

# Automatic Instrument Transformer Test Set DAC-VCTT-8

## AUTOMATIC INSTRUMENT TRANSFORMER TEST SET



#### Overview

DAC-VCTT-8 is a test set, incorporating an automatic-current comparator-type transformer, for measuring ratio errors and phase angles of instrument transformers according to the international standards IEC 60044-1 and -2. Combining an optional different-ratio adapter, DAC-RAC-2/RAV-2, minimum reference standard instrument transformers are required.

#### ■ Features

- Current transformer (CT) testing in accordance with the current ratio error test of the international standard IEC 60044-1 is available.
- Voltage transformer (VT) testing in accordance with the voltage error test of the international standard IEC 60044-2 is available.
- The ratio error, phase displacement, test voltage, test current, and test frequency can be measured.
- The ratio error is indicated in units of either % or RCF (Ratio Correction Factor), and the phase displacement is indicated in units of either minutes or centi-radians; thus it is appropriate for ANSI/IEEE tests.
- USB interface is a standard fixture.
- Errors for up to 10 measurement standards can be registered, and measurements are made with errors being automatically corrected.
- Different-ratio testing is available by incorporating an optional CT or VT different-ratio adapter.
- The internal burden of this equipment is as small as 0.1 VA introducing a built-in internal burden compensation circuit (patent pending).



### **Specifications**

• Test method Comparison of the instrument transformer under test with a

measurement standard having the same transformation ratio

• Measurement A standard voltage transformer or current transformer is to be prepared by the user.

Rated secondary and test range

-		Rated	Second	lary		Test Range		
	СТ	1 A, 5	A			1~200%		
	VT	110, 12	20, 200	$0, 230, 110/\sqrt{3},$	190/3 V	2~120%		
	V I	100/3,	110/3,	200/3 V		5~200%		
	Ratio error (RCF) and phase displacement							
	Measure Range		Ratio Error			Phase Displacement		
	2% Range		$\pm 1.999\% (0.9804 - 1.0204)$			± 99.9 min		
	20% Range		± 19.99% (0.8344-1.2499)			± 999 min		
	CT secondary current							
· M	$0 \sim 210\%$ of rated secondary current							
• Measurement			Current					
Tange	Rated 1 A		0.000-2.100 A					
	Rated 5 A		0.00-10.50 A					
	VT secondary voltage							
	Rated secondary voltage 0-300 V							
	Test frequency: 45-66 Hz							
	Ratio error and phase displacement							
	Measurement Range			Ratio Error		Phase Displacement		
	2% Range			0.001%		0.1 min		
	20% Range			0.01%		1 min		
	Current							
<b>_</b>	Rated Secondary			Reading in %	of	Reading in current		
• Resolution	Current			rating		0.001 A		
	Rated 1 A Rated 5 A			0.1%		0.001 A		
				0.1%		0.01 A		
	Voltage	in 0/ of	rating = 0.1.9/					
	Pooding	in volta		atting $0.1\%$				
	Frequency: 0.1 Hz							
	Ratio erro	y. 0.111 r	L	+(1% reading	nm + 1 digit)			
• Accuracy	Phase displacement			$\pm (1\% \text{ reading} + 0.2 \text{ min} + 1 \text{ digit})$				
(aimed)	Voltage a	id curre	$\pm (0.5\% \text{ reading} + 0.2 \text{ m})$			5% FS)		
(	Frequency	V		$\pm 0.1 \text{ Hz}$				
• Internal burden	0.1 VA or	less						
Communications	USB (2.0/1.1) interface							
• Other functions	Internal burden compensation, self-calibration, overcurrent detection, and polarity error detection							
• Rated power	$100/120/220/240 V \pm 10\%$							
Dowor fragmoney	50/60 Hz							
<ul> <li>Power frequency</li> <li>Dimonsions on 1</li> </ul>								
• Dimensions and	w450 × $\Pi 200$ × D580 mm (excluding protuberances),							
		Ng I						

Note: Specifications are subject to change without notice due to our commitment to continual product improvement.





Instrument transformer errors depend on the secondary load impedance (burden). Therefore, to achieve accurate examination of instrument transformer errors, a load equivalent to the internal impedance of the instruments connected to the secondary circuit is required to connect to the instrument transformer under test. Modern instruments that are connected to the secondary circuits of instrument transformers are electronized. Consequently, the instrument transformer test equipment is required to be able to handle such instrument transformers connected to small burdens, which include those that are smaller than the equipment's own internal burden or even zero burden. To achieve this capability, the DAC-VCTT-8 Automatic Instrument Transformer Test Set incorporates an internal burden compensation circuit that generates the condition of the instrument transformer is zero. Moreover, connection cables can also be included for the condition of internal burden of zero by extending the terminals for detecting the internal-burden voltage. Hence, it is possible to use the combination of DAC-VCTT-8 and our DAC-PBVC-8 Electronic Burden Equipment, as illustrated in the diagram below to examine instrument transformer any desired conditions of burden including the burden of zero.



VT test

CT test



DAC-RAC-2/RAV-2

#### **Ratio adapter (option)**

This option of the DAC-VCTT-8 Automatic Instrument Transformer Test Set enables the testing of an instrument transformer whose transformation ratio is different from that of a standard voltage/current transformer by converting the instrument transformer's transformation ratio to that of the standard voltage/current transformer.



This option is useful in minimizing the necessary modification of the measurement standard and in improving the speed and efficiency of testing.

1. Kange of ratios to be set	1.	Range of ratios to	be set
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		(Ks: Transformation ratio of a measurement standard, Kx:
		Transformation ratio of an instrument transformer to be tested)
VT	DAC-RAV-2	Ks/Kx: 0.5000 ~ 2.0000
СТ	DAC-RAC-2	Ks/Kx: 0.5000 ~ 1.5000

2. Setting of ratio

Transformation ratios are the same:

For example, Ks/Kx = 1, then the value to be specified is 1.0000

Transformation ratios are different:

For example, Ks = 100, Kx = 80, Ks/Kx = 1.25, then the value to be specified is 1.2500

This equipment is used for accurate examination of instrument transformer errors at the user's installation site.

Other products: Standard voltage/current transformer

These instruments are used as standard voltage or current transformers for the testing of instrument transformers.

- Common specifications
  - Rated burden: 15 VA
  - Class index: 0.1
  - Frequency: 50, 60 Hz

Note: Detailed specifications are available upon request.



Standard VT



Standard CT



Head office and factory: ISO 9001 certified

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