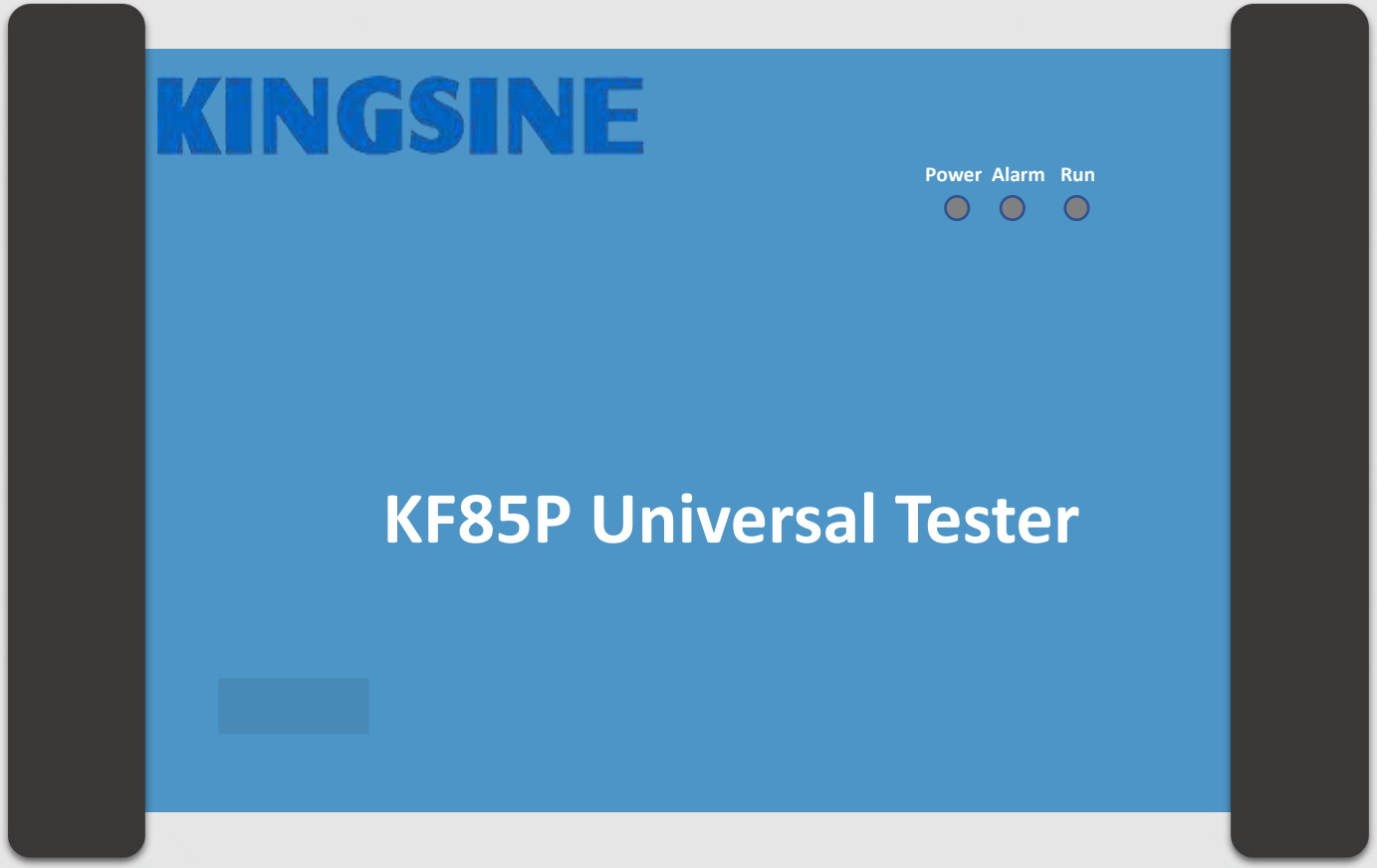

KINGSINE
Power Alarm Run
KF85P Universal Tester

# KF85P – INTRODUCTION

KINGSINE

- Super portable test equipment applied in both smart substation and traditional substation all over the world
- Meticulously designed by KINGSINE, a leading Chinese technology company with over 24 years in the market and a leading supplier of test and measurement equipment to the Chinese government;

**Important information:**, Compact 6-phase relay test set with high accuracy & full solution (complying IEC61850 sampled value and GOOSE), fully meet all the requirements for detection and debugging of IEC61850 IEDs, Merge Units, station control systems and traditional protection relays

KF85P adopts Multi-Core SOC. avoiding the troublesome communication process caused by using data bus to exchange data

| Core 1 | Core 2 | Core 3 |
| --- | --- | --- |
| Data Simulation | Command Process | Communication Computer |

The KF85P system is highly integrated, allowing it to fully meet the testing and commissioning requirements for:

- Protection relays;
- Measuring and control devices;
- smart terminals;
- Merge units;
- Intelligent substation control systems.

# KF85P – INTRODUCTION

KINGSINE

- High Precision and Control of Electrical Quantities
- Cutting edge technology
- It allows testing Protection Relays (Digital, Electromechanical...), Merge Unit, Meters.....
- Complete Software for Test Automation
- Free training
- Lifetime Technical Support
- Tutorials and Video Lessons
- 3 Year Warranty, extendable to 5 years

# KF85P – HARDWARE

KINGSINE

- 10 Independent Analog Channels
- Variable DC Battery Simulator
- 10 Pairs Digital Inputs (Dry or “Wet Contact”)
  4 Pairs Digital Outputs
- Integrated Wi-Fi Module
- Time Synchronization Protocol
- Integrated GPS/BDS Timing Module

# IEC 61850

- Automatically import SCL files (SCD, ICD, CID, NPI) to perform automatic setup of sampled values and GOOSE information and save sample values and GOOSE configuration information as a configuration file for testing;
- Support graphical display of SCD files, graphically display IED interconnect relationship and virtual terminal connection.

## GOOSE

- Supports subscribing, publishing GOOSE messages;
- Multiple GOOSE control block messages can be subscribed/published;
- Automatically detects optical digital signals from MU, protection device and intelligent operation box, and realizes the function of automatic setting of sampling value and GOOSE information

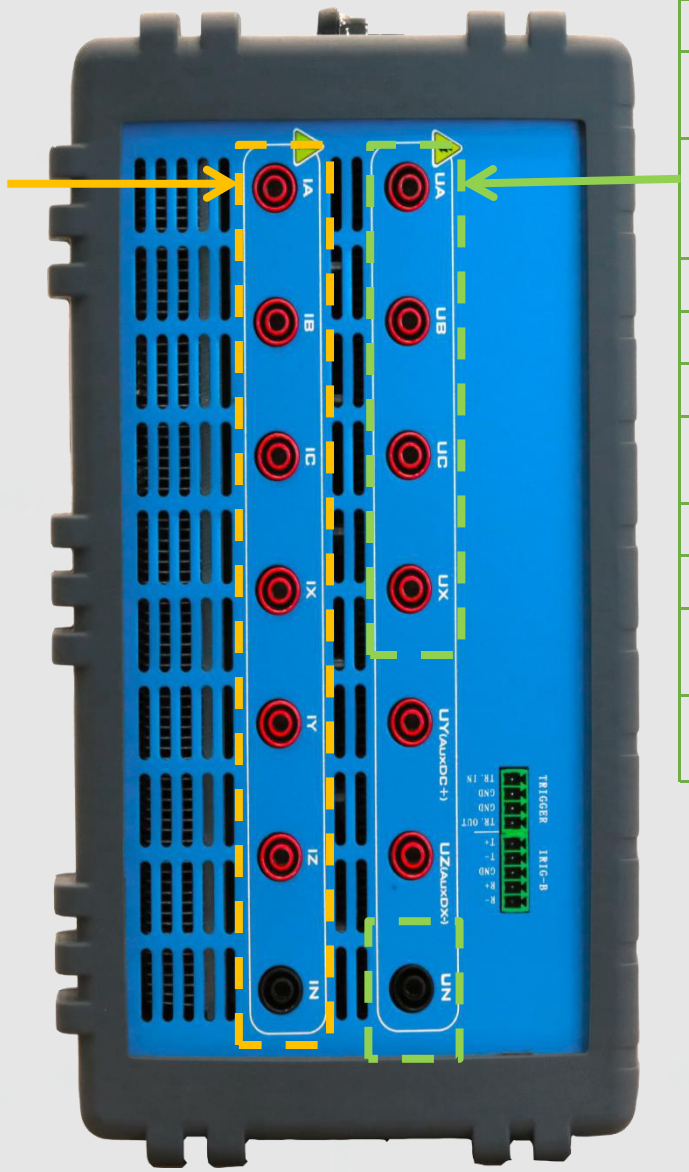
## SV

- Simultaneously inject analog signals and IEC61850 Sampled Value Messages;
- Up to 36 channels freely defined by the user;
- The channel quality of the outgoing SV message can be set and the simulation unit can be simulated and debugged

# KF85P – REAR VIEW

KINGSINE

| Current Channels (AC Mode) | |
|---|---|
| Amplitude and Power | 6×35A @ 424VA max each;<br>3×70A @ 670VA max each; |
| Accuracy | <0.015%Rd+0.005Rg Typ.<br><0.04%Rd+0.01Rg Guar. |
| Range | Range I: 3A<br>Range II: 30A<br>Automatic Range |
| Offset DC | <3mA Typ./ <10mA Guar |
| Resolution | 1mA |
| Distortion | <0.025%Typ. / <0.07% Guar. |
| Response Time<br>Increase decrease | <100us |
| **Current Channels (DC Mode)** | |
| Amplitude and Power | 3×20A @ 400W max |
| Accuracy | ±5mA @ <1A<br>±0.2% @ ≥1A |
| Response Time<br>Increase decrease | <100us |



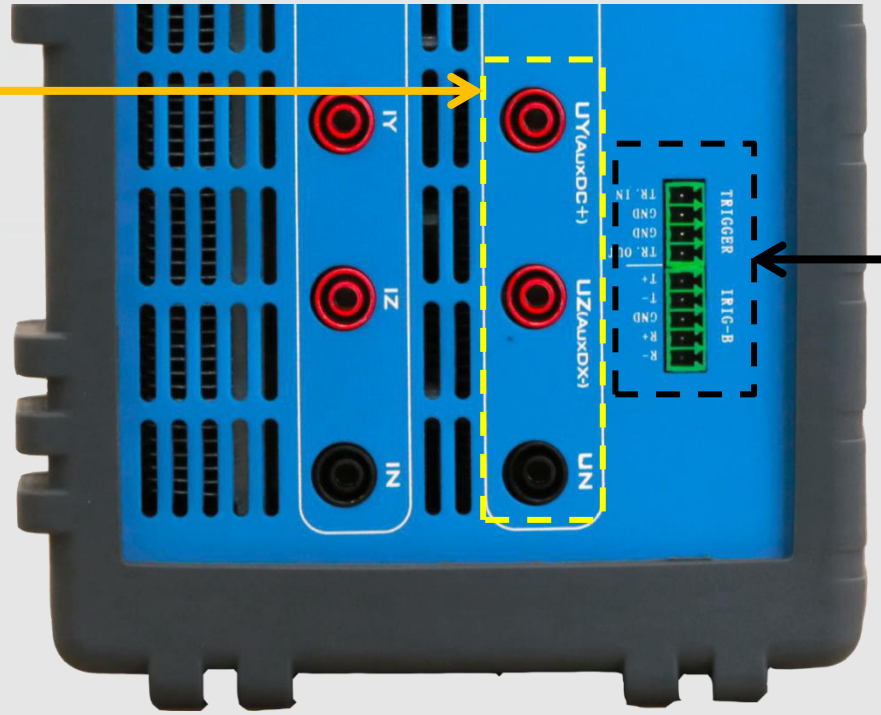

| Voltage Channels (AC Mode) | |
|---|---|
| Amplitude and Power | 4×310V @105VA max each |
| Accuracy | <0.015%Rd+0.005Rg Typ.<br><0.04%Rd+0.01Rg Guar. |
| Range | Range I: 30V<br>Range II: 310V<br>Automatic Range |
| Offset DC | <10mV Typ./ <60mV Guar |
| Resolution | 1mV |
| Distortion | <0.015%Typ. / <0.05% Guar. |
| Response Time<br>Increase decrease | <100us |
| **Voltage Channels (DC Mode)** | |
| Amplitude and Power | 4×350V @ 75W max |
| Accuracy | ±10mV @ <5V<br>±0.2% @ ≥5V |
| Response Time<br>Increase decrease | <100us |

# KF85P – REAR VIEW

| DC Auxiliary Source | |
|---|---|
| Range | 0 – 350 Vdc |

- Adjustable value via software;
- The value of the output voltage independent of the tests in progress.
- Used only for powering relays, meters.....

Do not use to power control circuits or similar...



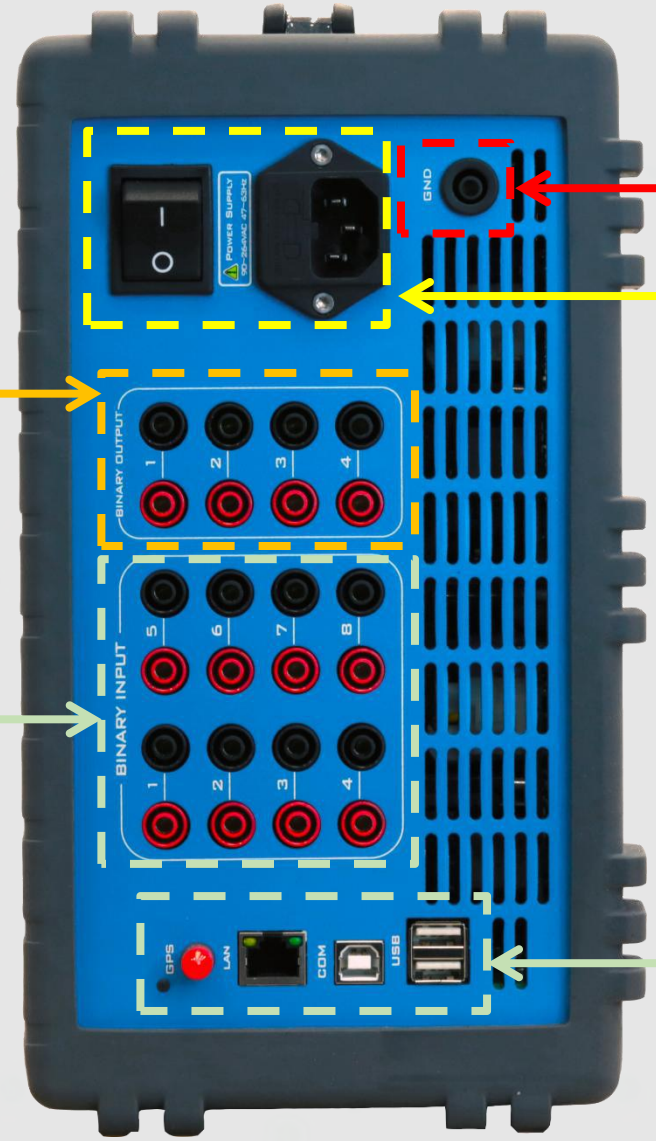

| Time Synchronization | |
|---|---|
| Satellite Sync | 1 × SMA， Use for GPS antenna interface Support GPS and Beidou Satellite |
| IRIG-B Fiber | 2 × ST， 1 for transmit, 1 for receive |
| IRIG-B Electric | 5 phoenix 5.08mm pins 1 for transmit, 1 for receive |
| External trigger synchronization | 4 pin 5.08mm phoenix external trigger input + external trigger output |

# KF85P – FRONT VIEW

KINGSINE

| Digital Outputs | |
|---|---|
| Quantity | 4 pairs, Fast speed |
| Type | Banana type 4.0mm |
| AC break capacity | Vmax：250V（AC）/ Imax：0.5A |
| DC break capacity | Vmax：250V（DC）/ Imax：0.5A |
| Electrical isolation | All pairs isolated |

| Binary input | |
|---|---|
| Electrical isolation | 10 pairs of electrical isolated each |
| Input impedance | 5 kΩ…13kΩ (Empty contact) |
| Input feature | 0 V～300Vdc Or dry contact (Binary input turn over potential can be programmable) |
| Sampling Rate | 10kHz |
| Time resolution | 10us |
| Time measurement range | 0～100000s |
| Time accuracy | ±1ms @ <1s±0.1% @ ≥1s |
| Debounce time | 0~25ms (Software controlled) |




Grounding Point

| Power supply | |
|---|---|
| Nominal voltage | 220V/110V (AC) |
| Allowable voltage | 85V～265V (AC)<br>127V～350V(DC) |
| Nominal Frequency | 60Hz |
| Allowable Frequency | 47～63Hz |
| Current | 10A max |
| Power Consumption | 1200VA max |
| Connection Type | Standard AC socket 60320 |

| Communication interface | |
|---|---|
| Ethernet | 1 × RJ45， 10/100M |
| WIFI | Inbuilt WIFI DHCP service |
| USB | 2 × USB2 |

# Compact

# extremely light

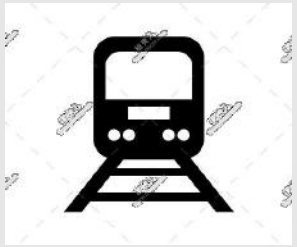
**Ideal for use in:**

Oil and Gas Platforms

Substations

Industry

Photovoltaic plants



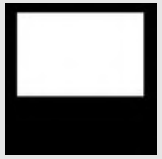
Rail and Metro

10Kg

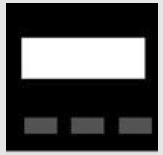
Simple and Powerful software

Ideal for testing various equipment such as:

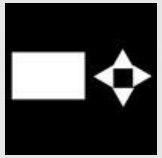
Protection Relays
- Digital
- Electromechanical
- Static



Power Meters

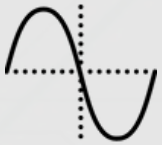


Transducers



And many others

# Automatism - Test Modules


AC Test

Ramping

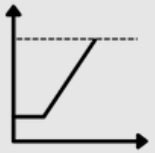
StateSequencer

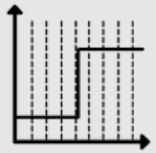
Harmonic

Frequency

Overcurrent

ZeroSequence

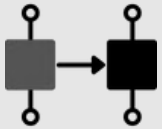

Differential


Harmonic Restraint

Differential Configuration

Distance

Power Swing


Reclose

Synchronizer

# KF85P – SOFTWARE

KINGSINE

Test Plan

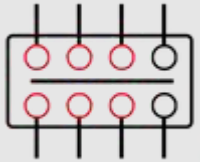
With just one “click” Test various functions

Templates

Create or use ready-made templates

Reports

Automatic Reports Formats: RTF, XML customizable



Wiring diagram

Easily view connections

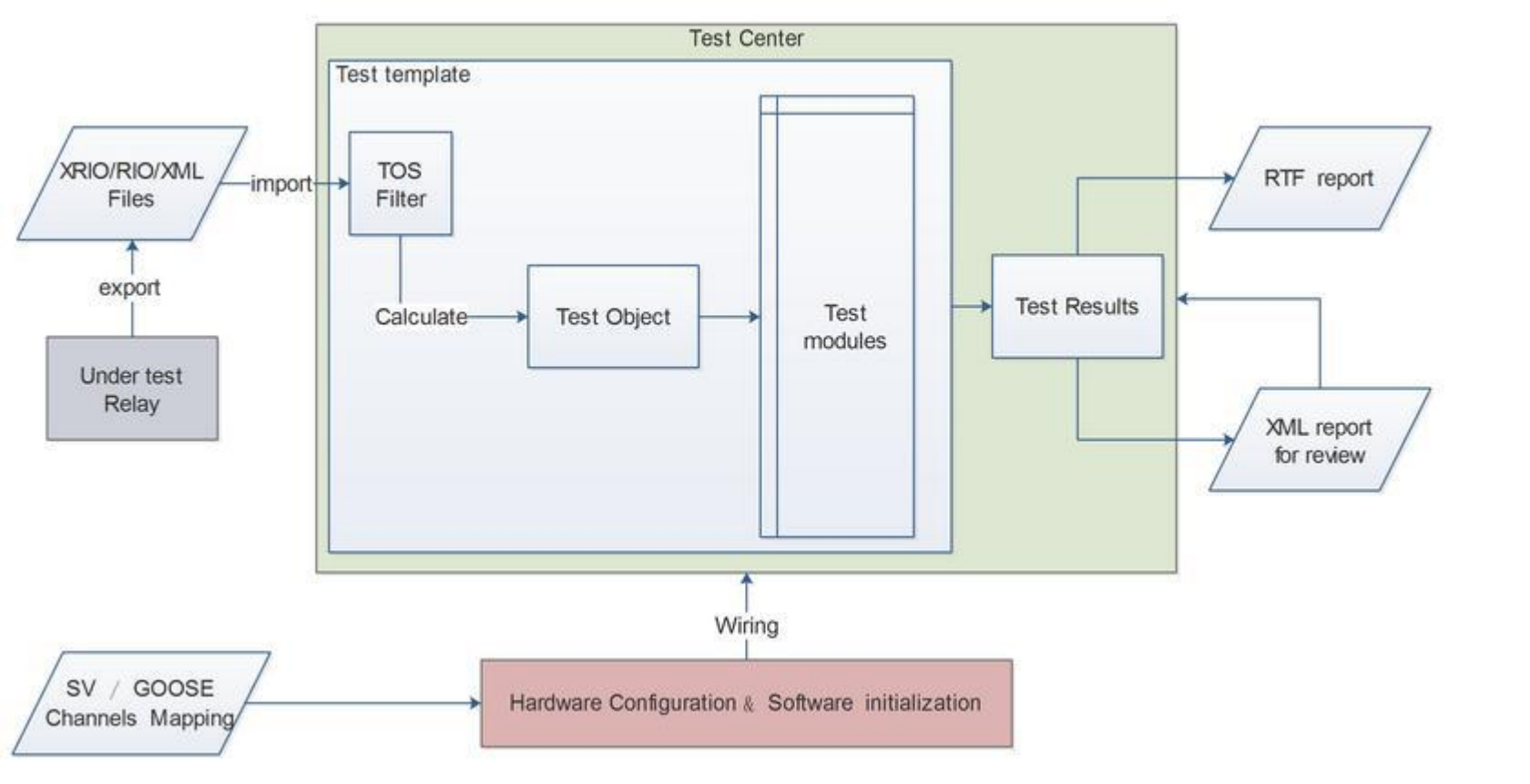
Multiple Languages

English Portuguese...

Virtual Instrumentation

real-time monitoring

## Software Diagram



# “COM” Concept

## C = Connect and Configure

- IP definition;
- Connection status..

- Definition of system parameters;
- Digital I/O definition;
- Definition of Goose and Sampled Value channels;
- Identification of analog channels and digital I/O
- Aux channel voltage level selection. DC (if necessary)

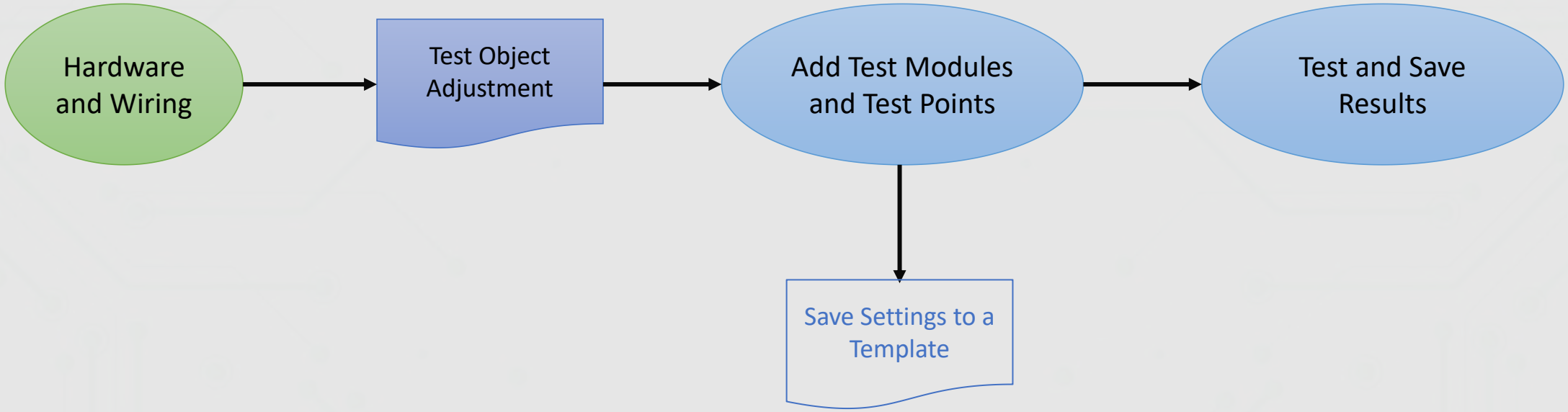
## O = Test Object

- Defines the object's nominal and fault conditions
- Characteristics of the protection function to be tested;
- General information of the protected electrical system...

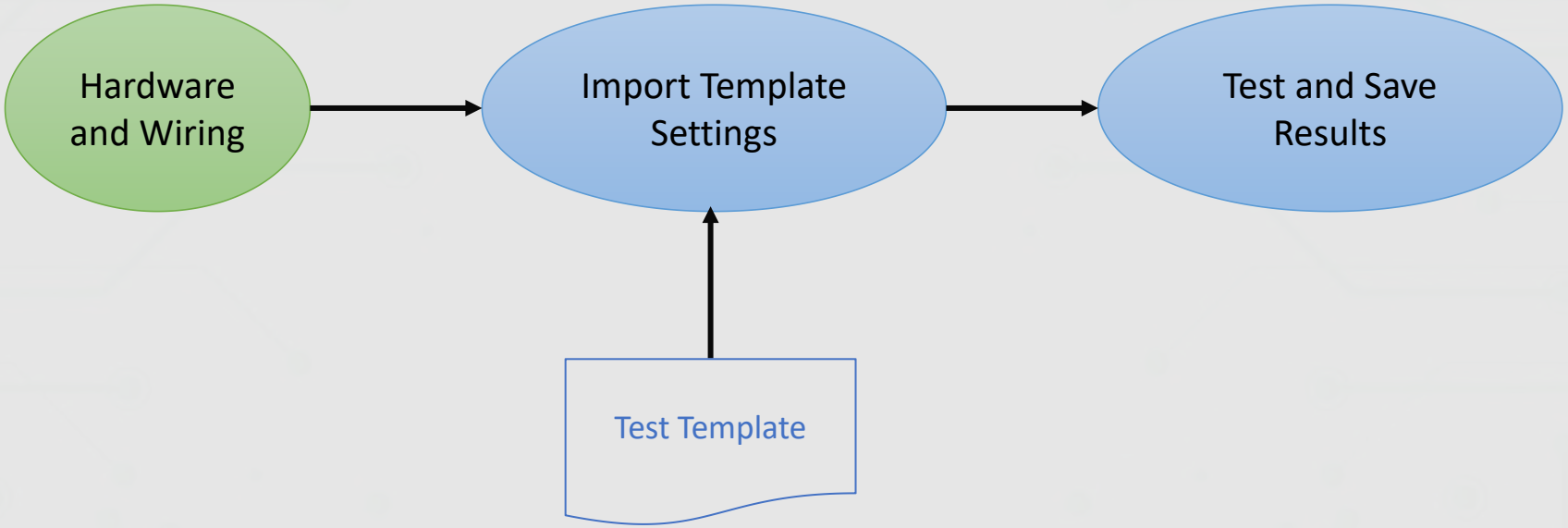
## M = Test Module

- Defines characteristics of Faults
- Time delays (Pre-fault time, fault time and post-fault time);
- Trigger Logic for Binary Inputs and Outputs;
- Visual Graphics defining test failures;
- Different views like: Vector View, Report View, Connection View, Time View etc.

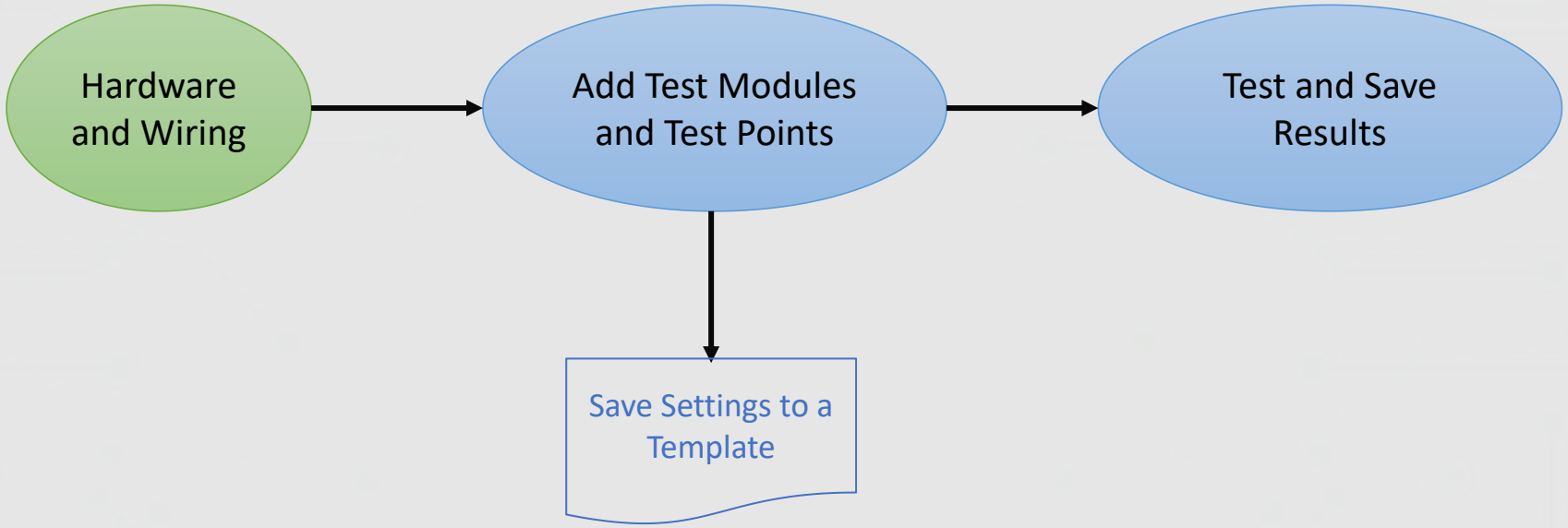
# New Test Object



# Tested Object



# No Test Object Defined



# KF85P Full View

KINGSINE