

KT TESTER
Handle Test Kit for Trip
Unit(PXR4.1,PXR6.1)

Instruction Manual



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Section 1: Product profiles

- KT TESTER tester is applied to the current type protection test of the trip unit;
- KT TESTER can be used for the characteristic test of the trip unit and the circuit breaker;
- KT TESTER has its own lithium battery, which can be directly powered by the battery during the test;
- KT TESTER generates the AC voltage signal that simulates the output of CT(current transformer), and loads it to the test port of the trip unit. Through the setting of the AC voltage signal amplitude, it can test different current protections.

Section 2: Product composition



Figure 1 Product composition

- ① Power adapter for charging the battery inside the tester
- ② Tester
- ③ Test cable for connection between KT TESTER and the trip unit

Section 3: Operating parameters

3.1 Parameters of Adapter

Input voltage: AC100V~240V

Frequency: 50/60Hz

Output voltage: DC25.2V

Working temperature: -5~40°C

Storage temperature: -20~50°C

3.2 Parameters of Tester

Size of KT TESTER: L: 205mm,W: 137mm,H: 70mm

When using the tester, the parameter values in Table 1 must be within the normal operating range.

Table 1 Working parameters of tester

NO.	Name	Signal	Range		Unit	Note
			Min.	Max.		
1	Voltage of Power supply	Vcc	21	28	V	
2	Current of Power supply	Icc	-	1	A	
3	Power output voltage (DC24V)	Pout	22	26	V	
4	Voltage of output signal	V0	20	5000	mV	
5	Frequency of output signal	f	49.95	50.05	Hz	
6	Duration of battery power supply	tr	5	6	h	
7	Charging time of battery power supply	tc	1	--	h	
8	Battery capacity	Cb	2	--	Ah@DC24V	
9	Charging operating temperature	TC	0	45	°C	
10	Discharge operating temperature	Tw	-10	50	°C	
11	Storage temperature	TS	-20	50	°C	

Section 4: Operating instructions

4.1 Panel layout



1. Test cable connection port(DB25);
2. Charging adapter input interface;
3. Power switch;
4. LCD;
5. "WORK"light:it is on if the tester works normally;
6. "TEST"light:it flickers during the test;
7. Keys:
 - "SET"key for entering the setting interface;
 - "START"key for starting the test;
 - "STOP"key for stopping the test;
 - "↑", "↓", "EXIT", "ENTER"4 keys for menu operation and parameter setting;

Figure 2 Panel layout

4.2 Tester connection

4.2.1 Test connection with the individual trip unit

When testing the action characteristics of the trip unit separately, connect the test terminal of KT TESTER(Figure 4) to the programming test port of the trip unit(Figure 3), and pay attention to the direction of the test terminal . Connect the "4 , 5" cables of KT TESTER (Figure 5) with the "4 , 5" out cables from the trip unit for detecting the tripping time (It can not be connected without measuring the tripping time).

Connect the socket boss

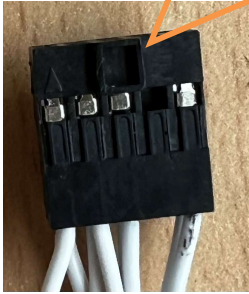


Figure3 test terminal



Figure4 Test port

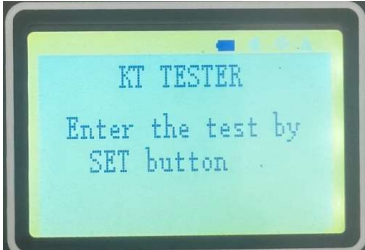


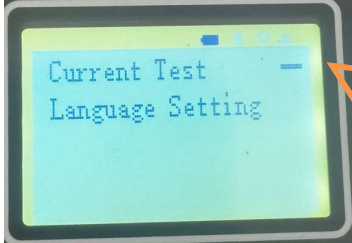
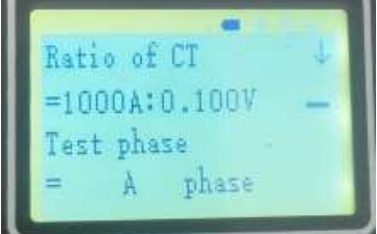
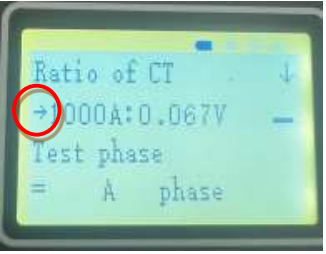
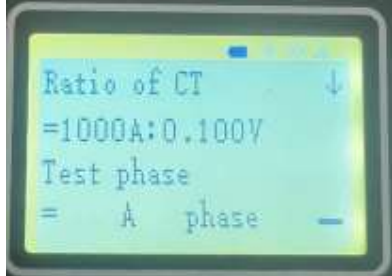
Figure5 "4, 5" cables

4.2.2 Test connection with the circuit breaker

When testing the circuit breaker, connect the test terminal of KT TESTER to the programming test port of the trip unit, and pay attention to the direction of the test terminal. Connect the "4 and 5" cables of KT TESTER to the "4 and 5" of the secondary terminal of the circuit breaker for detecting the tripping time (It can be disconnected without measuring the tripping time).

4.3 Operating steps

NO.	Steps	Diagrams
1	<p>Turn on the power and enter the default interface. Note: 1) When there is no operation for a long time, KT TESTER will automatically turn off the power supply of the trip unit to avoid battery power loss. and then press any key, KT TESTER will automatically turn on. 2) KT TESTER will not turn off the power supply of the trip unit during the test.</p>	

2	<p>Press the "SET" key to enter the main test menu. Other keys are invalid.</p>	 <p>This symbol represents the current</p>
3	<p>Press the "ENTER" key to enter the parameter setting and test interface, and the steps are as shown in 4-7.</p>	
4	<p>1、 SET RATIO OF CT: 1) Move to this column through "↑" and "↓"; 2) Press the "ENTER" key to enter the parameter setting state. At this time, the "=" on the left side of the column will change to "→", and then adjust the parameter to the corresponding value through "↑" and "↓" (See Table 2); 3) Press "ENTER" to confirm the setting and exit, or press "EXIT" to cancel the setting and exit;</p>	
5	<p>2、 SELECT TEST PHASE: 1) Move to this column through "↑" and "↓"; 2) Press the "ENTER" key to enter the parameter setting state. At this time, the "=" on the left side of the column will change to "→", and then adjust the parameter to the corresponding value through "↑" and "↓" (Cycle display A, B, C, N); 3) Press "ENTER" to confirm the setting and exit, or press "EXIT" to cancel the setting and exit;</p>	


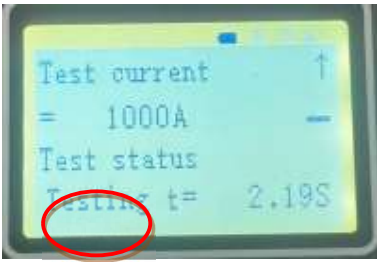
6	<p>3、 SET TEST CURRENT:</p> <p>1) Move to this column through "↑" and "↓";</p> <p>2) Press the "ENTER" key to enter the parameter setting state. At this time, the "=" on the left side of the column will change to "→", and then adjust the parameter to the corresponding value through "↑" and "↓" (See Table 3);</p> <p>3) Press "ENTER" to confirm the setting and exit, or press "EXIT" to cancel the setting and exit;</p>	
7	<p>4、 TEST:</p> <p>1) Press the "START" key to test. At this time, the test status will change to "Testing", the test time will automatically start to count, and the "TEST" light will enter the flashing state;</p> <p>2) If the "4 ,5" cables are connected, KT TESTER will monitor whether the trip unit trips during the test, automatically stop after capturing the trip signal, and display the time; If the "4 ,5" cables are not connected, the tester will always be in the test status, and the time will continue to count until the "STOP" key is pressed to stop.</p> <p>3) During the test, press the "STOP" key to manually stop, the test status changes to "Stop", and the time stops counting.</p>	 <p>Note: The trip time in the test is only for reference, because it includes the status-switch feedback, mechanical action time and software judgment time(longer than real time).</p>
8	<p>1) After this test, you can repeat steps 4-7 and test again;</p> <p>2) When the tests are completed, turn off the power switch.</p>	

Table 2 Ratio of CT

Type	Rated Current	Ratio of CT
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IZM6	400~2000A	1000A:0.1V
	2500~4000A	1000A:0.067V
IZM6	4000~6300A	1000A:0.05V

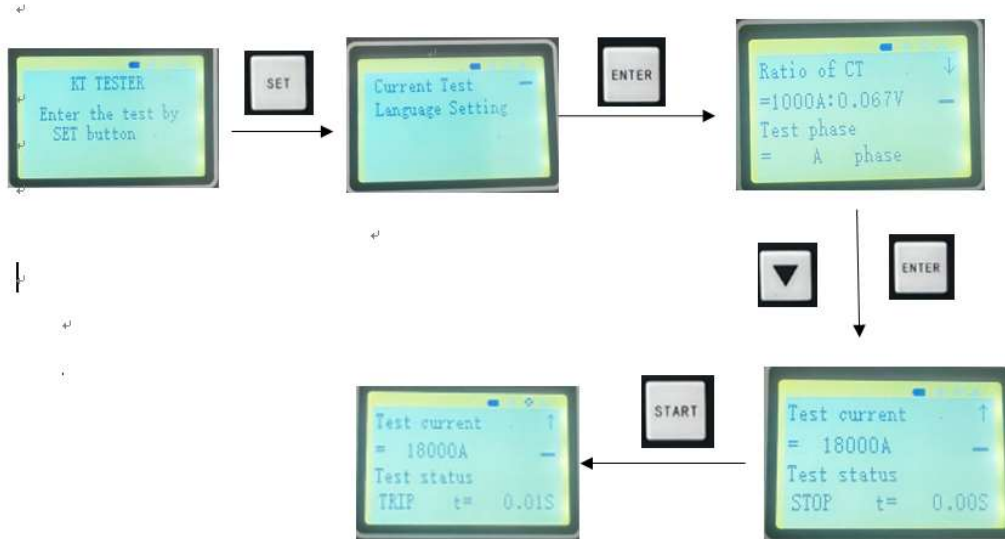
Table 3 Input current value for test

Protection	Input current value	Action result	Display accuracy
Long time Test	$1.5 \times I_r$ (Current setting of Long time)	Trip after delaying the setting time(t_r)	$\pm 5\%$
Short time Test	$1.1 \times I_{sd}$ (Current setting of Short time)	Trip after delaying the setting time(t_{sd})	$\pm 10\%$
Instantaneous Test	$1.2 \times I_i$ (Current setting of Instantaneous)	Trip	$\pm 20\%$
Earth-fault Test	$1.1 \times I_g$ (Current setting of Earth-fault)	Trip after delaying the setting time(t_g)	$\pm 10\%$

Note: 1) Because the setting value of the grounding protection is small and the delay time is short, the grounding setting needs to be turned off when testing Long time, Short time, instantaneous. Otherwise, the grounding protection may have priority action.

2) During the grounding test, the analog signal can be tested at any of the three phases A, B and C.

Example: $I_n=2500A$, $I_r=2500A$, $I_{sd}=7500A$, $I_i=15000A$, $I_g=OFF$. The steps for testing instantaneous protection are as follows:



Section 5: Precautions for use

- After the tests, please turn off the power supply of the tester in order to avoid battery power loss.
- There are lithium batteries inside. Please use them under specified conditions to avoid safety problems such as overheating, explosion, fire, etc;
- When scrapping, please pay attention to the recycling of batteries to avoid polluting the environment;