Mini Universal Protection Relay Tester

KFA320



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Specs Overview

CHARACTERISTIC		SPECIFICATION	
Voltage Outputs	Output Power	4×300V ac （L-N）	35VA Max each@300V
		4×300V dc （L-N）	40W Max each@300V
	Accuracy	<0.015%Rd+0.005%Rg Typ. <0.02%Rd+0.03%Rg Guar.	
Current Outputs	Output Power	6×0~20A ac,L-N	180VA Max each@20A
		1×0~60A ac,LLL-N	200VA Max@60A
		3×0~10A dc,(L-N)	145W Max each@10A
	Accuracy	<0.015%Rd+0.01%Rg Typ. <0.02%Rd+0.03%Rg Guar.	
Time Sychronization	GPS/BD, IRIG-B	<1us	
Phase		-360°~360°	
Interface Port		RJ45 Ethernet, USB Port, Wifi	
Device Output Time in Battery Mode		10A/2 Hours, 5A /4 Hours	

Product Highlights

Mini

- 3.8kg



- Handheld



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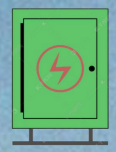
Product Highlights

Multi-functional

- **Supports IEC61850 SV/GOOSE, LPIT simulation, energy meter testing, low-level output, and transducer calibration.**
- **Testing of protection relays, circuit breakers, smart substation equipment, PV/Wind power protection devices, etc.**


Distribution Test


Oil and Gas Platforms


Substations


Industry


Photovoltaic Plants


Wind Farm


Rail & Metro

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Product Highlights



- 10.1 inch touch screen, standalone testing capability (no computer required).
- No external power needed—built-in high-capacity battery.
- Adopts 230+ and ever-expanding test templates, supporting XRIO/RIO import for ABB, SIEMENS, SCHNEIDER, GE, ALSTOM, AREVA, SEL, etc.

Product Highlights

High Precision

- **0.05 class high precision, can be used as a 3-phase standard and a calibration signal source for instruments.**





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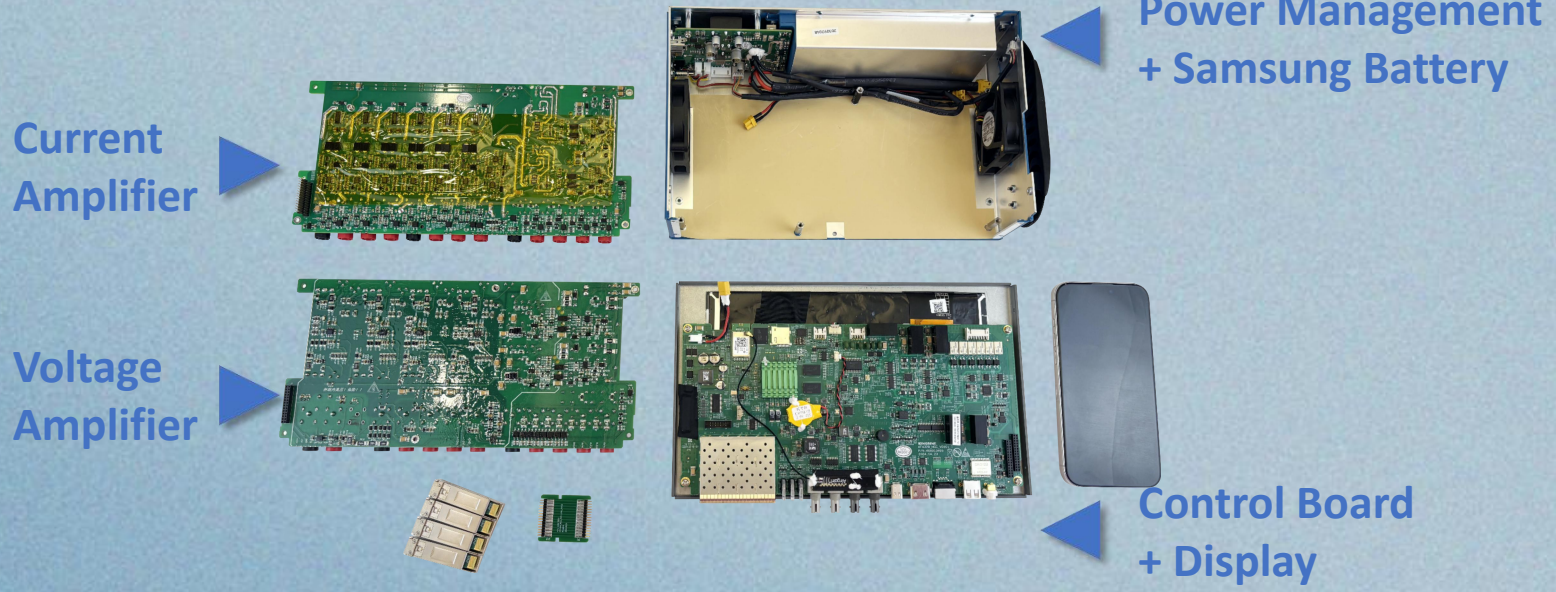
Product Highlights

Reliable

- Extremely simple internal structure, ensure high quality and reliability.



- All devices are rigorously endurance-tested for multiple days prior to delivery.

Hardware Introduction



AC Voltage Outputs		
Output Range & Power	4×300Vac (L-N)	35 VA max each@300V
		28 VA max each@3x300V
		23 VA max each@200V
		12 VA max each@100V
		7 VA max each@63.5V
		6.65 VA max each@57.7V
		1.1 VA max each@10V
Accuracy	<0.015%Rd+0.005%Rg Typ. <0.02%Rd+0.03%Rg Guar.	
Resolution	0.001V	
DC Offset	<5mV Typ. <60mV Guar.	
Distortion	<0.05%Typ. / <0.1% Guar.	
Ascends/Descent Response	<100us	
DC Voltage Outputs		
Source Channels	4	
DC Voltage Output Range	0~300 V (L-N)	
DC Voltage Output Power	40W max	
DC Voltage Accuracy	<0.03%Rd+0.01%Rg Typ. <0.04%Rd+0.06%Rg Guar.	
Ascends/Descent Response	<100us	
Resolution	1mV	

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Hardware Introduction



AC Current Outputs	
Source Channels	6
AC Current Output Range	6 x 0~20A, L-N
	3 x 0~40A, LL-N
	1 x 0~60A, LLL-N
AC Current Output Power (Max)	180VA max for 20A L-N 200VA max for >20A LL-N
AC Current Output Accuracy	<0.015%Rd+0.01%Rg Typ. <0.02%Rd+0.03%Rg Guar.
DC Offset	<1mA Typ. <2mA Guar.
Distortion	<0.05%Typ. / <0.1% Guar.
Ascends/Descent Response	<100us
Resolution	1mA
DC Current Outputs	
Source Channels	3
DC Current Output Range	0~10A, L-N
DC Current Output Power	145W
DC Current Accuracy	<0.03%Rd+0.01%Rg Typ. <0.04%Rd+0.06%Rg Guar.
Resolution	1mA

Hardware Introduction

Binary Output (Relay Contacts)	
Binary Output Pairs	2 pairs (DO-1 and DO-2)
Type	Potential free relay contacts, software controlled
Break Capacity AC	Vmax: 380V(AC) / Imax: 8A / Pmax: 2000VA
Break Capacity DC	Vmax: 240V(DC) / Imax: 5A / Pmax: 150W
Responce Time	≤ 10ms
Binary Output (Fast eSSR)	
Binary Output Pairs	2 pairs (DO-3 and DO-4)
Circuit Breaker Simulate	Can be define as Open or Close status
Break Capacity AC	Vmax： 250V(AC) / Imax: 0.2A
Break Capacity DC	Vmax： 250V(DC) / Imax: 0.5A
Response Time	<100us
Contact Performance	Open the dry contact output using opto-coupler relay, the on-resistance is ≤ 6Ω, and the shut-off withstand voltage is ≥DC300V

Binary Input and Time Accuracy	
Binary Input Logarithm	4 pairs
Trigger Mode	Try/Wet contact
Input Voltage Range	0V ~ 300Vdc
Timing Accuracy	< ±1ms @ 0.001~1s < ±0.1% @ >1s
Timing Resolution	36us
Max Time Limit	infinity



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Hardware Introduction



4 Pairs of LC Optical Network Ports

Arbitrarily configurable as SMV for 9-1/9-2, transmitter and receiver for GOOSE.

Optical Port Indicator

The LC optical module Link is always on, and the ACT is flashing.

FT3 Interface, 2 Send, 2 Send Harvest

TX sends, RX receives, and can be configured arbitrarily as the send and receive ports for FT3 messages or the IRIG B code/PPS second pulse.

Console

Serial console Port, internally debug purpose.

Hardware Introduction



1 Pair of Electrical Pulse Inputs

Used for the calibration of electric energy meter.

Communication

RJ45 (Reserve)	Ethernet port, TCP/IP protocol, use for communication with PC for operation control.

GPS Port

Can connect to external antenna, for end-to-end test on line differential or other synchronize testing.
When GPS synchronize works, LED beside port will light up.

Ext

Data Bus	Use for hardware function extension, such as Binary input/output numbers, external measurement, LPVT, LPCT testing.

USB

USB Port 2.0, use for report upload and software update.

Hardware Introduction

AC/DC Charger	
Input	110~240Vac, 50/60Hz, Max 2A
Output	USB-C, 20V max, 5A max, 100W max

Aux. DC (Extension)	
Used for power supply of under test device.	
Output Range	12~350V
Output Power	40W max
Accuracy	<1%



Grounding Port

Used for grounding

Power Switch

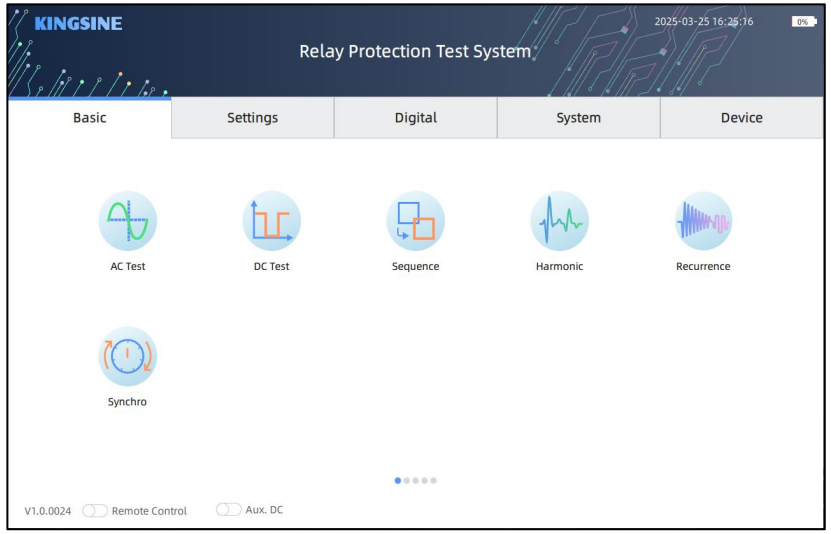
Power on or power off device

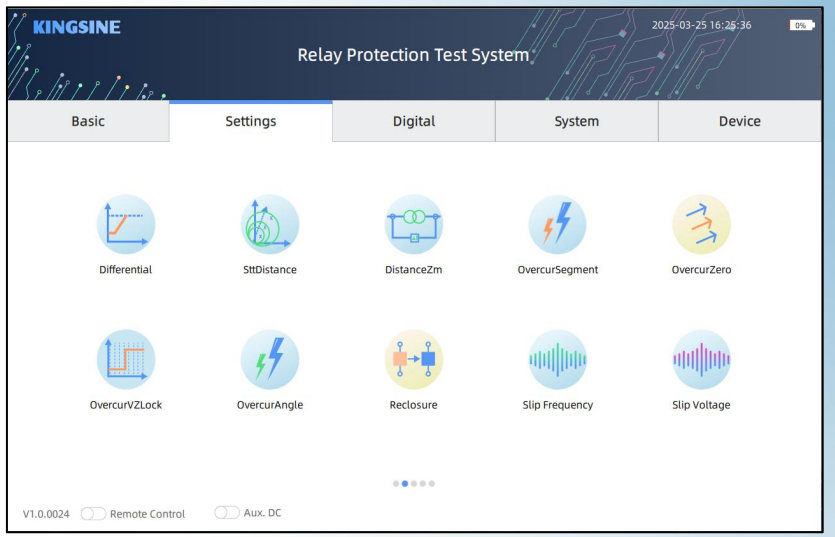
Optional Features

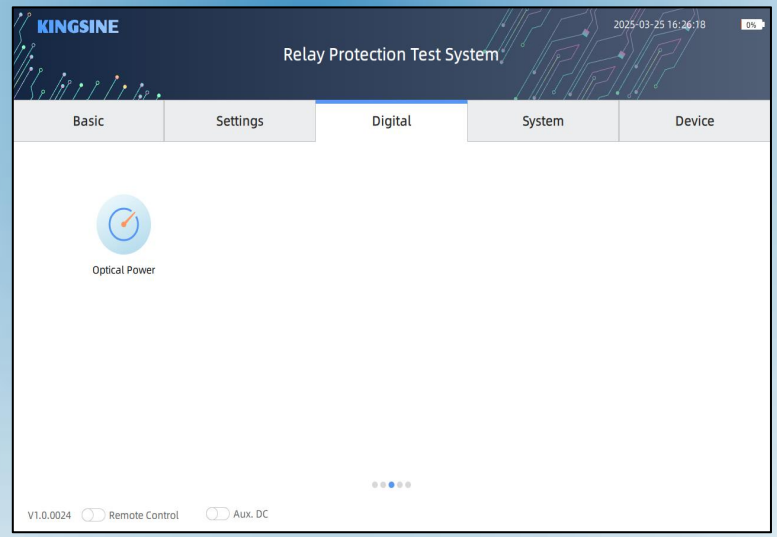


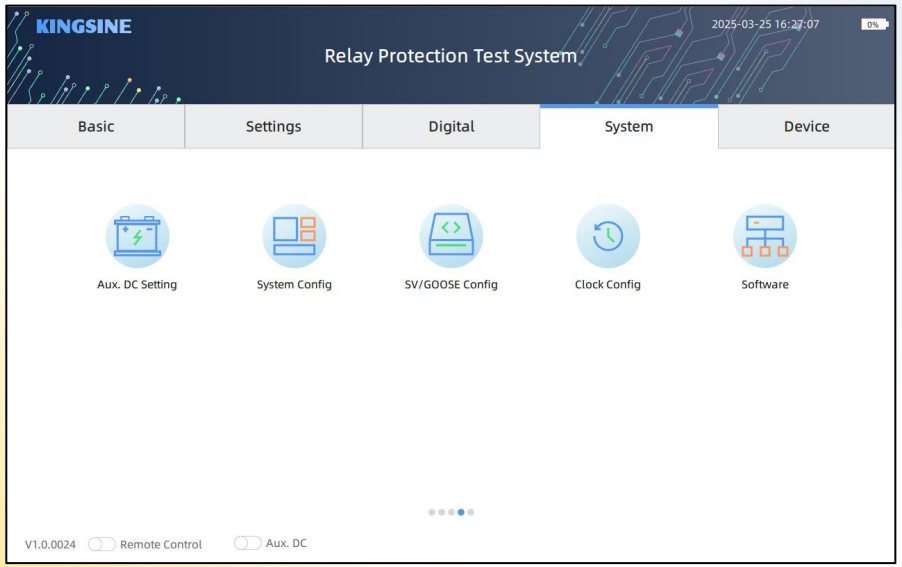
Low-Level Outputs (Extend Optional)	
Number of Outputs	10
Setting Range	0~8Vrms
Max. Output Current	Rating 2mA, 10mA transient max.
Accuracy	0.01~0.8 Vrms: <0.05% Typ. / <0.1% Guar. 0.8~8 Vrms: <0.02% Typ. / <0.05% Guar.
Resolution	250 µV
Distortion (THD+N)	< 0.05% Typ. / <0.1% Guar.
Connection Interface	Combination terminal
Energy Meter Calibration (Optional)	
Sensor Usage	Mechanical meters / Electronic meters
Pulse Input	1 pulse input port, 5Vdc high level valid only.
Pulse Range	500KHz pulse input Max.
IEC61850 SV&GOOSE (Optional)	
LC Type	4 x 100 Base-Fx (100Mbit, full duplex) wave-length 1310nm
ST Type	2 transmitting, 2 receiving wave-length 850nm

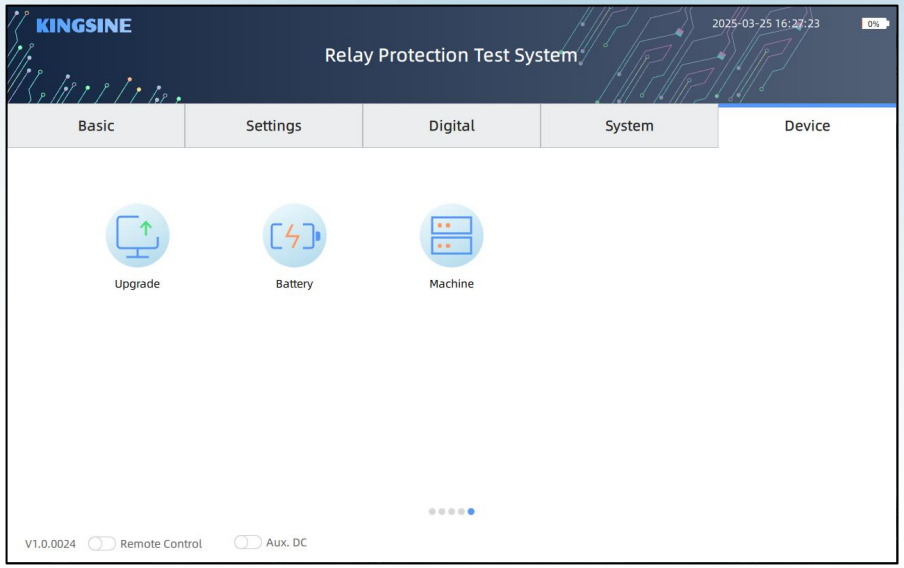
Software Interface











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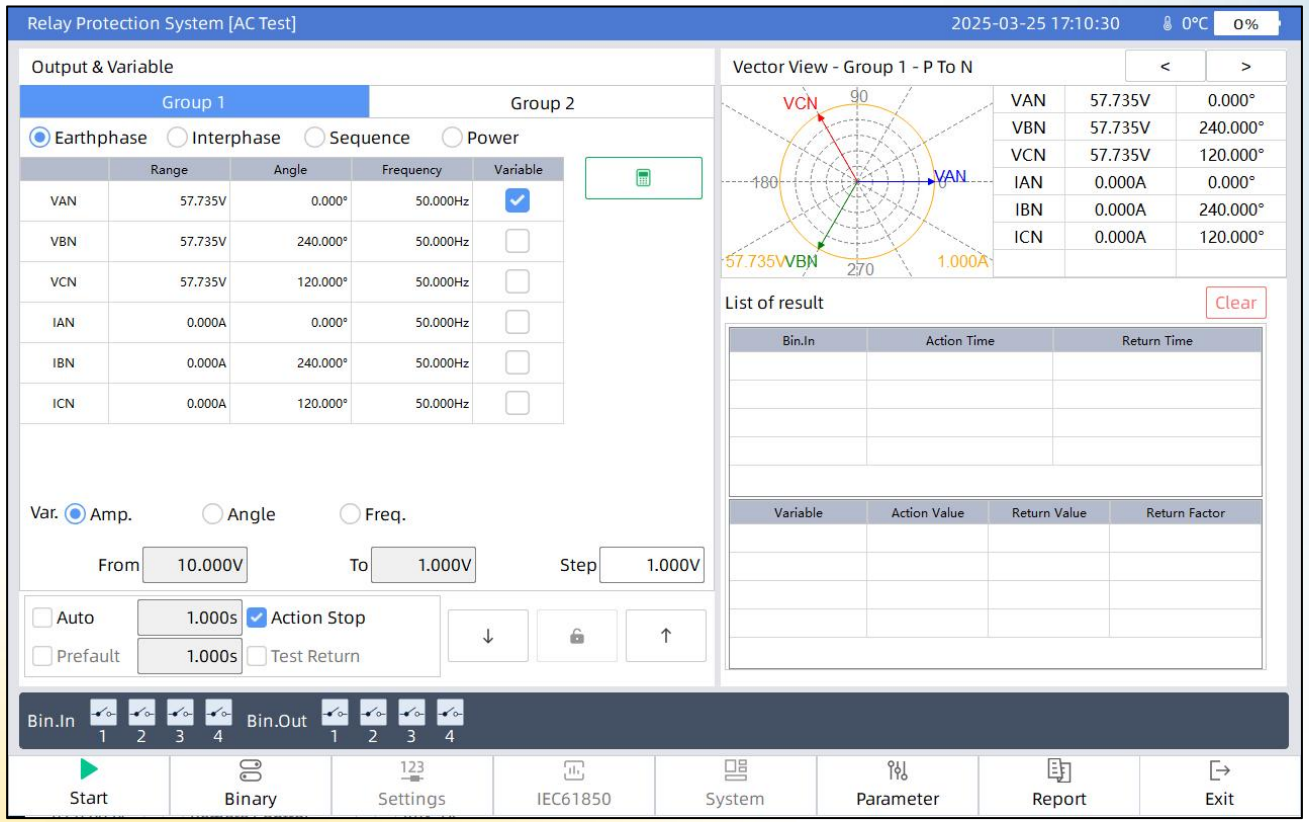
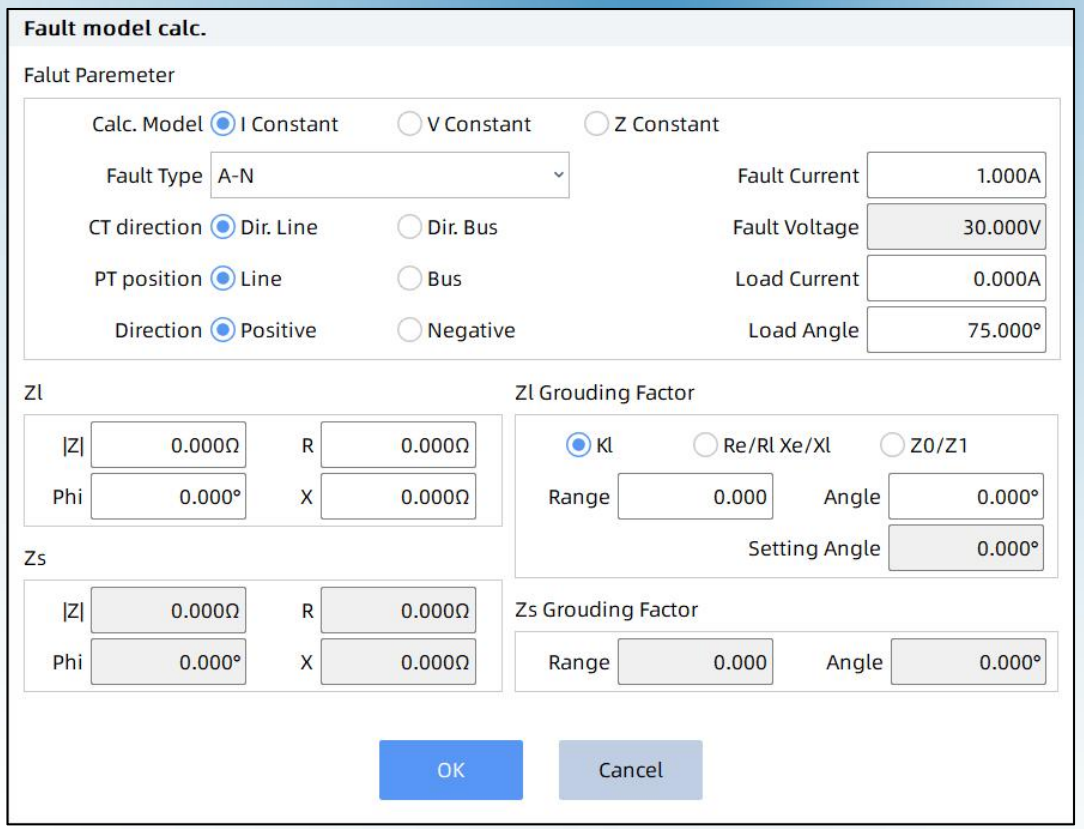
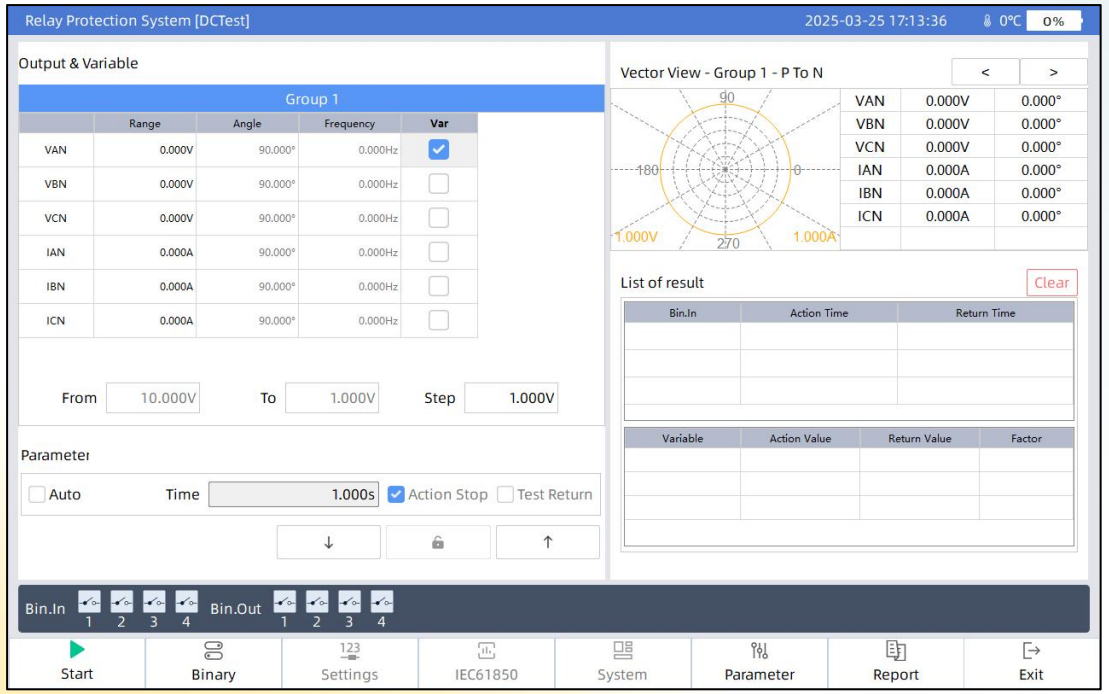
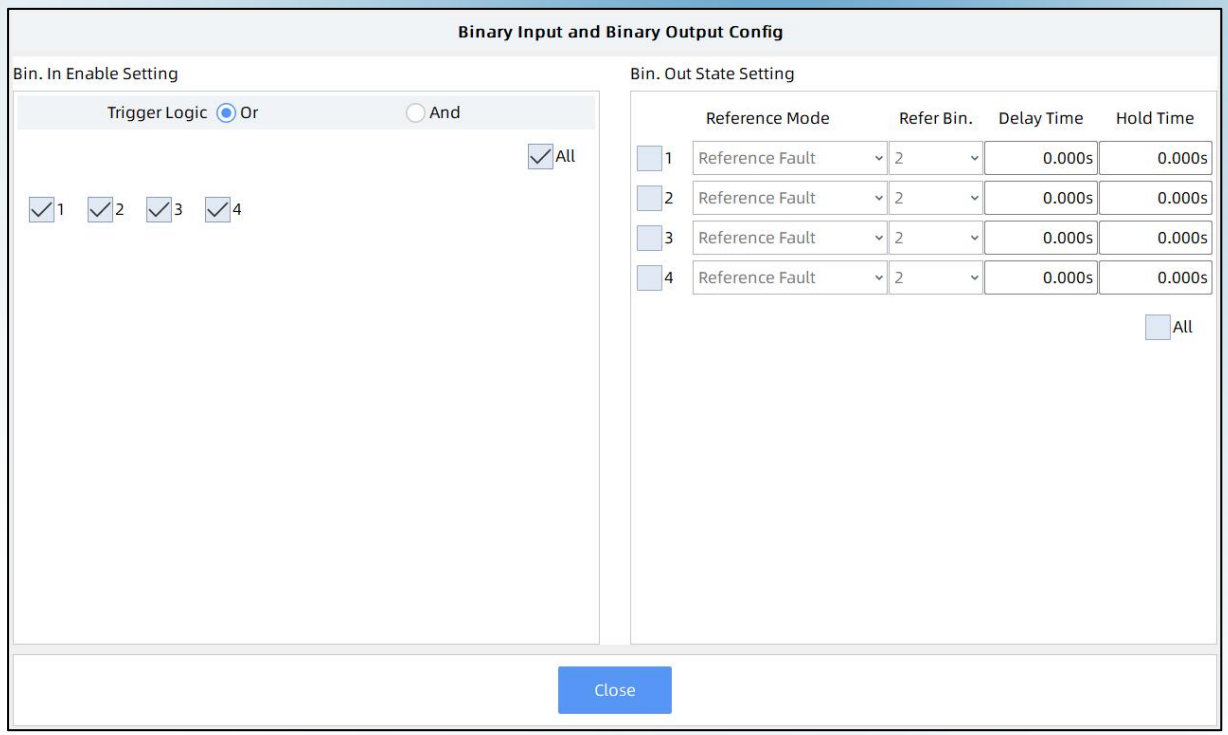
Software Interface - AC Module





Software Interface - DC Module





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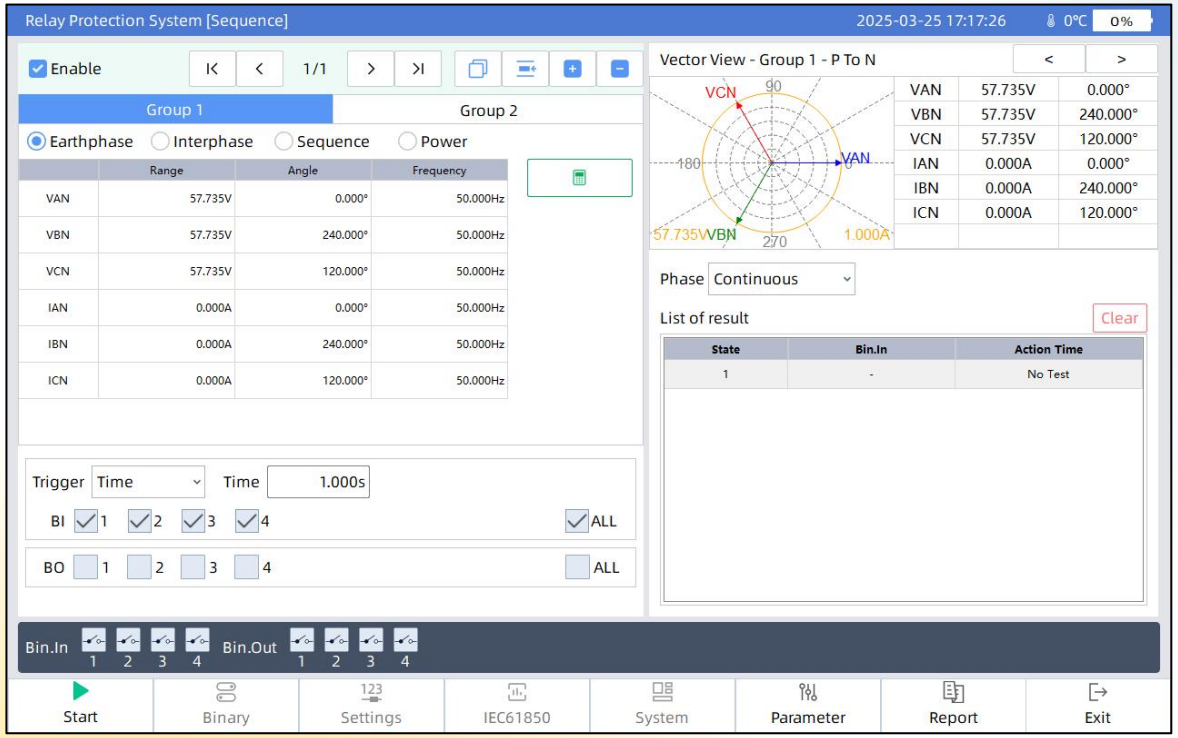
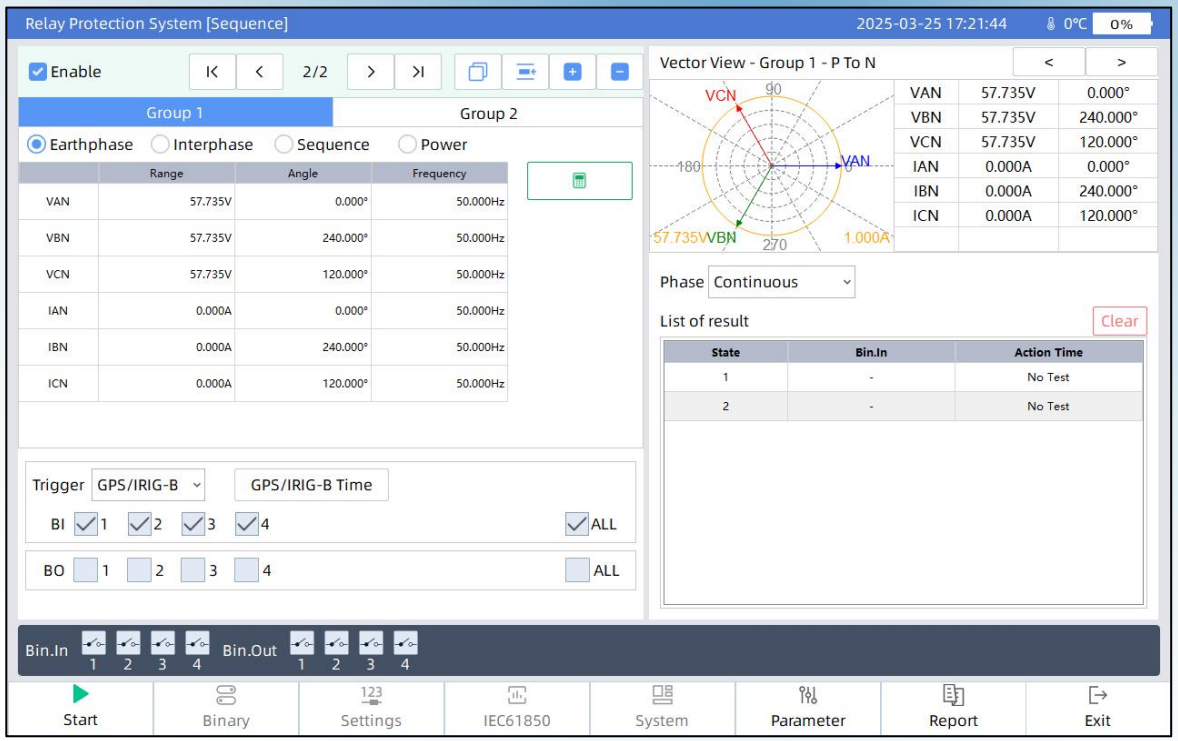
Software Interface - State Sequencer Module





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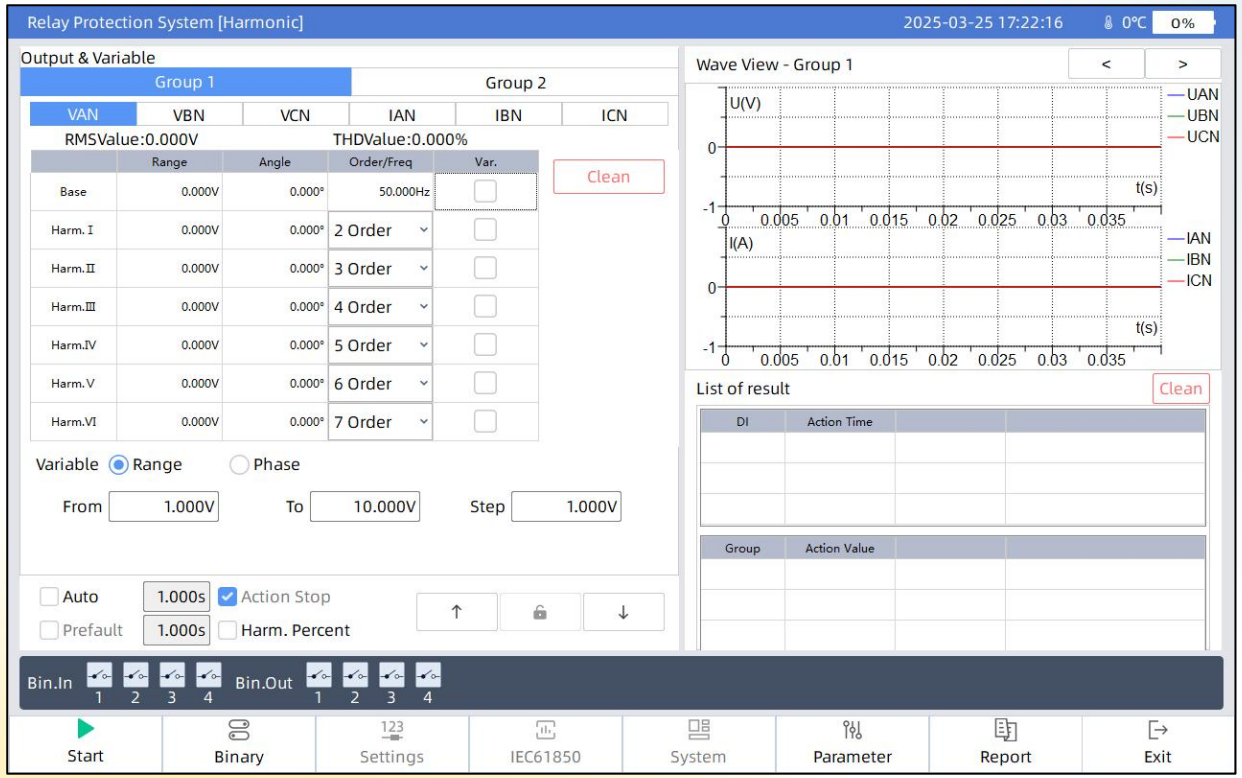
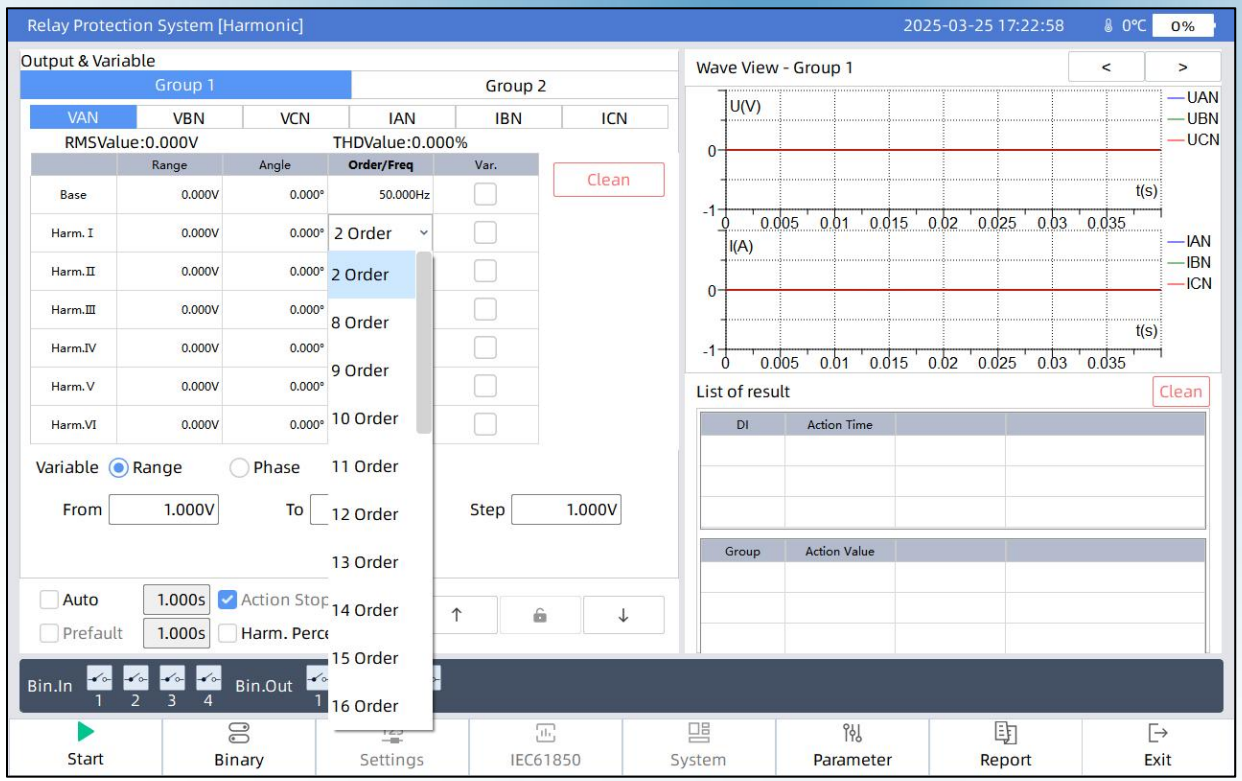
Software Interface - Harmonic Module





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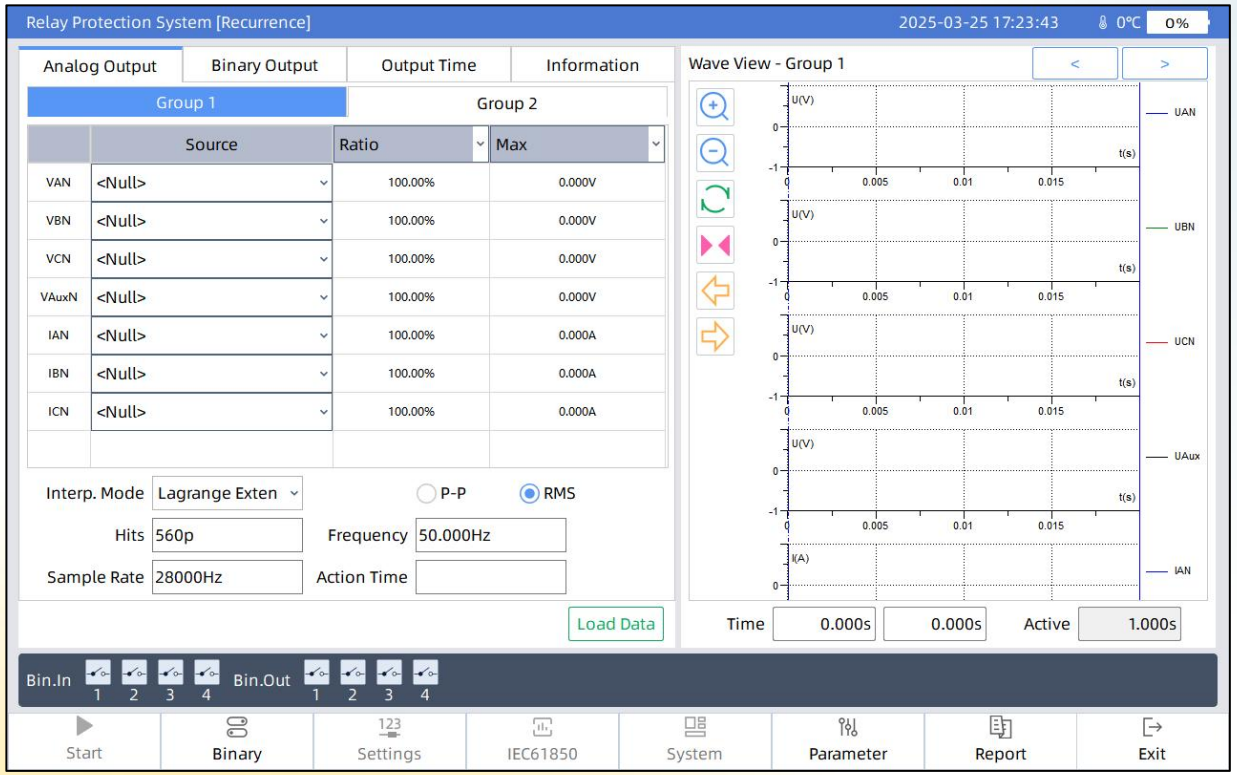
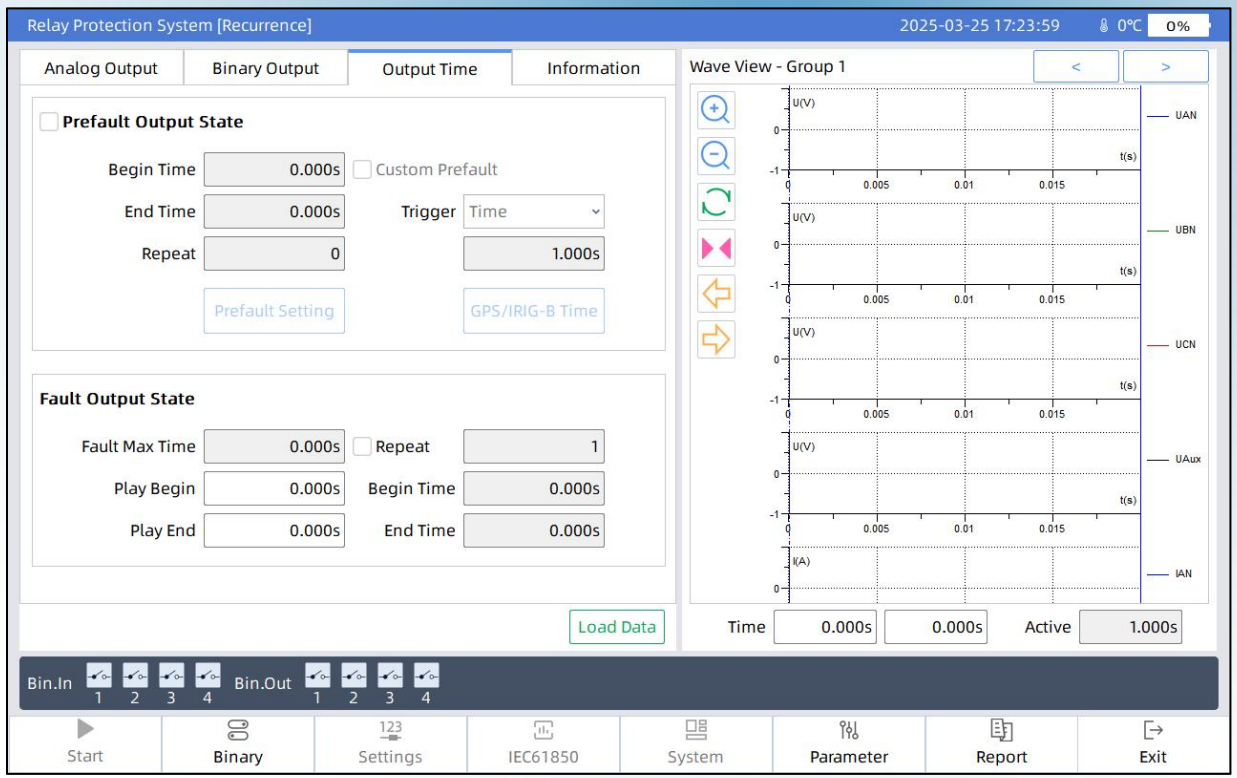
Software Interface - Recurrence Module





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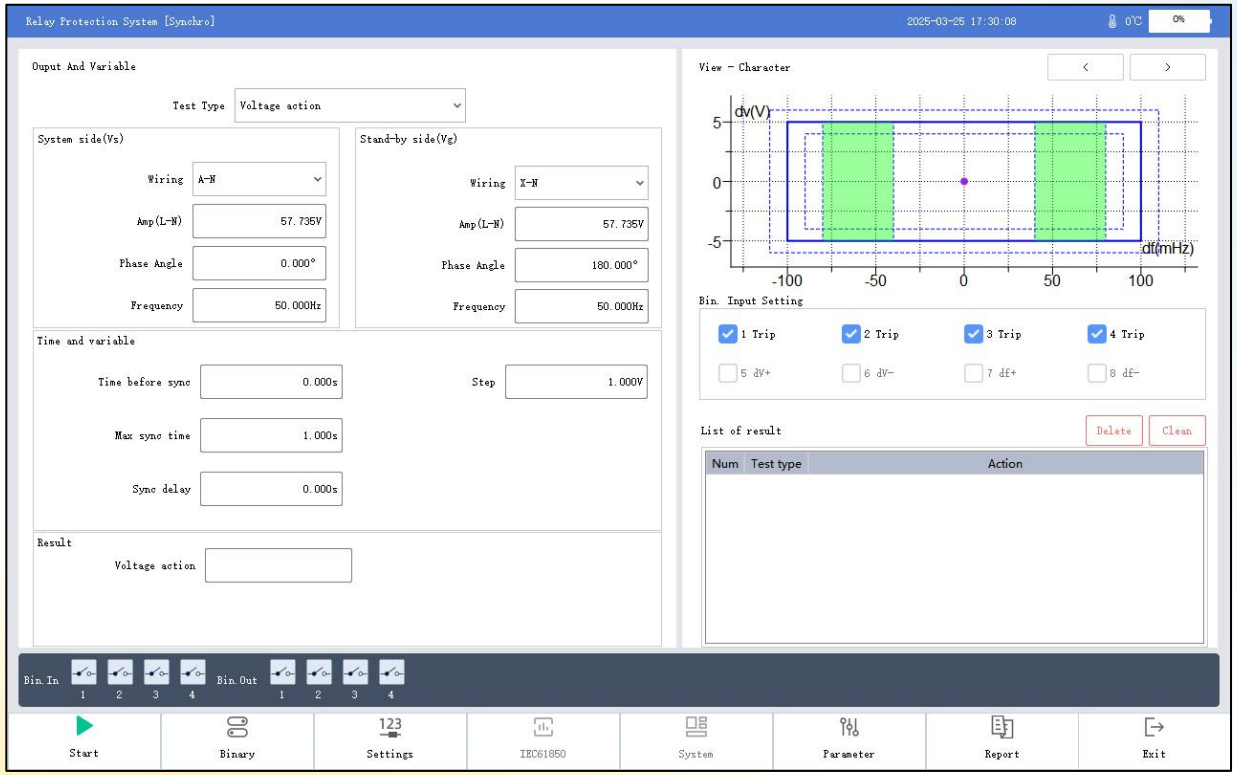
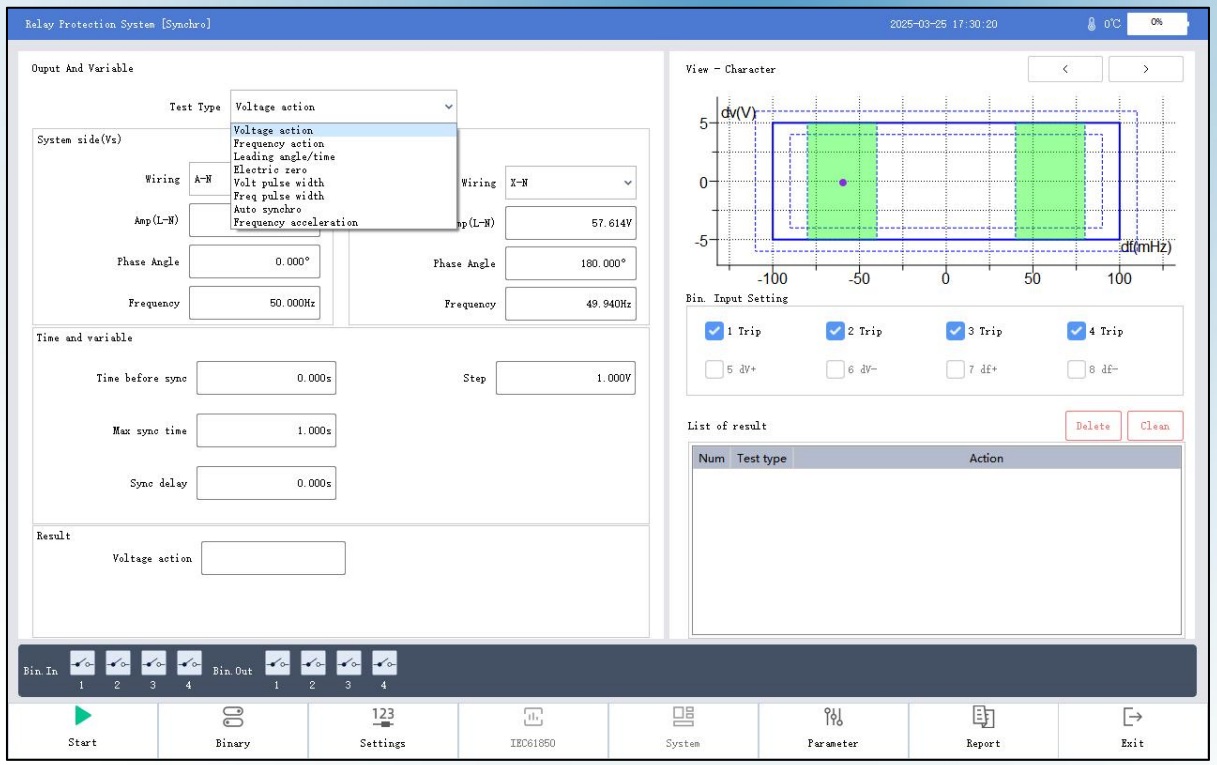
Software Interface - Synchro Test Module





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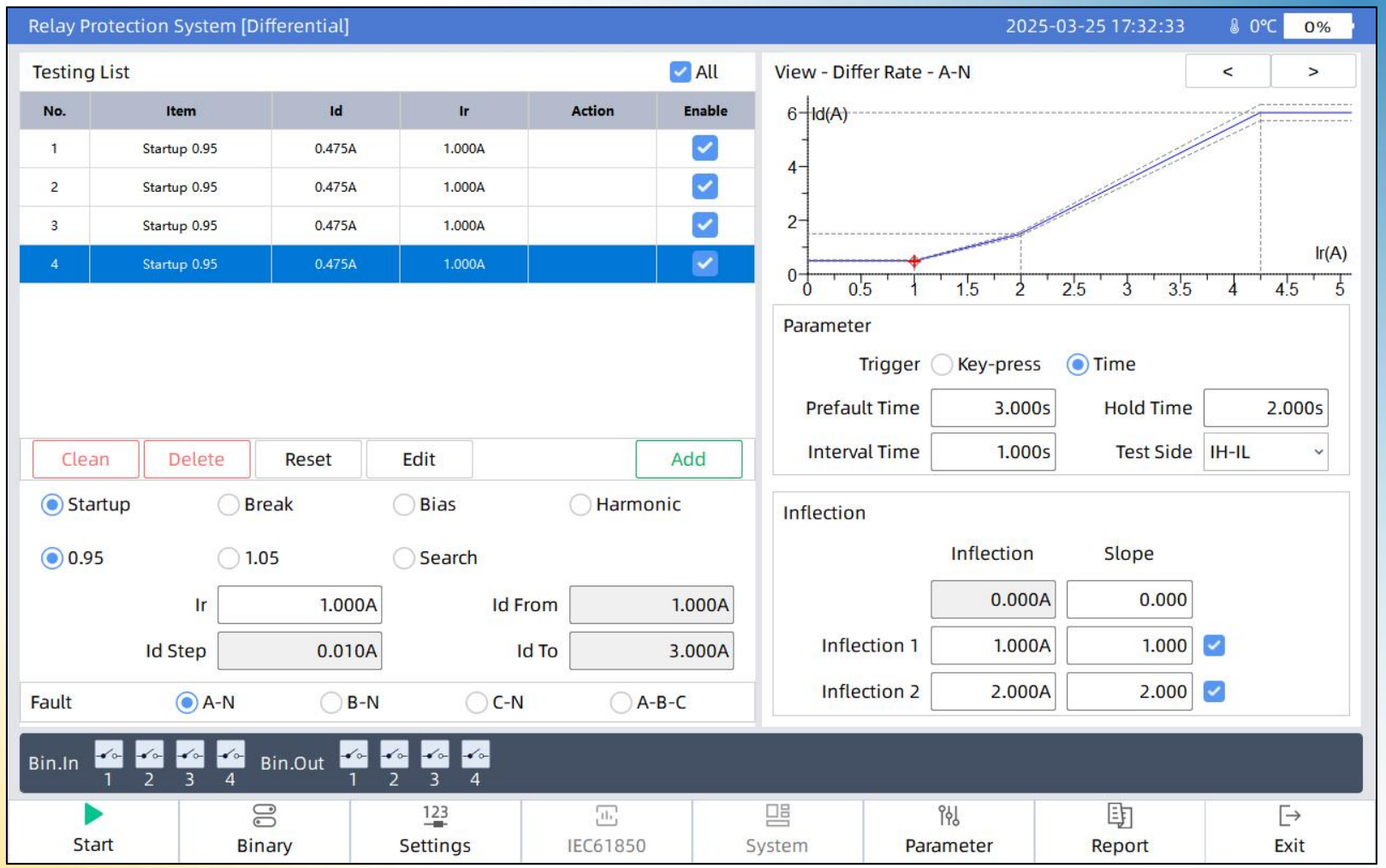
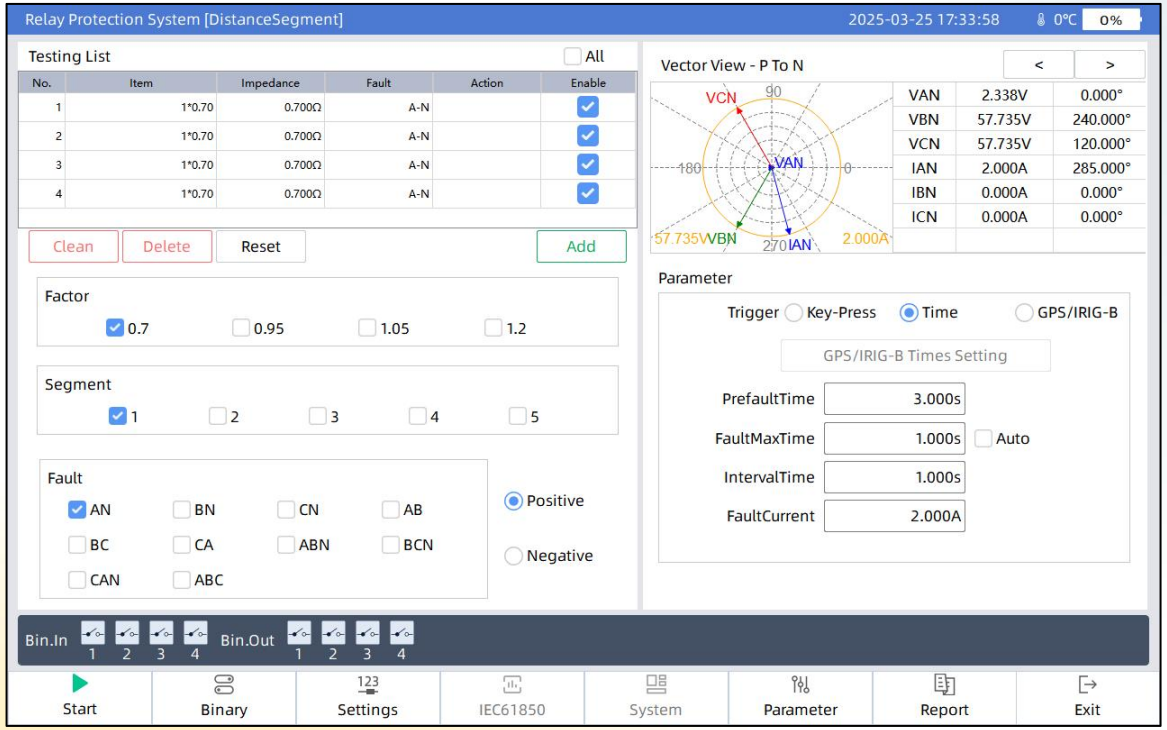
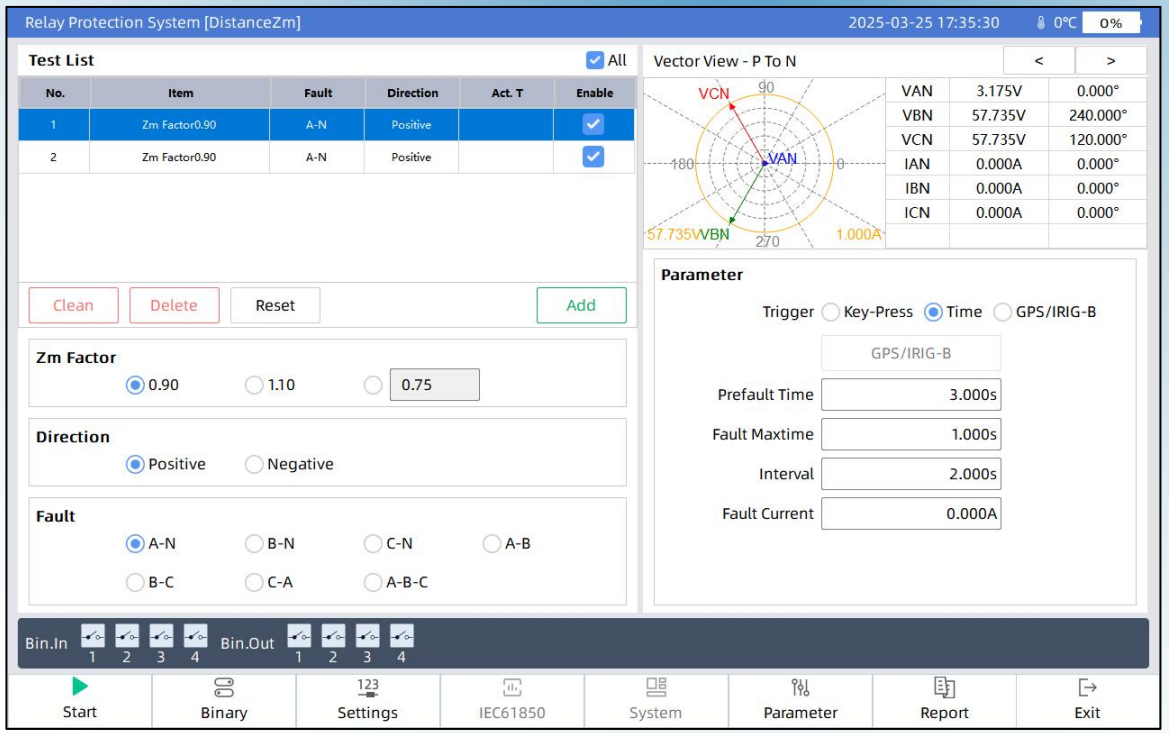
Software Interface - Differencial Module



Software Interface - Distance Module





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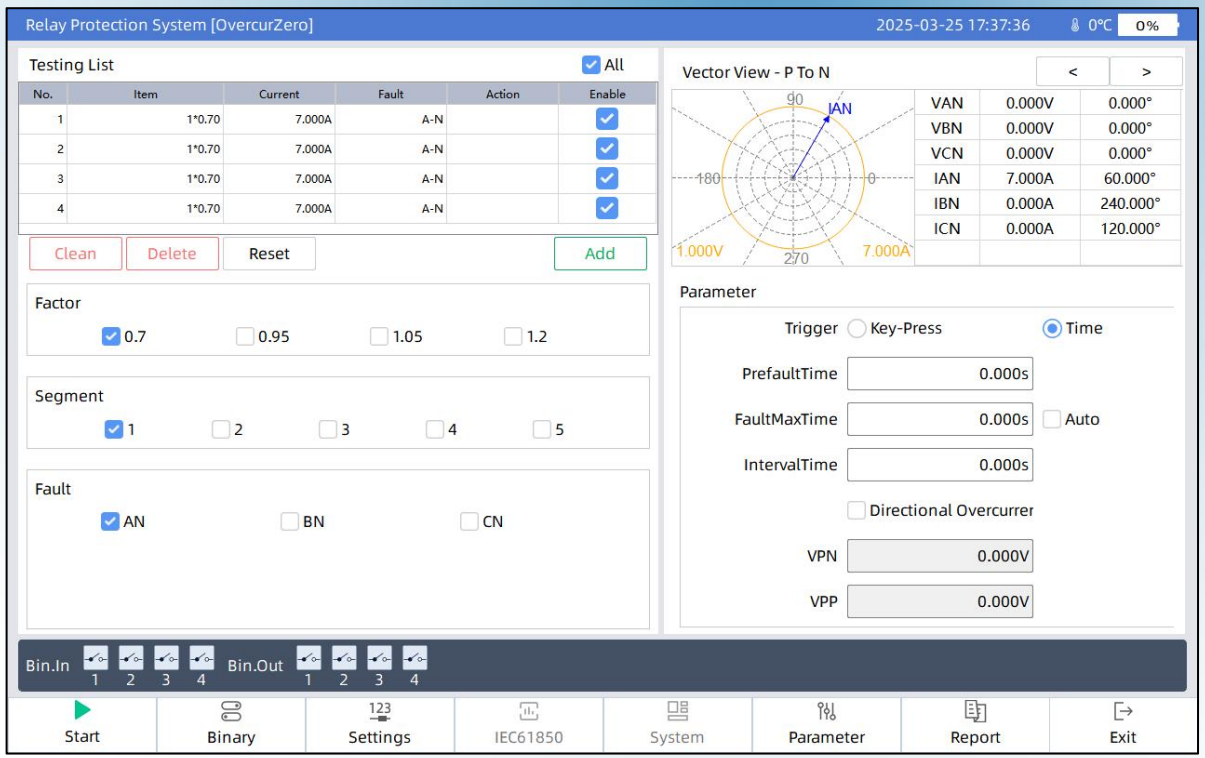
Software Interface - OvercurSeg&Overcur Zero Module





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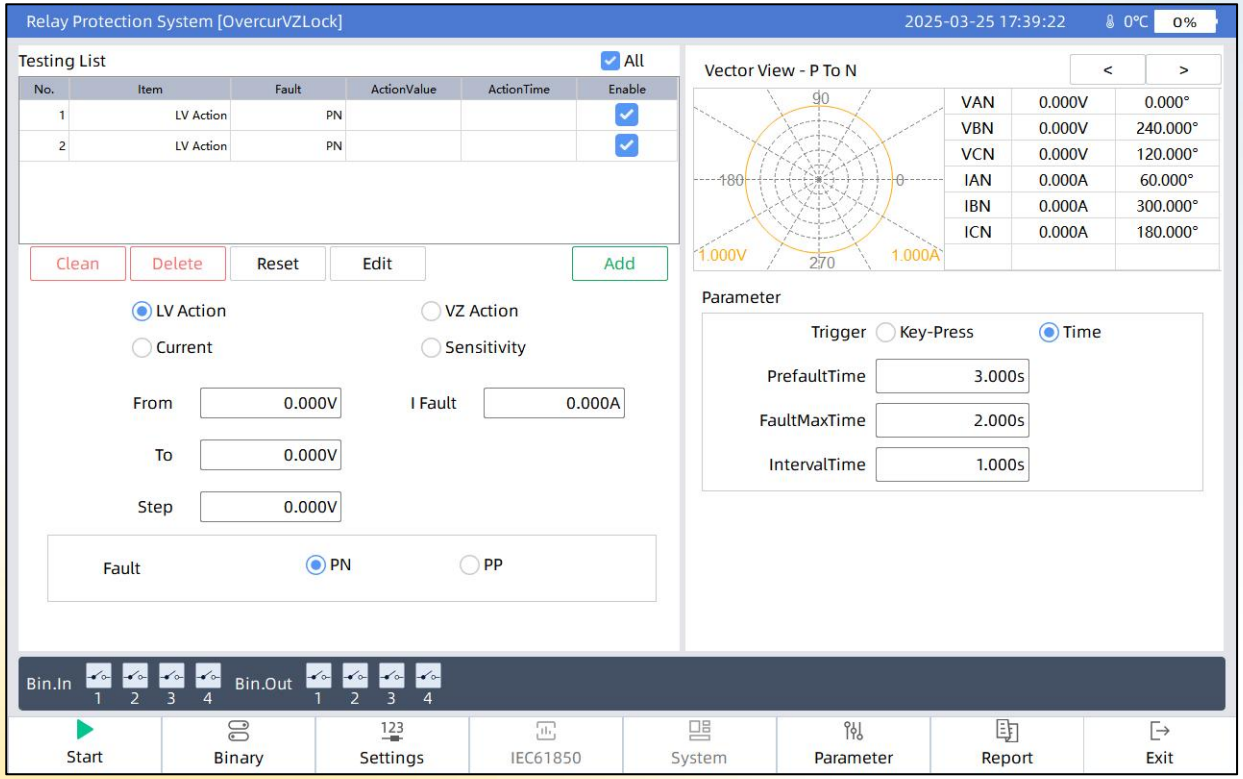
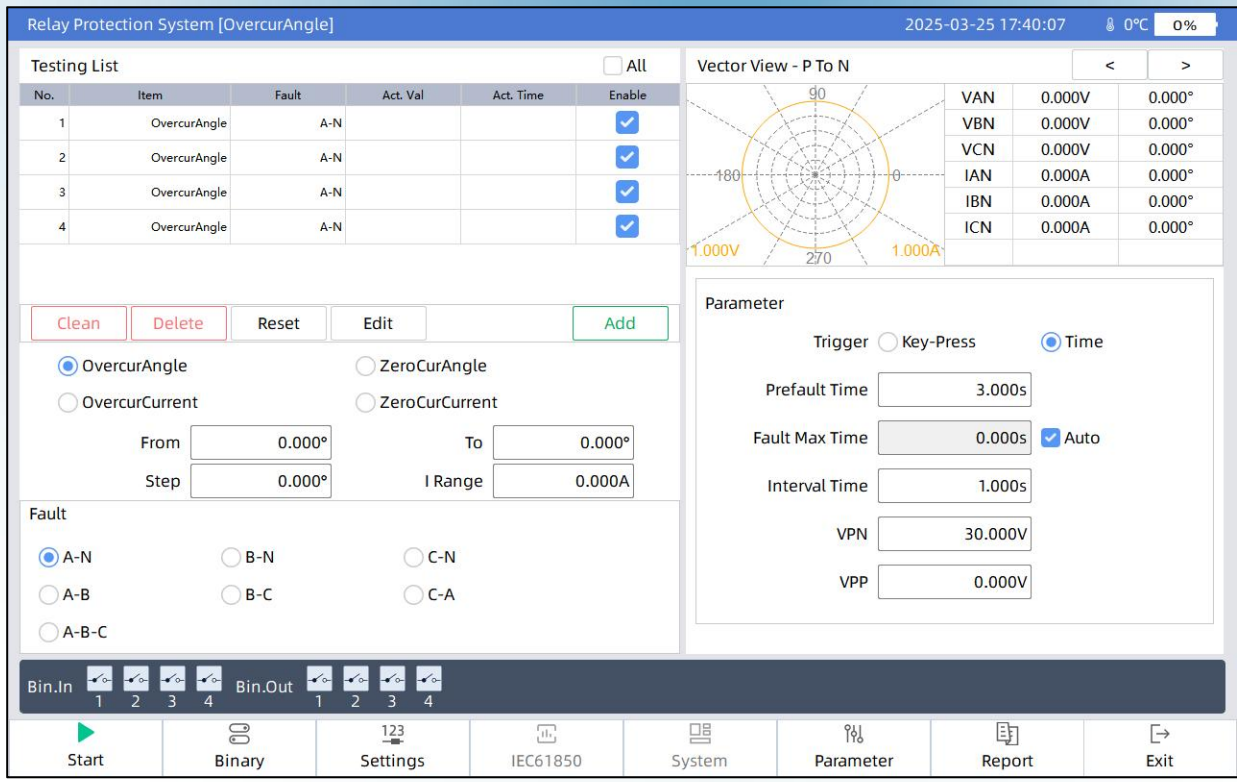
Software Interface - OvercurVZLock&OvercurAngle





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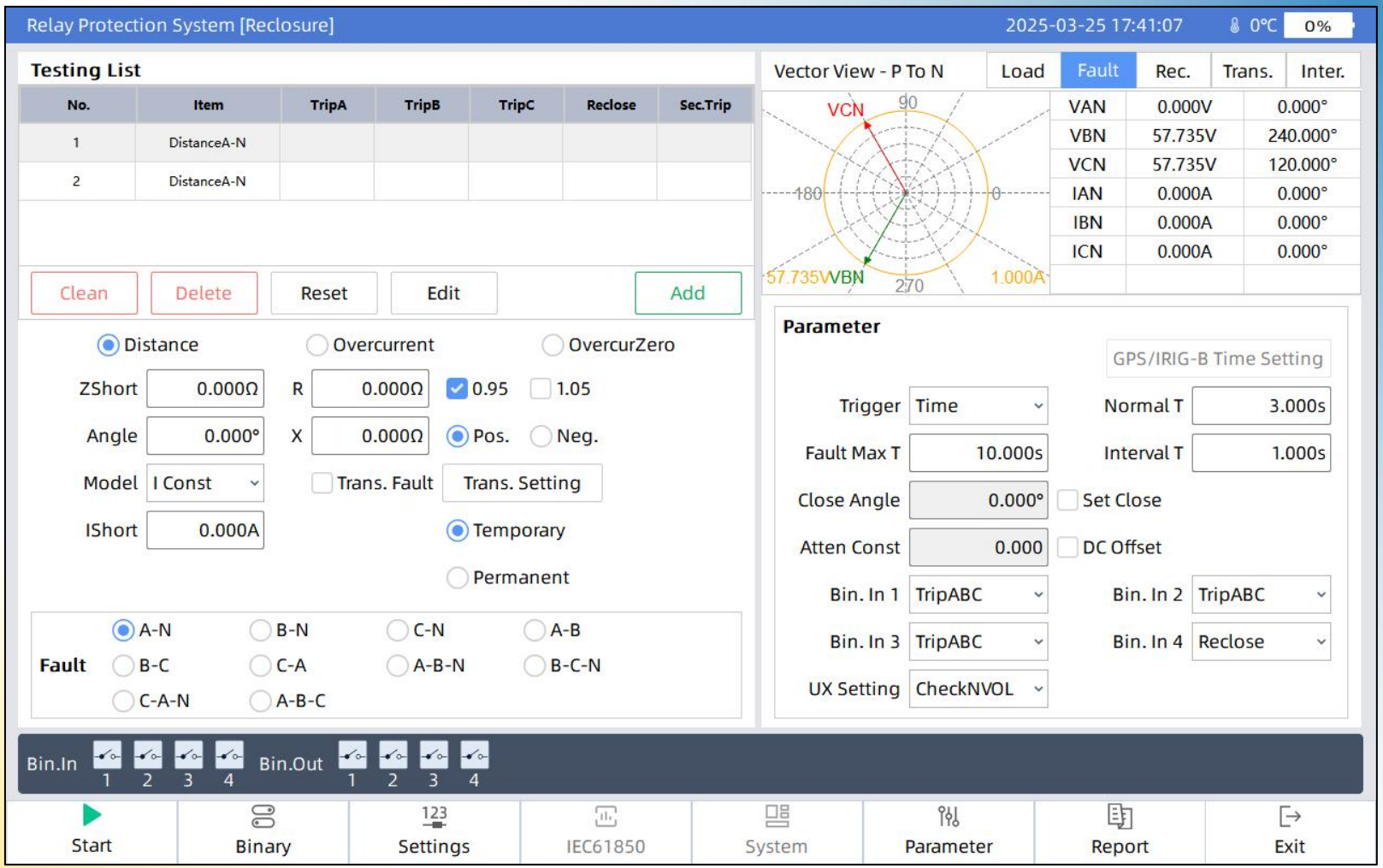
Software Interface - Reclosure Test Module



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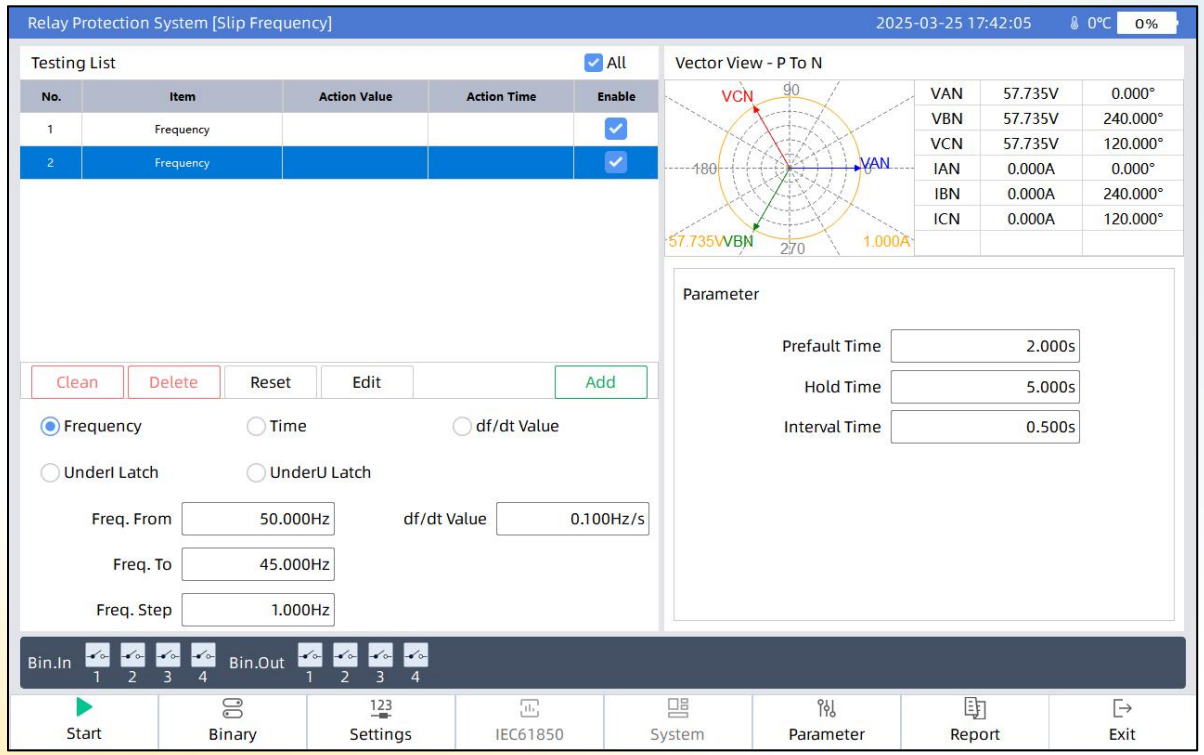
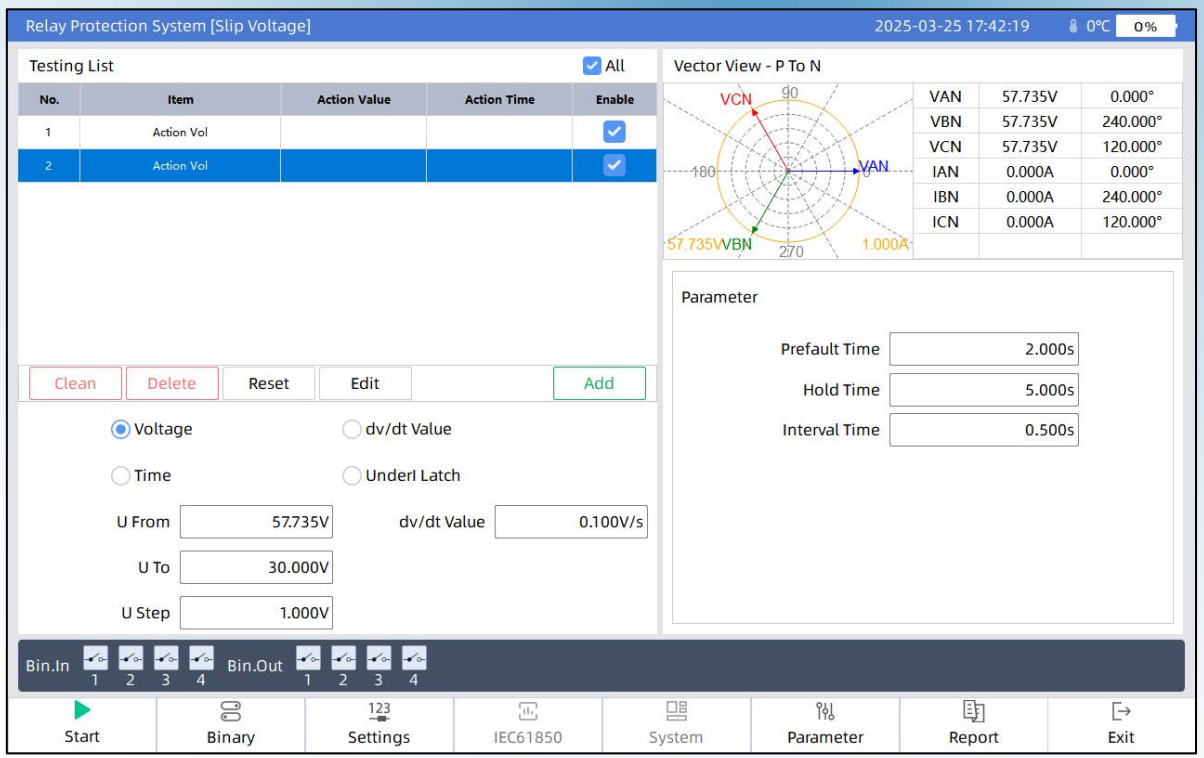
Software Interface - Slip Frequency & Slip Voltage





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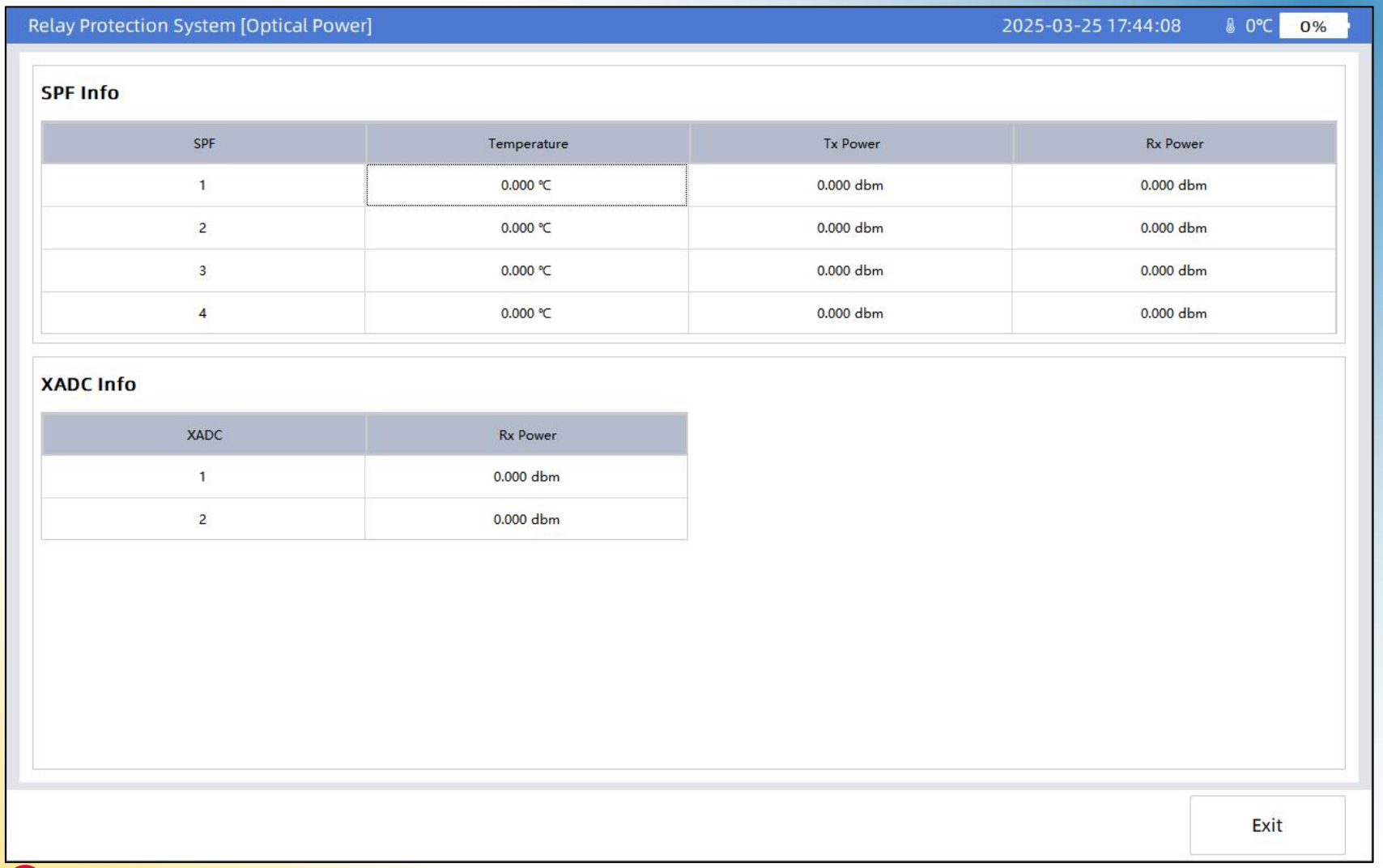
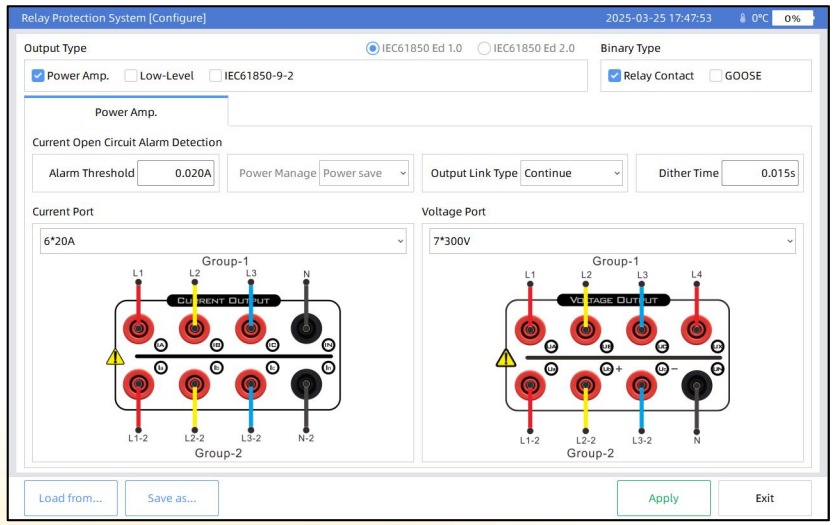
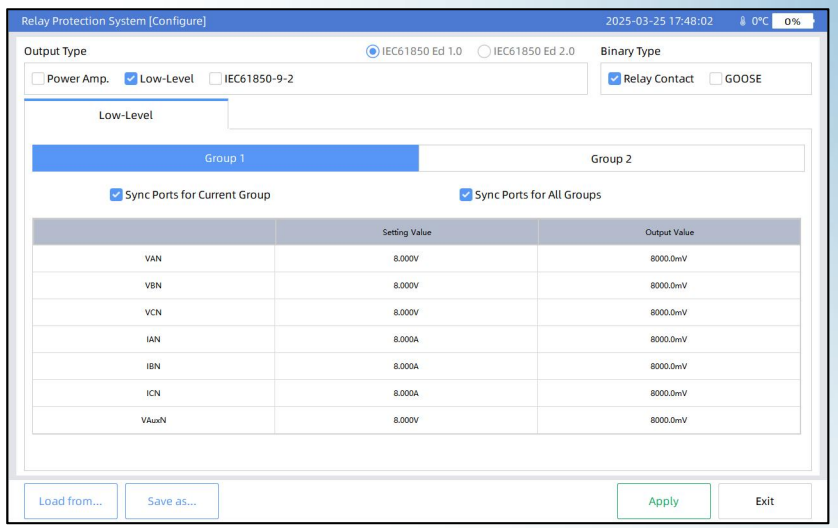
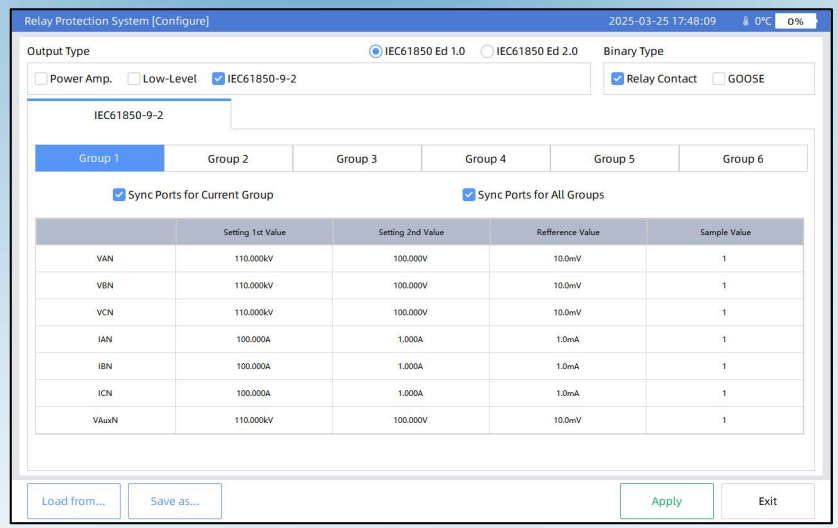
Software Interface - Optical Power Test Module



Software Interface - System Config







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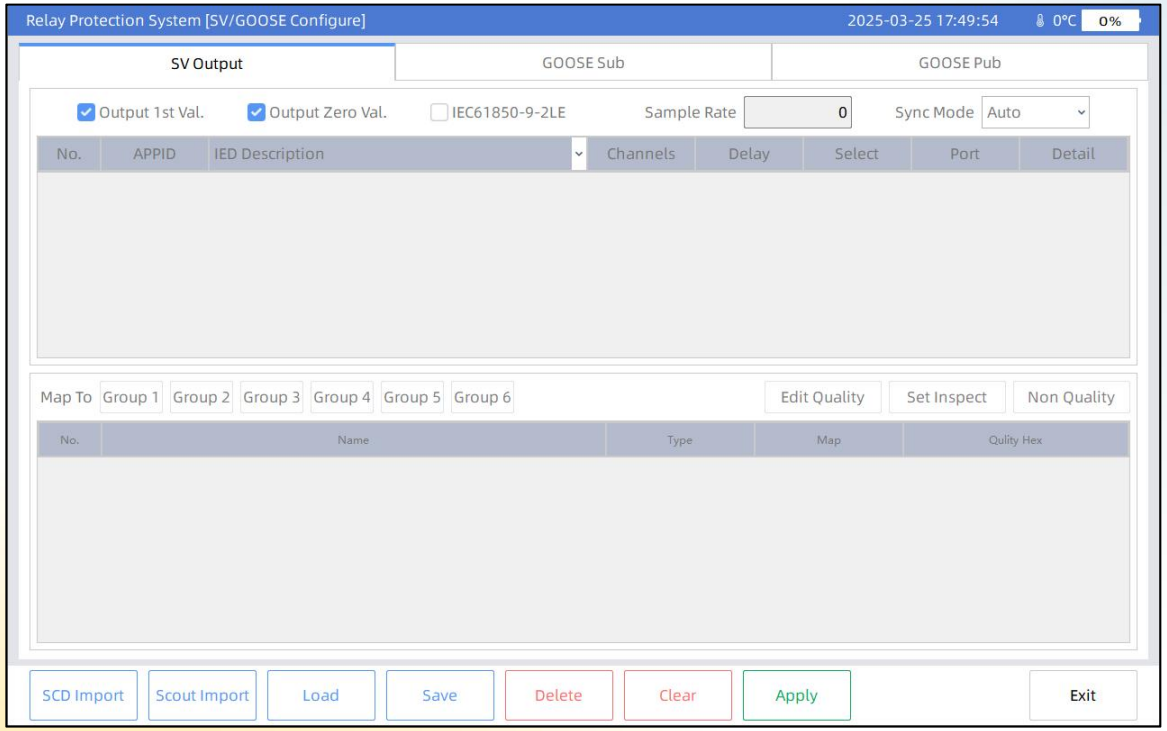
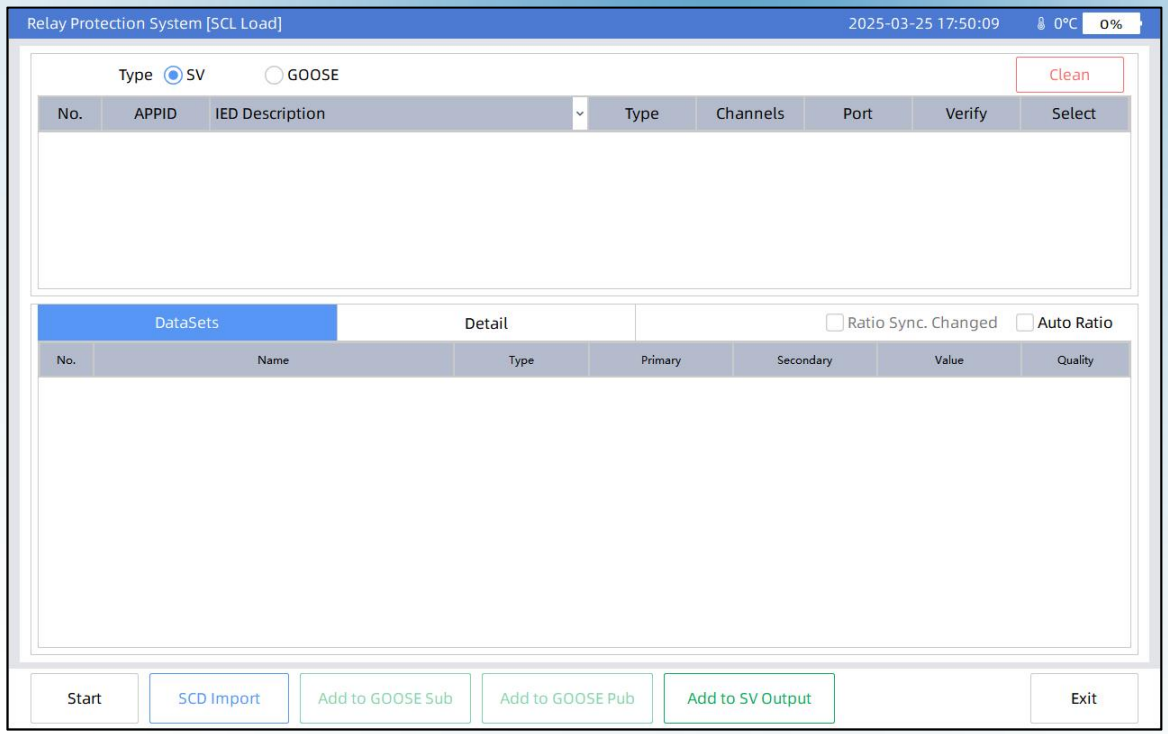
Software Interface - SV&GOOSE Config





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About KINGSINE

Established in **1999**, Kingsine Electric Automation Co., Ltd. has been dedicated to R&D, producing, and selling a range of high-quality electrical testing equipment. KINGSINE's product line includes Protection Relay Test Sets, CT Analyzers, Reference Power Sources and Calibrators, Voltage and Current Amplifiers, Electricity Monitoring Systems, and Instrumentation.

Over **13,000 units** of KINGSINE relay testers are running and highly praised in over **90 countries** such as USA, Germany, France, Canada, Italy, Japan, Dubai, Australia etc.

KINGSINE has successfully served clients including **ABB/EATON/GE/SEL/SIEMENS** etc. KINGSINE's products not only achieve globally recognized certifications such as CE and UL, but also come with a **3-year free warranty** and a targeted **product lifespan of over 15 years.**

KINGSINE Protection Relay Test Sets are compatible with world-renowned relay protection devices such as ABB, SIEMENS, ALSTOM, MITSUBISHI, Schneider, AREVA, SEL, GE, and others.

To better serve customers, KINGSINE have established a distribution network with partners in the Americas, Europe, Asia, the Middle East, and other countries, providing comprehensive services to meet the needs of clients.



www.kingsine.com