



- Ratio (up to 30000 : 1)
- Current ratio error and phase error for all measurement points defined in selected standard
- Winding resistance
- Excitation/saturation voltage current
- Secondary burden
- Saturated inductance (L_s)
- Unsaturated inductance (L_m)
- Remanence flux factor (K_r)
- Secondary time constant (T_s)
- Accuracy limiting factor ($ALF / ALFi$)
- Instrument security factor (FS / FSi)
- Dimensioning factor according to class PX, TPS (K_x)
- Accuracy limiting voltage/current according to class PX (E_k / I_e)
- Turns ratio according to class PX (N)
- Turns ratio and composite error (ϵ_t, ϵ_c)
- Rated symmetrical short-circuit current factor (K_{ssc})
- Transient dimensioning factor (K_{td})
- Peak instantaneous error (ϵ^{\wedge})
- Maximum emf voltage (E_{max} - calculated value)
- Accuracy limiting voltage/current (V_{al}/I_{al})
- Knee-point voltage/current (V_{kn} / I_{kn})
- The impedance / admittance of CT secondary Load, Like the burdens of various meters, relays, selector switches

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. Ratio Burden Evaluate VT System

Test Item	Ratio	Object	Created by Haris Khairullah
Address	INCOMING A\RED \	f	50.0000Hz
I-pn	500.0000A	Rct	3.6620Ω
I-sn	1.0000A	Rated Cos φ	1.0000
Rated VA	25.0000VA	Actual Cos φ	1.0000
Actual Load	25.0000VA	Delta	1.0000
MultCoef	1.0000	P/M	P
Standard	IEC60044-1		
Class	PX		
Kx	6.8135		

Start
Object
Report
Reset Para.
Recalculate
Wiring
Exit

COM3-115200... [Info.] 14:07:15 CT test data imported successful!

CTObject	Test Parameter setting
Resist.	Resistance test result display
Excit.	Excitation test result display
Ratio	Ratio test result display
Burden	Ratio test result display
Evaluate	Test Result Evaluate
VT	Voltage transformer test interface
System	System configuration interface

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. Ratio Burden Evaluate VT System

Test Item **Ratio**

Address INCOMING A/P RED V Object d by Haris Khairullah

I-pn 500.0000A f 50.0000Hz

I-sn 1.0000A Ret 3.6620Ω

Rated VA 25.0000VA Rated Cos φ 1.0000

Actual Load 25.0000VA Actual Cos φ 1.0000

MultCoef 1.0000 Delta 1.0000

Standard IEC60044-1 P/M P

Class PX

Kx 6.8135

Start

Resistance

Excit.

Ratio

Burden

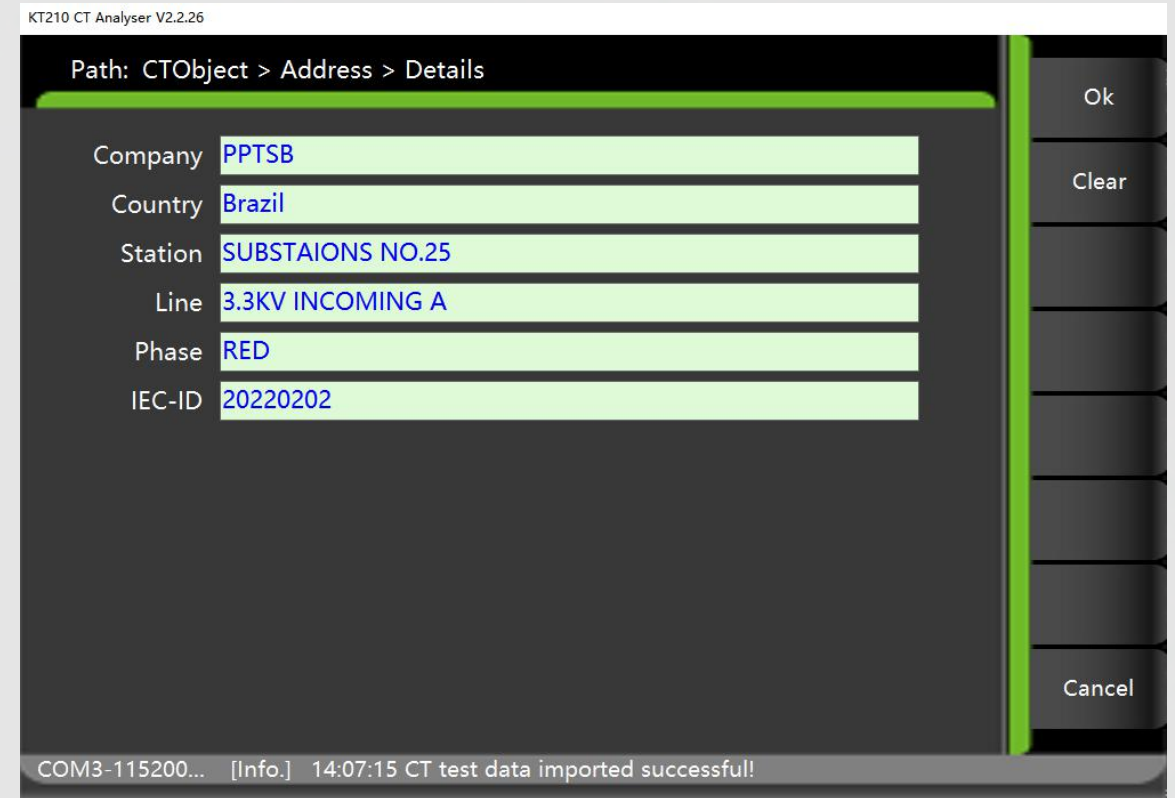
FastRatio

Demagnetic

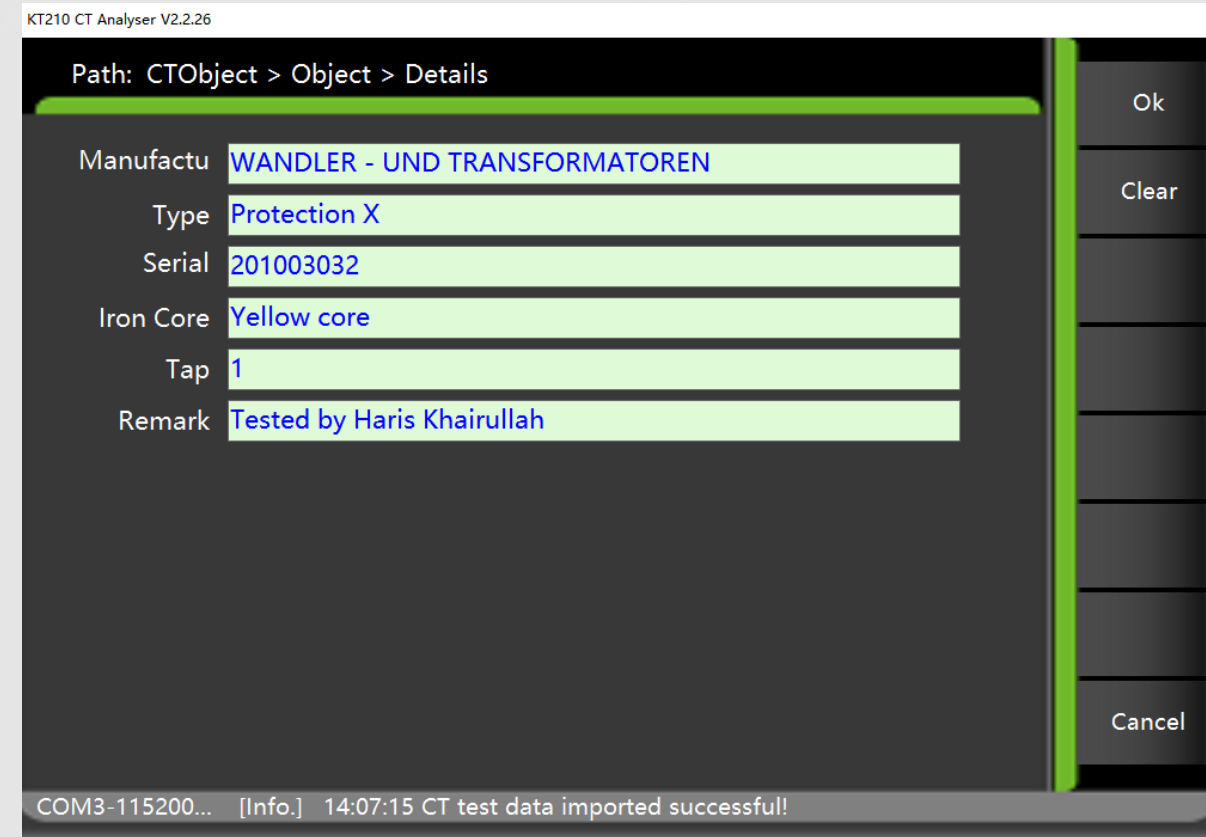
COM3-115200... [Info.] 14:07:15 CT test data imported successful!

Test Item: We can option test items of current transformer.

Resistance	Resistance of CT test
Excit.	Resistance/Excitation of CT test, Can test Knee point, Excitaction curve, Error curve, etc.
Ratio	Resistance/Excitation/Ratio of CT test, Ratio list, Polarity, Number of turns, phase error, ratio error, etc.
Burden	External burden of CT test
FastRatio	Only test Ratio parameters as ratio, polarity.
Demagnetic	Demagnetic after test finish.



Address - detail: We can use address - details to add information in test report.



Object - details: We can use Object- details to add information in test report.

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. Ratio Burden Evaluate VT System Start

Test Item	Ratio	Object	Created by Haris Khairullah
Address	INCOMING A\RED \	f	50.0000Hz
I-pn	10.0000kA	Rct	3.6620Ω
I-sn	1.0000A	Rated Cos φ	1.0000
Rated VA	25.0000VA	Actual Cos φ	1.0000
Actual Load	25.0000VA	Delta	1.0000
MultCoef	1.0000	P/M	P
Standard	IEC60044-1		
Class	PX		
Kx	6.8135		

COM3-115200... [Info.] 14:07:15 CT test data imported successful!

I-pn : Primary current of CT, for example, CT ratio is 3000/5, we enter primary value 3000A into parameter box.

If we don't know the nameplate of CT, we can choose “?”, software will guess primary value automatic.

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. Ratio Burden Evaluate VT System

Test Item	Ratio	Object	d by Haris Khairullah
Address	INCOMING A\RED \	f	50.0000Hz
I-pn	10.0000kA	Rct	3.6620Ω
I-sn	1.0000A	Rated Cos φ	1.0000
Rated VA	25.0000VA	Actual Cos φ	1.0000
Actual Load	25.0000VA	Delta	1.0000
MultCoef	1.0000	P/M	P
Standard	IEC60044-1		
Class	PX		
Kx	6.8135		

Start

- 1.0 A
- 2.0 A
- 5.0 A
- 1/SQRT(3) A
- 2/SQRT(3) A
- 5/SQRT(3) A
- ?

COM3-115200... [Info.] 14:07:15 CT test data imported successful!

I-sn : Secondary current of CT, for example, CT ratio is 3000/5, we choose secondary value 5A in right list.

If we don't know the nameplate of CT, we can choose "?", software will guess secondary value automatic.

KT210 CT Analyser V2.2.26

CTObject
Resist.
Excit.
Ratio
Burden
Evaluate
VT
System

Test Item	Ratio	Object	d by Haris Khairullah
Address	INCOMING A\RED \	f	50.0000Hz
I-pn	10.0000kA	Rct	3.6620Ω
I-sn	1.0000A	Rated Cos φ	1.0000
Rated VA	25.0000VA	Actual Cos φ	1.0000
Actual Load	25.0000VA	Delta	1.0000
MultCoef	1.0000	P/M	P
Standard	IEC60044-1		
Class	PX		
Kx	6.8135		

Start

1.0 VA

5.0 VA

7.5 VA

10.0 VA

15.0 VA

20.0 VA

>>

COM3-115200... [Info.] 14:07:15 CT test data imported successful!

Rated VA/Actual VA : power of CT, we choose VA value in right list.

If we don't know the nameplate of CT, we can choose "?", software will guess value automatic.

We use ">>" to pagedown

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. Ratio Burden Evaluate VT System

Test Item	Ratio	Object	d by Haris Khairullah
Address	INCOMING A\RED \	f	50.0000Hz
I-pn	10.0000kA	Rct	3.6620Ω
I-sn	1.0000A	Rated Cos φ	1.0000
Rated VA	25.0000VA	Actual Cos φ	1.0000
Actual Load	25.0000VA	Delta	1.0000
MultCoef	1.0000	P/M	P
Standard	IEC60044-1		
Class	PX		
Kx	6.8135		

Start

- 61869-2
- 60044-1
- 60044-6
- ANSI 30
- ANSI 45

COM3-115200... [Info.] 14:07:15 CT test data imported successful!

Standard : Standard we use to test CT.
 Different standard according to different test parameters of CT.

KT210 CT Analyser V2.2.26

CTObject
Resist.
Excit.
Ratio
Burden
Evaluate
VT
System

Test Item	Ratio	Object	d by Haris Khairullah
Address	INCOMING A\RED \	f	50.0000Hz
I-pn	10.0000kA	Rct	3.6620Ω
I-sn	1.0000A	Rated Cos φ	0.8000
Rated VA	25.0000VA	Actual Cos φ	1.0000
Actual Load	25.0000VA	Delta	1.0000
MultCoef	1.0000	P/M	P
Standard	IEC60044-1		
Class	5P		
ALF	1.5000		

Start

P

M

?

COM3-115200... [Info.] 14:07:15 CT test data imported successful!

P/M : CT type choose.

P: Protection type CT.

M: Metering type CT.

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. Ratio Burden Evaluate VT System

Test Item	Ratio	Object	Created by Haris Khairullah
Address	INCOMING A\RED \	f	50.0000Hz
I-pn	10.0000kA	Rct	3.6620Ω
I-sn	1.0000A	Rated Cos φ	0.8000
Rated VA	25.0000VA	Actual Cos φ	1.0000
Actual Load	25.0000VA	Delta	1.0000
MultCoef	1.0000	P/M	P
Standard	IEC60044-1		
Class	5P		
ALF	1.5000		

Start

5P

10P

5PR

10PR

PX

COM3-115200... [Info.] 14:07:15 CT test data imported successful!

P/M : CT type choose.

P: Protection type CT.

M: Metering type CT.

Class: accuracy level of CT. If we choose protection type CT, we have accuracy list of it.

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. Ratio Burden Evaluate VT System

Test Item	Ratio	Object	Created by Haris Khairullah
Address	INCOMING A\RED \	f	50.0000Hz
I-pn	10.0000kA	Rct	3.6620Ω
I-sn	1.0000A	Rated Cos φ	0.8000
Rated VA	25.0000VA	Actual Cos φ	1.0000
Actual Load	25.0000VA	Delta	1.0000
MultCoef	1.0000	P/M	M
Standard	IEC60044-1	ext	120.0000%
Class	0.2S		
FS	1.5000		

Start

- 0.1
- 0.2S
- 0.2
- 0.5S
- 0.5
- 1.0
- >>

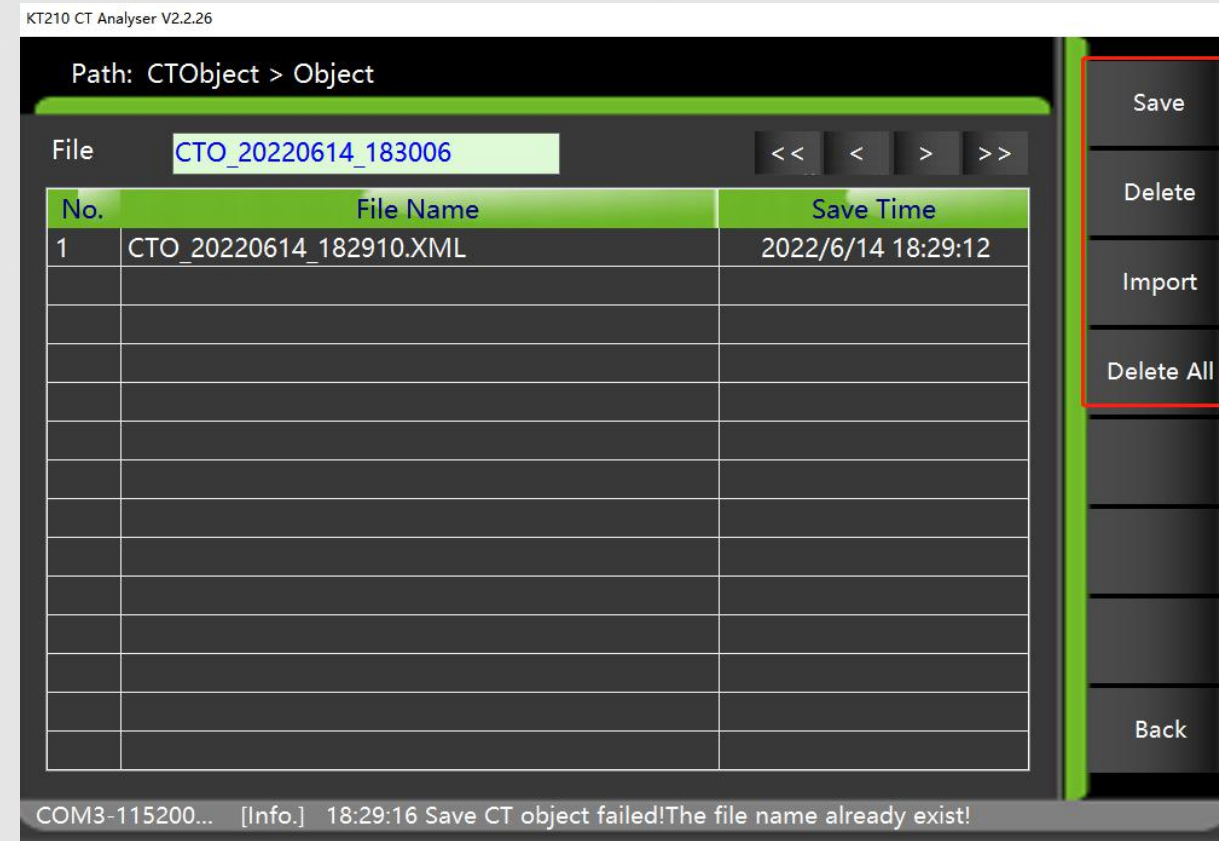
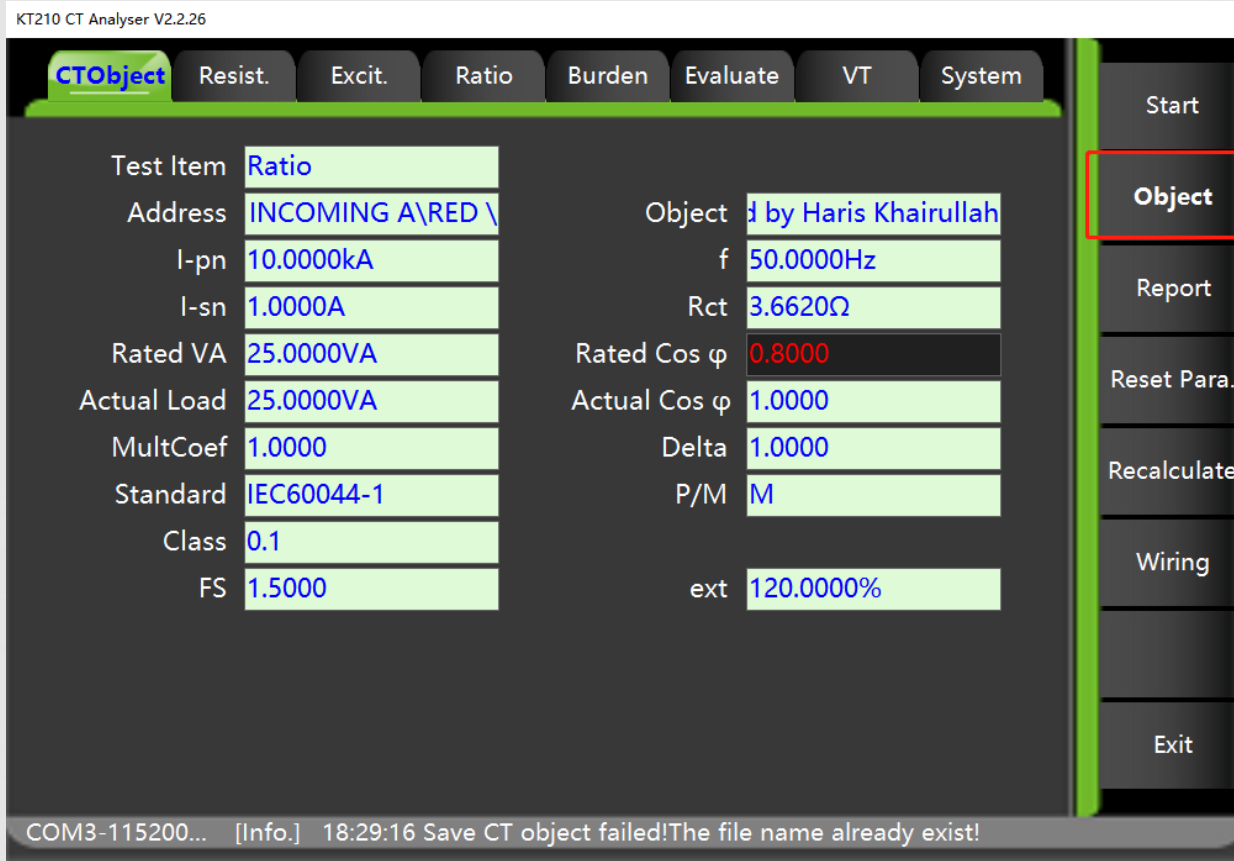
COM3-115200... [Info.] 14:07:15 CT test data imported successful!

P/M : CT type choose.

P: Protection type CT.

M: Metering type CT.

Class: accuracy level of CT. If we choose Metering type CT, we have accuracy list of it.



Object: We can Press Object button to save test parameters, next time we can use this parameters by import.

- Save:** Save test parameters
- Delete:** Delete test paramters
- Import :** import test parameters in list
- Delete all:** Delete all test parameters

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. Ratio Burden Evaluate VT System

Test Item	Ratio	Object	d by Haris Khairullah
Address	INCOMING A\RED \	f	50.0000Hz
I-pn	10.0000kA	Rct	3.6620Ω
I-sn	1.0000A	Rated Cos φ	0.8000
Rated VA	25.0000VA	Actual Cos φ	1.0000
Actual Load	25.0000VA	Delta	1.0000
MultCoef	1.0000	P/M	M
Standard	IEC60044-1	ext	120.0000%
Class	0.1		
FS	1.5000		

Start
Object
Report
Reset Para.
Recalculate
Wiring
Exit

COM3-115200... [Info.] 18:29:16 Save CT object failed!The file name already exist!

KT210 CT Analyser V2.2.26

Path: Burden > Report

File ■ Recalculate << < > >>

No.	File Name	Save Time
1	CT Blue Phase.XML	2022/4/21 16:17:39
2	CT Neutral Test 1 (Star Point) (True Polarity).X...	2022/4/21 16:17:39
3	CT Neutral Test 2 (Reverse Polarity -Twist Cabl...	2022/4/21 16:17:39
4	CT Neutral Test 3 (Test not valid).XML	2022/4/21 16:17:39
5	CT Neutral Test 4 (Test not valid).XML	2022/4/21 16:17:39
6	CT Red Phase.XML	2022/4/21 16:17:39
7	CT Yellow Phase.XML	2022/4/21 16:17:39

Save
Delete
Import
View Report
Generate Report
Delete All
Back

COM3-115200... [Info.] 18:29:16 Save CT object failed!The file name already exist!

Report: We can press test report to save test result.

Save: Save test result

Delete: Delete test result

Import : import test result in list

Delete all: Delete all test parameters

KT210 CT Analyser V2.2.26

CTObject **Resist.** Excit. Ratio Burden Evaluate VT System

Start

Report

Resistance Test Parameter

I-test 1.0000A

T-meas. 30.0000°C

T-ref. 75.0000°C

Resistance Test Result

I-DC 925.7819mA

V-DC 3.1278V

R-meas. 3.3786Ω

R-ref. 3.9534Ω

Exit

COM3-115200... [Info.] 18:29:16 Save CT object failed!The file name already exist!

Resistance test result interface

I-DC : test current

V-DC: test voltage

R-means.: Resistance result we test in T-means. temperature.

R-ref. : Resistance calculate referance to T-ref temperature

KT210 CT Analyser V2.2.26

CTObject Resist. **Excit.** Ratio Burden Evaluate VT System

Start

Excitation Test Parameter

Standard	IEC60044-1	Class	0.1
VA	25.0000VA	CosΦ	0.8000
I-pn	10.0000kA	I-sn	1.0000A
f	50.0000Hz		

Excitation Test Result (Actual Load)

V-kn	211.5475V	I-kn	16.6835mA
Ls	1.6642mH	Lm	23.2509H
Kr	98.0824%	Ts	803.0477ms
FS	?	FSi	?

Report

Excit. Curve

Error Curve

Rated Load

Actual Load

Exit

COM3-115200... [Info.] 18:29:16 Save CT object failed!The file name already exist!

Excitation test result interface

V-kn : knee point of voltage

I-kn: knee point of current

We can press Excit. Curve to check excitation curve.

KT210 CT Analyser V2.2.26

CTObject
Resist.
Excit.
Ratio
Burden
Evaluate
VT
System

Excit. Curve:

UCTrms(V) X 10

Standar IEC60044-1 Coordin Rect Coordin.

V-meas. 211.5475V I-meas. 16.6835mA

V-ref. ? I-ref. ?

Excit. Data : << < > >>

No.	Voltage	Current
1	258.1865V	2.1911A
2	247.8832V	140.7170mA
3	236.1649V	26.2714mA
4	232.7401V	22.6387mA
5	229.3761V	21.3719mA
6	225.9989V	20.0811mA
7	222.5454V	19.2484mA
8	219.1699V	18.5900mA
9	215.7896V	17.5236mA
10	212.3591V	17.0750mA
11	208.9698V	16.6745mA
12	205.5992V	16.5839mA
13	202.1524V	16.4582mA
14	198.7678V	16.3423mA
15	195.3255V	16.1201mA

Start

Rect Coordinate

Log Coordinate

Knee Point

Load Ref.

Ref.Off

Back

COM3-115200... [Info.] 18:29:16 Save CT object failed!The file name already exist!

Excitation test result interface

Excitation curve of CT.

We can press load ref to next function

KT210 CT Analyser V2.2.26

CTObject
Resist.
Excit.
Ratio
Burden
Evaluate
VT
System

Excit. Curve:

Standar IEC60044-1 Coordin Rect Coordin

V-meas. 211.5475V I-meas. 16.6835mA

V-ref. 195.2897V I-ref. 15.8344mA

Excit. Data : << < > >>

No.	Voltage	Current
1	258.1865V	2.1911A
2	247.8832V	140.7170mA
3	236.1649V	26.2714mA
4	232.7401V	22.6387mA
5	229.3761V	21.3719mA
6	225.9989V	20.0811mA
7	222.5454V	19.2484mA
8	219.1699V	18.5900mA
9	215.7896V	17.5236mA
10	212.3591V	17.0750mA
11	208.9698V	16.6745mA
12	205.5992V	16.5839mA
13	202.1524V	16.4582mA
14	198.7678V	16.3423mA
15	195.3255V	16.1201mA

Start

Rect Coordinate

Log Coordinate

Knee Point

Load Ref.

Ref.Off

Back

COM3-115200... [Info.] 18:45:02 CT test data imported successful!

Excitation test result interface

Excitation curve of CT.

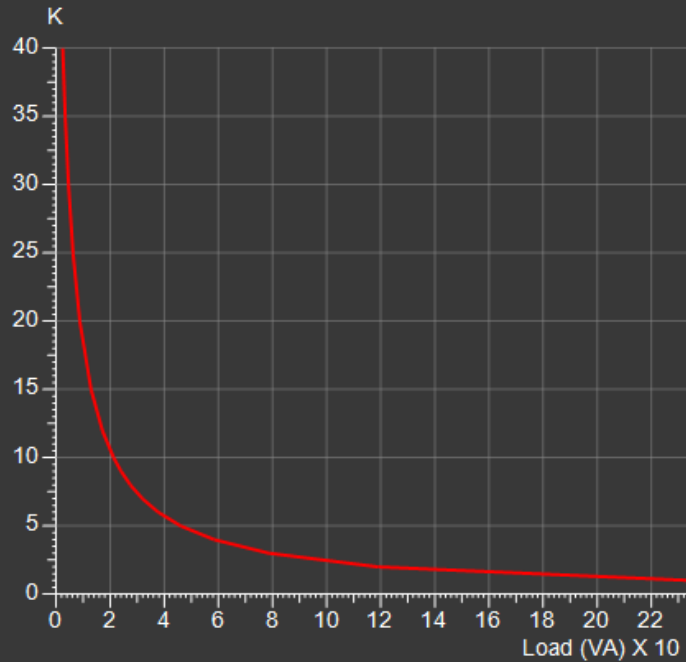
We can press load ref to Compare two test result curve, we can use this for reference two test result curve.

Red curve is current test curve, green curve is reference curve

KT210 CT Analyser V2.2.26

CTObject Resist. **Excit.** Ratio Burden Evaluate VT System

Error Curve :



Error Data << < > >>

No.	K	Burden
1	1.0000	235.1661Ω
2	2.0000	118.9495Ω
3	3.0000	78.7275Ω
4	4.0000	58.3522Ω
5	5.0000	46.0193Ω
6	6.0000	37.7749Ω
7	7.0000	31.8787Ω
8	8.0000	27.4552Ω
9	9.0000	24.0067Ω
10	10.0000	21.2416Ω
11	12.0000	17.0805Ω
12	15.0000	12.9126Ω
13	20.0000	8.7394Ω
14	25.0000	6.2350Ω
15	30.0000	4.5628Ω

Error **5% Error** Coordin **Rect Coordin**
 K ? Burden ?

- Start
- Rect Coordinate
- Log Coordinate
- 10% Error
- 5% Error**
- Back

COM3-115200... [Info.] 18:45:02 CT test data imported successful!

Excitation test result interface

Error curve of CT.

We can press 5% error and 10% error to switch error curve

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. **Ratio** Burden Evaluate VT System

Ratio Test Parameter

Standard	IEC60044-1	Class	0.1
VA	25.0000VA	CosΦ	1.0000

Ratio Test Result

Ratio	500.0:0.9999	Ratio Error	-0.0123%
Polarity	Negative	ε-c	0.2052%
Phase Disp.	7.0427'	N	498.2904
I-p	500.0000A	ε-t	-0.3419%

Start
Report
Ratio Error List
Phase displacement list
Exit

COM3-115200... [Info.] 18:45:02 CT test data imported successful!

Ratio test result interface

Ratio : Test result of ratio

Ratio error: accuracy of ratio result

Polarity: Polarity of CT test result

N: Number of turns

We can press Ratio error list to enter next function interface

KT210 CT Analyser V2.2.26

CTObject
Resist.
Excit.
Ratio
Burden
Evaluate
VT
System

Ratio Error Data (unit:%)

% Rated Current	P / Cosp			
	25.0\1.0	12.5\1.0	6.25\1.0	3.125\1.0
1%	-2.5249	-1.7506	-0.8921	-0.8415
5%	-0.6303	-0.5185	-0.4369	-0.3539
10%	-0.3923	-0.1703	-0.1127	-0.0739
20%	-0.1873	-0.0432	0.0474	0.0901
50%	-0.0807	0.0678	0.1465	0.1835
100%	-0.0123	0.1073	0.1833	0.2206
120%	0.0094	0.1243	0.1898	0.2258
200%	-0.0666	0.1463	0.2085	0.2389

Start
Report
Ratio Error List
Phase displacement list
Back

COM3-115200... [Info.] 18:45:02 CT test data imported successful!

Ratio test result interface

Ratio error list

We calculate error list in different rated current point

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. **Ratio** Burden Evaluate VT System

Phase displacement data (unit:°)

% Rated Current	P / Cosφ			
	25.0\1.0	12.5\1.0	6.25\1.0	3.125\1.0
1%	155.0846	144.0540	157.9909	158.7088
5%	32.5626	33.2030	31.3091	27.5694
10%	22.3759	16.8012	17.0935	16.3657
20%	16.5254	12.6235	9.1975	8.8765
50%	12.0752	9.3018	6.1319	5.3105
100%	7.0427	6.3455	5.0938	3.6832
120%	5.9405	5.6704	4.6023	3.9354
200%	8.8024	3.5041	3.4267	3.0030

- Start
- Report
- Ratio Error List
- Phase displacement list**
-
-
-
- Back

Ratio test result interface

Phase error list

We calculate phase list in different rated current point

COM3-115200... [Info.] 18:45:02 CT test data imported successful!

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. Ratio **Burden** Evaluate VT System

Start

Report

Exit

COM3-115200... [Info.] 18:45:02 CT test data imported successful!

Burden test result interface

We can check the test result of burden in this function

KT210 CT Analyser V2.2.26

CTObject
Resist.
Excit.
Ratio
Burden
Evaluate
VT
System

Evaluate Parameter

Standard IEC60044-1 Class 0.1

Evaluate Result

Parameter	By Auto	By Manual
Class	Pass	?
ϵ	?	?
$\Delta\phi$?	?
FS	?	?
FSi	?	?
Rct	Pass	?
Ts	?	?
Kr	?	?
Burden	?	?

Start

Report

Exit

COM3-115200... [Info.] 18:45:02 CT test data imported successful!

Evaluate test result interface

Software will evaluate result auto. or user can define the result manual

KT210 CT Analyser V2.2.26

CTObject
Resist.
Excit.
Ratio
Burden
Evaluate
VT
System

VT Test Parameter

Test Item	Excitation Charactre		
Rated U Pri.	?	Primary	A-N
Rated U Sec.	100.0000V	Secondary	a-n
f	50.0000Hz		

VT Polarity, Ratio

Ratio	?
Polarity	?

Start

Report

Excit. Curve

Reset Para.

Exit

COM3-115200... [Info.] 18:45:02 CT test data imported successful!

Voltage transformer test result interface

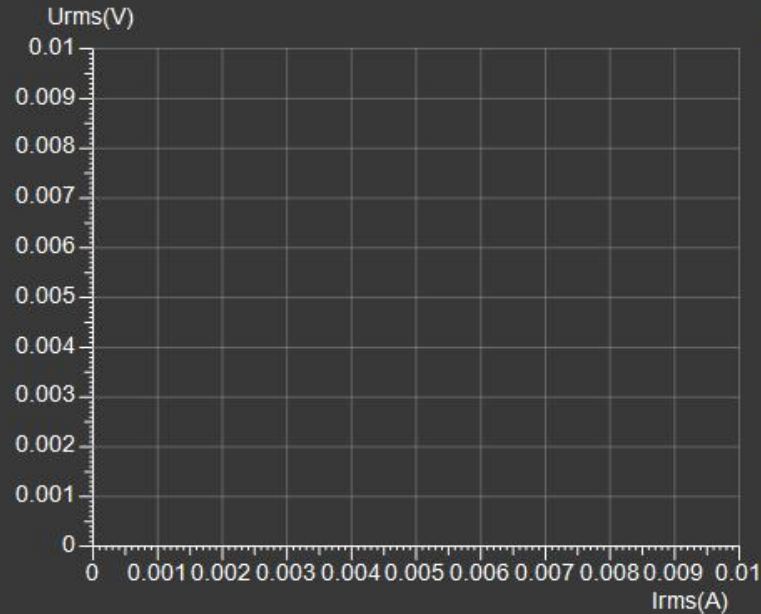
We can use this function to test voltage transformer excitation and ratio and polarity.

KT210 CT Analyser V2.2.26

CTObject Resist. Excit. Ratio Burden Evaluate **VT** System

Excitation Curve :

Excitation << < > >>



No.	Voltage	Current

Coordin **Rect Coordin**
V-meas. ? I-meas. ?
V-ref. ? I-ref. ?

- Start
- Rect Coordinate
- Log Coordinate**
- Load Ref.
- Ref.Off
- Back

COM3-115200... [Info.] 18:45:02 CT test data imported successful!

Voltage transformer excitation test result interface
We can check the test result of VT in this function

KT210 CT Analyser V2.2.26

The screenshot displays the 'System' menu of the KT210 CT Analyser software. The interface is dark-themed with a green accent bar at the top. The 'System' menu is highlighted in blue. Below the menu bar, there are three sections of system information:

- System Information**: Product : KT210 CT Analyser, Version : V2.2.26
- Firmware Version**: MCU Version : 0.00, FPGA Version : 0.00, CPLD Version : 0.00
- CT Decision Threshold**: Isn Decision Rc Threshold : 1.0000Ω, Isn(1A)P/M Decision Vkn Threshold : 100.0000V, Isn(5A)P/M Decision Vkn Threshold : 20.0000V

On the right side, a vertical menu contains the following options: Self-Inspect, Calibration, Parameter, **Setting** (highlighted), Upgrade, and Exit. At the bottom, a status bar shows the message: 'COM3-115200... [Info.] 18:45:02 CT test data imported successful!'.

System setting interface

We can modify system setting in this function.

And we can check the software and firmware version in this function

KT210 CT Analyser V2.2.26

Path: System > Setting

System Theme

Default Black Gray Blue Green Violet

Language

中文简体 English Number keyboard

Communication

Serial Ethernet

Serial Port COM3

Tester IP 192.168.1.123

Baud Rate 115200

TCP Port 10601

List of Online Tester

Save

Cancel

System setting interface

We can define the font and software display color, software language, communication port, IP address.

COM3-115200... [Info.] 18:45:02 CT test data imported successful!