EZCT S2A

current transformer test set

Vanguard Instruments Company, Inc.
www.vanguard-instruments.com
Product Overview
The EZCT S2A is Vanguard's third-generation, microprocessor-based, current transformer test set. The EZCT S2A can perform the current transformer (CT) excitation, CT current-ratio, and winding polarity tests automatically. The EZCT S2A automatically raises and lowers the excitation test voltage without any operator intervention. With up to 1500 Vac excitation test voltage available, the EZCT S2A can easily perform excitation tests on very large CT's.

Excitation Test
The CT excitation test is performed using the ANSI/IEEE C57.13.1, IEC 60044-1 test method. The test voltage range for the CT excitation test (50 Vac, 250 Vac, 500 Vac, or 1500 Vac) can be selected, and then the test voltage is raised and lowered automatically by the EZCT S2A. The test voltage and current data are collected and stored in the unit's internal memory. Up to 10 CT excitation and current-ratio tests can be stored in one test record. ANSI 10/50, IEC 60044, IEC 61869, IEEE-30, and IEEE-45 knee point voltages are also calculated and printed on the test report. Once the test is completed, test results can be printed and excitation curves can be plotted on the built-in 4.5-inch wide thermal printer.

CT Ratio and Polarity Tests
The EZCT S2A determines the CT current-ratio using the ANSI/IEEE C57.12.90 measurement method. A test voltage is applied to the CT's secondary terminals and the induced voltage is measured through the CT's H1 and H2 terminals. The CT current-ratio and polarity are displayed on the screen and stored in memory. The current-ratio measuring range is from 0.8 to 5,000. The CT winding polarity is displayed as a “+” sign (in-phase) or a “-” sign (out-of-phase) and is annotated with the phase angle in degrees.

User Interface
The EZCT S2A features a back-lit LCD screen (240 x 128 pixels) that is viewable in both bright sunlight and low-light levels. A rugged, alpha-numeric, membrane keypad is used to control the unit.

Built-in Thermal Printer
A built-in 4½” wide thermal printer can print the current transformer test report and plot the excitation curves.

Computer Interface
The EZCT S2A can be used as a stand-alone unit or can be computer-controlled via the built-in RS-232C or USB interfaces. Windows®-based Current Transformer Analysis software is provided with each EZCT S2A. This software can be used to retrieve test records from the EZCT S2A, create test plans, download test plans to the EZCT S2A, and can also be used to run CT tests from the PC. Tabulated test records can be exported in PDF, Excel, and XML formats.

Internal Test Record Storage
The EZCT S2A can store up to 140 test records in Flash EEPROM. Each test record may contain up to 10 excitation curves, current-ratio readings, and winding polarity readings. Test records can be recalled and printed on the built-in thermal printer.

External Data Storage
The EZCT S2A features a standard USB Flash drive interface that makes it very convenient to store and transfer test records and test plans. By plugging in a USB Flash drive, you can quickly transfer your test records and test plans between a computer and the EZCT S2A without the need to connect the unit to the computer.

Internal Test Plan Storage
The EZCT S2A can store up to 128 CT test plans in Flash EEPROM. A test plan defines the excitation test voltage and current selection, CT nameplate ratio, and CT winding terminal connection instructions for each test. Up to 10 test definitions can be stored in each test plan. The use of a test plan greatly simplifies the CT testing process since it also provides instructions for making the proper CT cable connections. Test plans can be created on the EZCT S2A itself or created on a PC and downloaded to the EZCT S2A via the unit’s built-in RS-232C or USB port.

Test Record Header Information
The test record header information can include the company name, substation name, circuit ID, manufacturer, CT serial number, operator’s name, and test record comments. In addition to the test record header, a 20-character test description for each test in the record can also be entered.

ordering information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9047-UC</td>
<td>110V EZCT S2A, cables, and PC software</td>
</tr>
<tr>
<td>9048-UC</td>
<td>220V EZCT S2A, cables, and PC software</td>
</tr>
<tr>
<td>9047-SC</td>
<td>EZCT S2A shipping case</td>
</tr>
<tr>
<td>TP4-CS</td>
<td>TP4 thermal printer paper (24 rolls)</td>
</tr>
</tbody>
</table>
**EZCT S2A Features**

- **5” back-lit LCD screen** (240 x 128 pixels)
- **Rugged, membrane keypad**
- **Power switch**
- **Ground stud**
- **RS-232C PC interface**
- **USB PC interface**
- **USB flash drive interface**
- **Emergency turn off switch**

**EZCT S2A technical specifications**

**physical specifications**
- **Dimensions:** 17”W x 12½”H x 12” D (42.7 cm x 32 cm x 26.9 cm)
- **Weight:** 48 lbs. (21 Kg)

**input power**
- 100 – 120 Vac or 200 – 240 Vac (factory pre-set), 50/60 Hz

**measuring method**
- IEC 60044-1, IEC 61869, ANSI/IEEE C57.131, and ANSI/IEEE C57.12.90

**current ratio range**
- 0.8 ¬ 999: ±0.1%, 1000 ¬ 1999: ±0.3%, 2,000 ¬ 5,000: ±1%

**output test voltages**
- 0 ¬ 50 Vac @ 10A max; 0 ¬ 250 Vac @ 10A max; 0 ¬ 500 Vac @ 5A max; 0 ¬ 1,500 Vac @ 1.2A max

**voltage reading range**
- 0 ¬ 2,200 Vac
  - accuracy: ±1.0% of reading, ±1 volt

**display**
- 5” back-lit LCD screen (240 x 128 pixels)
  - viewable in bright sunlight and low-light levels

**printer**
- Built-in 4½” wide thermal printer

**pc software**
- Windows®-based CT analysis software is included with purchase price

**internal test record storage**
- Stores 140 test records. Each test record may contain up to 10 sets of excitation and ratio data

**internal test plan storage**
- Stores 128 test plans. Each test plan can store 10 excitation test voltage and current settings

**temperature**
- **Operating:** -10°C to +50°C (+15°F to +122°F)
  - **Storage:** -30°C to +70°C (-22°F to +158°F)

**humidity**
- 90% RH @ 40°C (104°F) non-condensing

**cables**
- Two 20-foot (610m) X cable sets, one 35-foot (10.69m) H cable set, power cord, RS-232C cable, USB cable, cable carrying bag

**options**
- Shipping case

**safety**
- Designed to meet UL 61010A-1 and CAN/CSA C22.2 No. 1010.1-92 standards

**humidity**
- 90% RH @ 40°C (104°F) non-condensing

**altitude**
- 2,000 m (6,562 ft) to full safety specifications

**warranty**
- One year on parts and labor

**NOTE:** The above specifications are valid at nominal voltage and ambient temperature of +25°C (+77°F). Specifications are subject to change without notice.
The EZCT S2A’s built-in thermal printer can also print the excitation curves in the field without the need to connect the unit to a PC.

The current transformer test report can be quickly printed in the field on the EZCT S2A’s built-in thermal printer without the need to connect the unit to a PC.

The EZCT S2A’s built-in thermal printer can also print the excitation curves in the field without the need to connect the unit to a PC.
The EZCT S2A comes with the Vanguard EZCT-2000 PC software. The EZCT-2000 software can be used to test a current transformer directly from a PC, create and transfer test plans, retrieve test records from the EZCT S2A, and export test records in Excel format for further analysis.

The latest version of the EZCT-2000 software can always be downloaded free from the Vanguard web site at www.vanguard-instruments.com. Please note that you will need to create a free account on our site in order to download software or firmware.
Instruments designed and developed by the hearts and minds of utility electricians around the world.

Vanguard Instruments Company (VIC), was founded in 1991. Currently, our 28,000 square-foot facility houses Administration, Design & Engineering, and Manufacturing operations. From its inception, VIC’s vision was, and is to develop and manufacture innovative test equipment for use in testing substation EHV circuit breakers and other electrical apparatus.

The first VIC product was a computerized circuit breaker analyzer, which was a resounding success. It became the forerunner of an entire series of circuit breaker test equipment. Since its beginning, VIC’s product line has expanded to include microcomputer-based, precision micro-ohmmeters, single and three phase transformer winding turns-ratio testers, transformer winding-resistance meters, mega-ohm resistance meters, and a variety of other electrical utility maintenance support products.

VIC’s performance-oriented products are well suited for the utility industry. They are rugged, reliable, accurate, user friendly, and most are computer controlled. Computer control, with innovative programming, provides many automated testing functions. VIC’s instruments eliminate tedious and time-consuming operations, while providing fast, complex, test-result calculations. Errors are reduced and the need to memorize long sequences of procedural steps is eliminated. Every VIC instrument is competitively priced and is covered by a liberal warranty.

Vanguard Instruments Company, Inc.
1520 S. Hellman Avenue • Ontario, California 91761, USA
Phone 909-923-9390 • Fax 909-923-9391
www.vanguard-instruments.com

Revision B. April 11, 2017