

CT PT ANALYZER

CURRENT TRANSFORMER TESTING, CALIBRATION AND ASSESSMENT



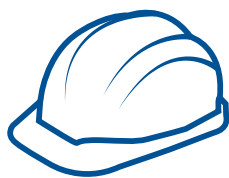
Analyze your current transformer (CT) with the push of a button

How CT Analyzer works

- ◆ Injects low test signals into secondary side of the CT
- ◆ Determines the CT's equivalent circuit parameters
- ◆ Identifies all relevant CT performance parameters
- ◆ Displays all relevant parameters of the CT and its accuracy at different currents and burdens
- ◆ Evaluates the CT according to the selected standard
- ◆ Determines unknown CT nameplate parameters
- ◆ Demagnetizes the CT after the test

Range of measurements

- ◆ Ratio and phase accuracy
- ◆ Winding resistance
- ◆ Excitation characteristics (knee points)
- ◆ Composite error (ALF,ALFI,FS,FSI,V_b)
- ◆ Burden impedance
- ◆ Transient CT classes and parameters (TPS, TPX, TPY and TPZ type Cts)
- ◆ Transient dimensioning factor (Ktd)
- ◆ If missing/unknown: CT type, class, ratio, knee point, power factor, nominal burden, operating burden, primary and secondary winding resistance
- ◆ Remanence and residual magnetism



SAFE
low test signals



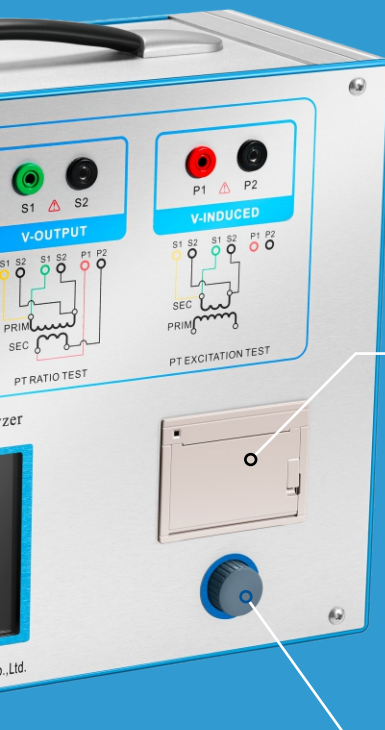
Additional features

◆ Measure VT ratio

You can perform ratio measurements of inductive voltage transformers (Vts).

◆ Analyze the effect of CT saturation

You can export the measurement results to network simulation software such as RelaySimTest or NetSim in order to analyze the protective system behavior under the effect of CT saturation.



PROVEN
users in more
than 60 countries



EASY
One-Button Testing



Current transformer testing from production to maintenance

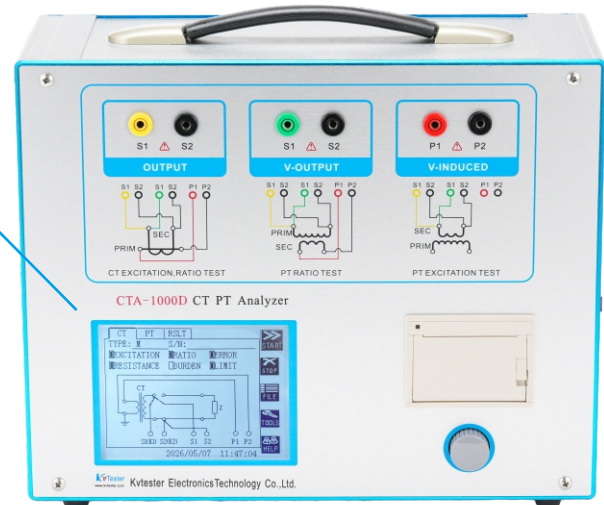
Testing along the production line

- ◆ Test CTs before adding the insulation
- ◆ Verify CTs at various production stages
- ◆ Achieve a high degree of automation
- ◆ Use a universal interface to control the CT Analyzer from your very own production line software
- ◆ Easily integrate the CT Analyzer into your company network and ERP system
- ◆ Maximize your throughput by minimizing testing time
- ◆ Reliably operate the CT Analyzer 24/7

Factory acceptance testing

- ◆ Create a CT Analyzer fingerprint measurement for further on-site comparison
- ◆ Verify the CT design

designed, tested and calibrated by Kvtester



Commissioning

- ◆ Quickly and reliably commission any CT (all protection and metering classes)
- ◆ Compare your results with factory measurements
- ◆ Verify the connection and polarity of the secondary wiring along all of the connection points from the CT secondary terminals to the connected instrument, such as a relay or meter

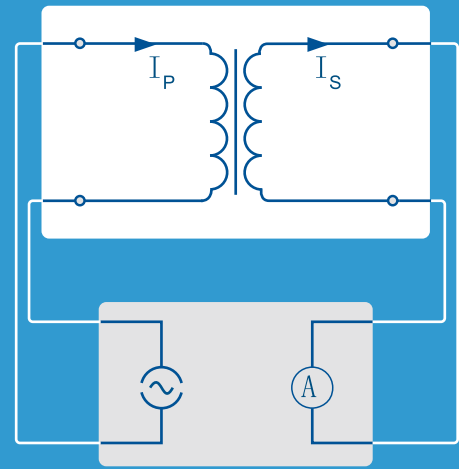
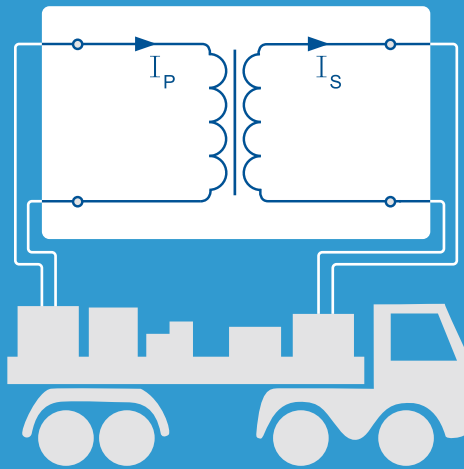
Maintenance

- ◆ Verify the CT at (different) operating conditions
- ◆ Recover unknown CT nameplate data
- ◆ Verify correct wiring and connections
- ◆ Compare your results with previous results
- ◆ Create customized reports (digital or printed)
- ◆ Analyze the cause of a protection failure based on the determined CT parameters
- ◆ Evaluate protection system behavior under CT saturation using real CT data with network simulation software such as RelaySimTest or NetSim
- ◆ Achieve stable and reliable results, even under harsh environmental conditions

Advantages and disadvantages of different CT testing methods

Method	Primary nominal current injection	Primary current injection
Setup	Reference transformers and measuring bridges	Test set for current supply and measurement
Usage	Used in factories, calibration laboratories and on-site mounted on a test truck	Used during commissioning if high accuracy is not required

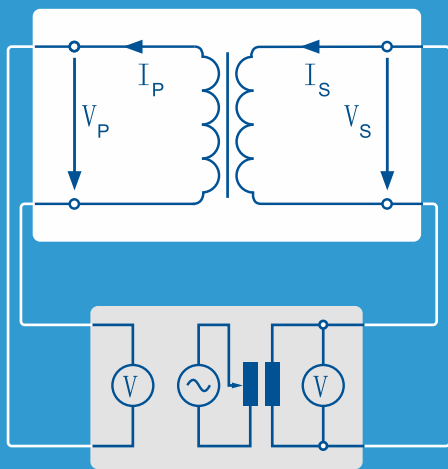
Principle



Safety	Performed with very high currents (nominal and overcurrent magnitudes)	Currents up to 1000 A
Accuracy	High accuracy	- Insufficient for high-accuracy metering CTs - Sensitive to transient distortion if line frequency test signals are being used
Mobility	~ Two tons of equipment (test truck, high-current source, heavy cables, current box, ...)	~ 30 kg / 66 lbs (without additional equipment such as a burden box)
Handling	The heavy equipment requires several people to set up and perform the test	- Rewiring is required between single tests (for example, ratio, polarity, saturation, winding resistance) - Results must be assessed manually

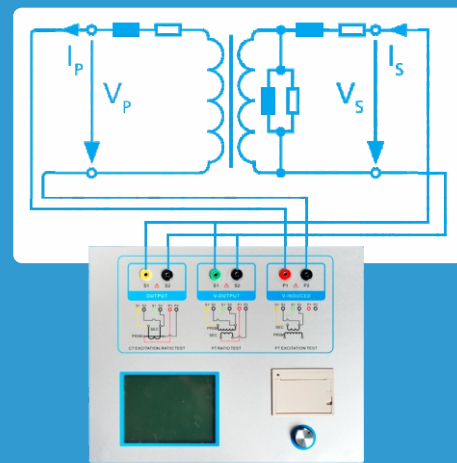
Secondary voltage injection

- ◆ Test set for voltage output and measurement of voltage and current
- ◆ Used during commissioning or maintenance if a simple check of the CT's integrity from the secondary side is sufficient



Model-based testing

- ◆ Test set for low test signal injection and CT modelling
- ◆ Used in all stages of a CT's life



- ◆ Voltages up to 2 kV or more
- ◆ Insufficient for high-accuracy CTs
- ◆ Sensitive to transient distortion if line frequency test signals are being used

- ◆ Output voltages up to 120 V

- ◆ ~ 20 kg / 44 lbs

- ◆ ~ 8 kg / 17 lbs

- ◆ Test results must typically be evaluated manually
- ◆ Special attention has to be given to high-voltage leads and connections

- ◆ One-button test
- ◆ Integrated report
- ◆ Fast (< 1 min)

Operating options for the CT Analyzer: standalone or from a laptop

You have 3 different options for the operation of your CT Analyzer

The different options offer different feature sets

1. Stand-alone operation via free-of-charge CT Analyzer firmware

- ◆ Input of CT parameters
- ◆ Measurement and analysis
- ◆ Front-panel display of wiring diagrams and step-by-step instructions

2. PC operation via free-of-charge standard CT Analyzer Suite

- ◆ Input of CT parameters
- ◆ Measurement and analysis
- ◆ Multi-colored wiring diagrams and step-by-step instructions via PC screen
- ◆ Definition of assessment standards and limits
- ◆ Guided test preparation
- ◆ Detailed connection diagrams
- ◆ Automatic generation and display of reports
- ◆ Customization of the report templates
- ◆ Improved multi-ratio CT testing performance



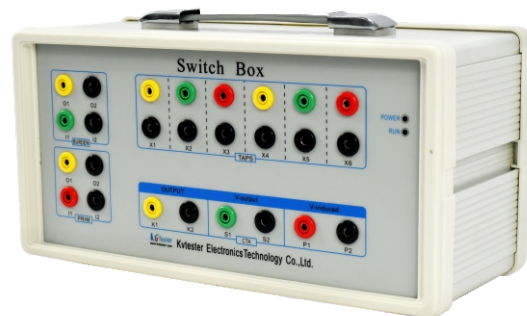
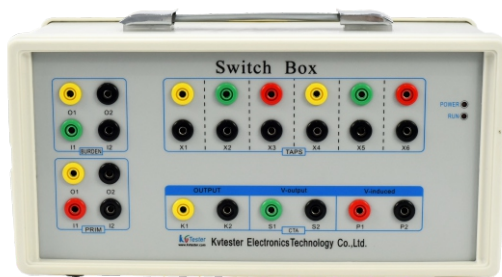
3. PC operation via CT Analyzer Suite with PC Software Upgrade Option

- ◆ Input of CT parameters
- ◆ Measurement and analysis
- ◆ Multi-colored wiring diagrams and step-by-step instructions via PC screen
- ◆ Definition of assessment standards and limits
- ◆ Guided test preparation
- ◆ Detailed connection diagrams
- ◆ Automatic generation and display of reports
- ◆ Customization of the report templates
- ◆ Improved multi-ratio CT testing performance

Optionally available accessories

CT SB2: Switch box for multi-tap CT testing

- ◆ Automates your testing of multi-tap Cts
- ◆ No need for rewiring
- ◆ Measures CTs with up to six taps in one test run
- ◆ Determines all of the transformer ratios of all winding combinations automatically
- ◆ Separate connections for primary resistance measurement and for the measurement of the secondary burden
- ◆ Automatically verifies the cabling before measuring
- ◆ Use it separate from, or attached to, CT Analyzer



Multi-functional transport case

- ◆ Heavy duty transport case on wheels
- ◆ Protection from dust and water drops
- ◆ Protection from mechanical damage
- ◆ Suitable for unattended shipping



Technical specifications

CT Analyzer

Accuracy

Ratio 1 ... 2000	error 0.02 % (typical) / 0.05 % (guaranteed)
Ratio 2000 ... 5000	error 0.03 % (typical) / 0.1 % (guaranteed)
Ratio 5000 ... 10000	error 0.05 % (typical) / 0.2 % (guaranteed)

Phase displacement

Resolution	0.01 min
Accuracy	1 min (typical) / 3 min (guaranteed)

Winding resistance

Resolution	1 mΩ
Accuracy	0.05 % (typical) / 0.1 % + 1 mΩ (guaranteed)

Output

Output voltage	0 ... 120 V
Output current	0 ... 5 A _{eff} (15 A _{peak})
Output power	0 ... 400 VA _{eff} (1500 VA _{peak})

Mechanical data

Size (W × H × D)	370 × 320 × 170 mm
Weight	9 kg (without accessories)

Environmental conditions

Operating temperature	-10 °C ... + 50 °C / 14 °F ... 122 °F
Storage temperature	-25 °C ... + 70 °C / -13 °F ... 158 °F
Humidity	Relative humidity 5 % .. 95% not condensing

Power supply

Input voltage	110 V _{AC} / 220 V _{AC}
Permissible input voltage	85 V _{AC} ... 264 V _{AC}
Frequency	50 / 60 Hz
Permissible frequency	45 Hz ... 65 Hz
Input power	1800 VA
Connection	Standard AC Socket IEC 60320

System requirements

Operating system	Windows 11™ 64 bit
	Windows 10™ 64 bit

Certificates from independent test institutes

Wuhan HV Research Test Report



CT SB2

Input Current	0.2 A
Dimensions (W x H x D)	330 x 185 x 145 mm
Weight	2.6 kg



Packages, accessories and services

Firmware packages including accessories

Basic For measurements such as ratio check, composite error, excitation and knee point, winding resistance

Standard Measures CTs with accuracy classes ≥ 0.3 according to IEC and IEEE standards

Advanced Expands standard package to accuracy classes ≥ 0.1



IEEE Protection For protection CTs according to IEEE C57.13 (does not support metering CTs)



PC software features	Free Standard Software	PC Software Upgrade Option
Guided test execution via PC	■	■
Detailed connection diagrams	■	■
Test reports	■	■
Convenient summary of test results	■	■
Advanced test reports (e.g. combination of multiple tests)	□	■
Report template design editor	□	■
Multi-test view	□	■
Results simulation without the need to connect the CT Analyzer		■

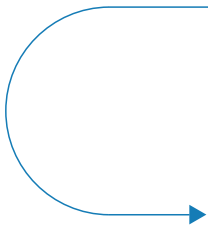
■ included □ optional – not included

Please find detailed ordering information and package descriptions on www.kvtester.com

Why choose us ...



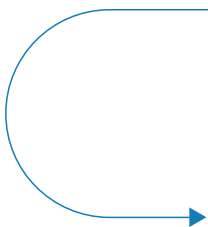
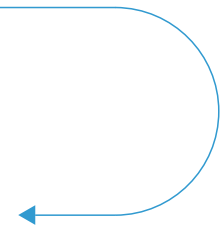
You can rely on the **highest safety** and security standards



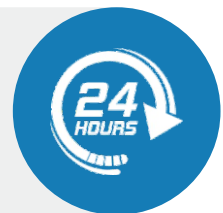
Superior reliability with up to **72 hours** burn-in tests before delivery



Compliance with **international** standards



Professional technical support at **any time**



Cost-effective and **straight** -forward repair and calibration

