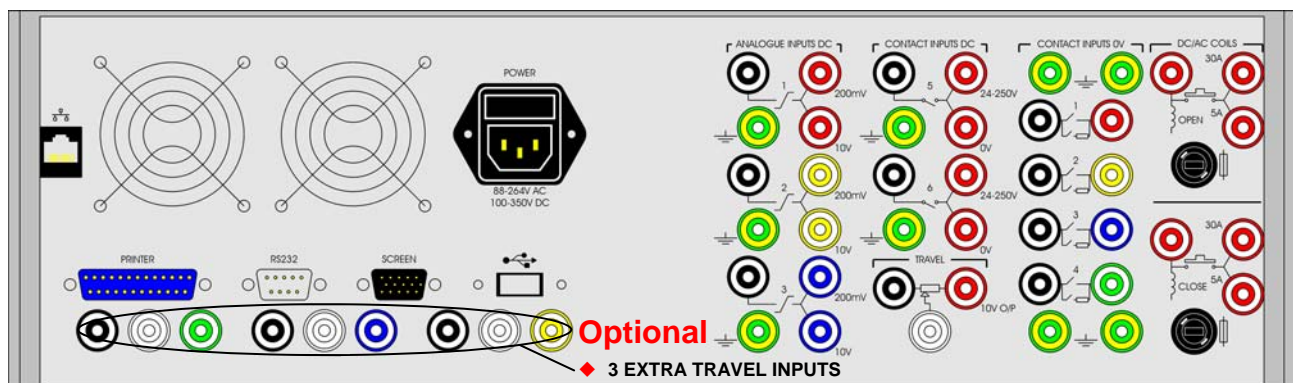Transportation Cases - Robust purpose made transportation cases are available for the complete range of products.

Possible test results which can be computed per phase for each breaker operation include:-
Peak Coil Current, Current Pulse Length, Operate Times (Main / Resistive), Operate Time Spread (Main / Resistive), On Time, Dead Time, Contact Separation, Datum Velocity, Velocity at Contact Touch, Stroke, Contact Length (Main / Resistive), Spring Compression on Vacuum Contacts, Travel Overshoot, Rebound, Bounce Time, Mechanism Times (Pre Latch / Latch Period), Acceleration and Fingerprint Comparison on all channels (Grey Zone Checking).

Features

◆ **ROBUST SWITCHGEAR TEST AND ANALYSIS SYSTEM FOR PORTABLE OR FACTORY USE**

◆ **COMPUTED RESULTS WITH CUSTOM REPORT FORMAT FEATURE, REDUCING TEST TIME**

◆ **CREATE A ELECTRONIC LIBRARY OF BREAKER TEST SETTINGS AND SIGNATURES**

◆ **REVISED CONFIGURATION / RECALCULATION ON PREVIOUS TESTS CAPABILITY**

◆ **OPERATION THROUGH NETWORK CONNECTION TO PC RUNNING BTA SOFTWARE OR EXTERNAL SCREEN, KEYBOARD & MOUSE**

◆ **INDENPENDENT CONTROL OF TRIP AND CLOSE AC OR DC COILS**

◆ **6 ANALOGUE INPUT FOR:** *1 x DUAL RANGE (5 / 30A) TRIP AND CLOSE COIL CURRENT , 1 x TRAVEL, 3 x USER CONFIGURABLE*

◆ **10 DIGITAL INPUTS FOR:** *TIMING OF UP TO 4 MAIN AND 4 RESISTIVE CONTACTS, 2 x TIMING CONTACTS (24-250V DC or 0V)*

◆ **CALCULATED INPUTS FOR:** *VELOCITY AND ACCELERATION FROM TRAVEL INPUT*

◆ **SA100RS CAN DYNAMICALLY TEST ONE BREAK PER PHASE (EXTERNAL BATTERY SOURCE(S) REQUIRED)**

◆ **ANALOGUE CALCULATIONS PERFORMED ACROSS ALL THREE PHASES AGAINST SINGLE POLE MOTION / TRAVEL SENSING**

Data Management

Breaker Test & Analysis software is an essential 32-bit Windows™ database program that provides an easy to use operator interface for configuring & displaying the SA100RS test results in graphical and text report formats.
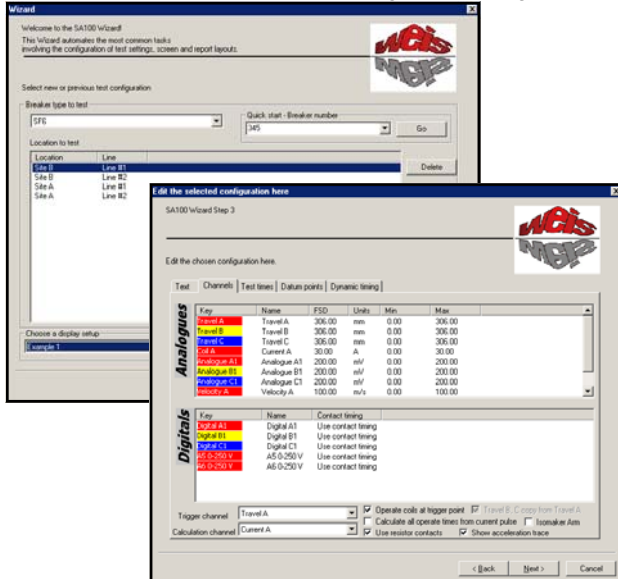
Features:-

◆ Operator interface for Regular (via Wizard) or Advanced users
◆ Results automatically computed with feature to recalculate on configuration change of any existing test record
◆ Graphical display of captured waveforms with measurement cursors
◆ Standard or user defined report format   ◆ Archiving of all tests and configurations
◆ Fingerprint comparison on all channels (grey zone checking)

BTA software runs on a standard IBM compatible PC with a 32-bit Windows™ operating system. This permits the transportation of test records to a regular office based or portable computer.

The display and printing of a report can be fully customised to include logo's, in-house styles, text phrases and results format, thus eliminated the need to manually complete a written form in most cases.
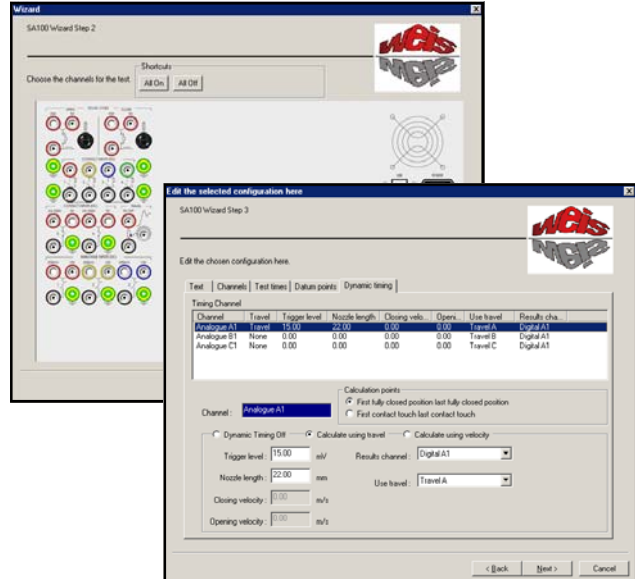
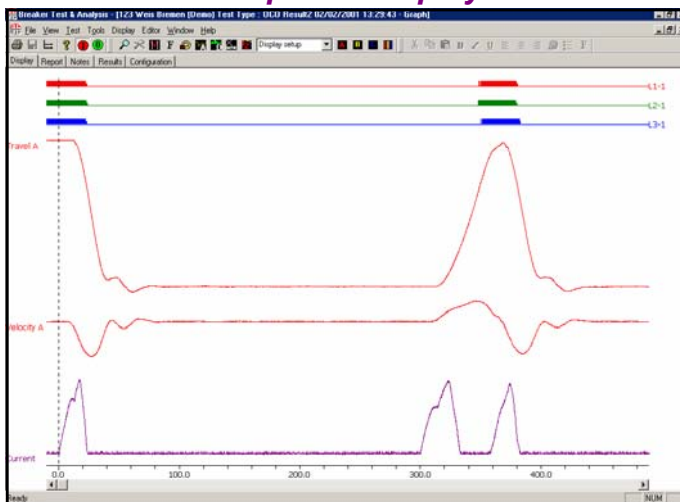### Wizard - Start New or Select Existing Test Configuration

Wizard (Step 2) - Breaker Test Connections
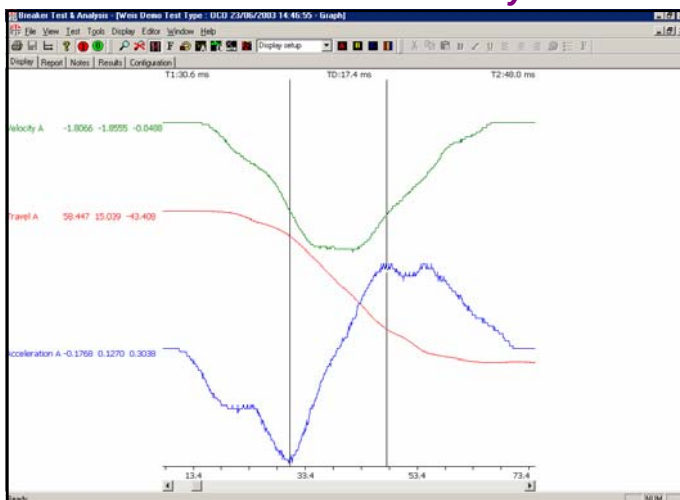

Wizard (Step 3) - Channel Settings

Wizard (Step 3) - Dynamic Test Settings

Graphical Display

Graphical Features
Zoom - Time Base
Zoom - Amplitude
Cursors - Measured Value & Time
Colours - Traces & Background
Font - Text Style & Size
Print - Screen as Displayed
Add Calculated Channels
Combine Test Records - Overlay Traces
Select Pre-defined Display Setups

Advanced Analysis
Acceleration Trace Computed from Travel
Velocity Trace computed from Travel
All Graphical View Features Supported

Report Features
Customise which Results are shown
Edit Headings
Change Font - Text Style, Size & Colour
Select Pre-defined Report Setups

Acceleration & Velocity

Text Report

Specifications

INPUTS

Analogue: 1 x Independently controlled trip (open) and close coil current inputs.

1 x Linear / rotary resistive travel transducer input, will calculate all 3 phases. **3 extra with *travel+* option**.

3 x User configurable 0 - 10V DC or 0 - 200mV DC inputs, selected via input sockets.

Analogue Accuracy: <0.5% of fullscale.

Digital: 8 x Contact status inputs providing timing of up to 4 main contacts and 4 resistive contacts ('dry' contacts).

2 x User configurable inputs for 'wet' or 'dry' contact timing (24 - 250V DC or 0V DC).

Resistive Contact Range: 15 - 10,000 ohms.

Digital Resolution: 100µSec.

Connectors: 4mm safety socket.

OUTPUTS

Coil Operation: Solid state outputs for trip (open) and close.

Coil Peak Current: 5A (accuracy 2.5mA) or 30A (accuracy 15mA) AC/DC measurement ranges selectable via input sockets.

Other measurement ranges possible via optional external shunt; for example 50A Peak (up to 75mS duration) or 100A Peak (up to 50mS duration).

Coil Max. Voltage: 400V peak.

RECORDING

Resolution: 12 bit A/D (1:4096) and 10 kHz sampling rate.

Recording Time: Selectable up to 100 seconds.

Synchronisation: All inputs sampled simultaneously.

Start trigger: Coil current or selectable on any analogue / digital input.

GENERAL SYSTEM

System Operation Option 1: VGA port for external screen. PS2 sockets for external keyboard and mouse.

System Operation Option 2: RJ45 network port for external PC running on Windows™ ME, 2000, XP, or Vista Operating System.

EIDE hard disk drive. RS232 serial, parallel printer & 2 x USB ports. 256MB RAM. **Green** LED for system READY status indication.

Windows™ Operating System. Removable USB Flash-Disk.

All standard Windows Centronics or USB printers supported. Safety keyswitch to enable/disable coil operation.

REAL-TIME CLOCK

Range: Time, date, leap year and day of the year with internal battery backup. 100mS resolution.

PROGRAMMING - SETTABLE PARAMETERS

User strings: Site name, breaker number, breaker type, line name, operator name and up to 30 user configurable.

Test times: Close, Open, Trip Free, Close-Open, Open Close, Open-Close-Open.

Coil operate times: Initial delay, trip coil "on-time", close coil "on-time", delay time between closing and opening, delay time between opening and closing.

Channels: Analogue - Input name, fullscale value, units. Digital - Input name.

Datum points: 2 sets of velocity calculation points on travel (speed) curve.

COMPUTED RESULTS

Up to a sequence of 3 operations detailing 3-phase information:

Peak coil current, operate times and operate time spread (main/resistive), on time, dead time, datum velocity, velocity at contact touch, acceleration, stroke, contact length (main/resistive), contact separation, spring compression on vacuum contacts, travel overshoot, bounce time and rebound.

Acceleration and velocity:

Graphical trace derived for measured travel input with cursor measurement.

OPERATING VOLTAGES

Prime Power: 100 to 370V DC, 90 to 264V AC auto-sensing via IEC power connection. Burden <60 VA.

ENVIRONMENTAL

Operating Temp.: -20ºC to +70ºC (-4ºF to +158ºF)

Humidity: 0 to 97% RH non-condensing.

Isolation: 2kV rms for 1 minute (channel to channel, channel to earth).

Surge Withstand: To IEC 801-5. 1.2/50µS.

(Transient) Common Mode: Severity level class 4. Series Mode: Severity level class 3.

Fast Transient Burst: To IEC 801-4 level 3.

RFI Immunity: To IEC801-3 level 3. 10V/m 26-1000MHz.

Emissions: To EN50081-1: 1992.

MECHANICAL DETAILS

Enclosure: 3U steel enclosure suitable for Euro 19" wide rack mounting or free standing (tabletop).

Ventilation: Fan assisted.

Weight: <7kg.

Optional Carry Case: Reinforced aluminium, 545mm(W) x 380mm(H) x 205mm(D).

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