GAYDA ENERGY ENGINEERING

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10 Core, 5 kV AC, 15 kVA, PC interface, Microcontroller Controlled Portable Cable Tester Guideline

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1. Introduction

Welcome to the Portable Cable Test Device, specially designed for use in cable manufacturing environments. This microcontroller-controlled tester provides accurate and efficient diagnostics to ensure the quality and reliability of your cable products before they reach the market.

Key Features:

- 10-core design ideal for multi-conductor cable testing
- High voltage testing capability up to 5 kV AC
- Robust power handling with 15 kVA capacity
- Dual operation modes: manual control and PC interface for flexible testing
- Precise measurement of voltage, current, and conductor integrity
- User-friendly interface with clear LCD display and PC software support
- Advanced safety features to protect both the operator and equipment
- Portable and durable design suitable for factory floor use\

This device helps you detect defects early in the production line, reduce downtime, and maintain high-quality standards in your cable manufacturing process.

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2. Safety Instructions

To ensure safe operation and prevent damage or injury, please read and follow these safety instructions carefully before using the Portable Cable Test Device:

1. Power Connection

- Always connect the power cable with correct phase and neutral alignment to avoid damaging the device's auto transformer.
- Use only the specified power supply voltage and current ratings.

2. Personal Safety

- Do not touch exposed conductive parts while the device is powered on.
- Use appropriate personal protective equipment (PPE) such as insulated gloves and safety glasses when operating the device.
- **Keep a safe distance from the device while it is operating.**

3. Operating Environment

- Operate the device in a dry, clean, and well-ventilated area.
- Avoid exposure to moisture, dust, or corrosive environments.

4. Device Handling

- Do not open or disassemble the device while it is connected to power.
- Handle the device gently and avoid impacts or drops that could damage internal components.

5. Emergency Procedures

- Familiarize yourself with the emergency stop button function; press it immediately if any unsafe condition occurs.
- Disconnect the device from the power source before performing any maintenance or adjustments.

6. Testing Precautions

- Ensure cables and conductors are properly prepared and isolated before testing.
- Do not exceed the maximum rated voltage and current values specified for the device.

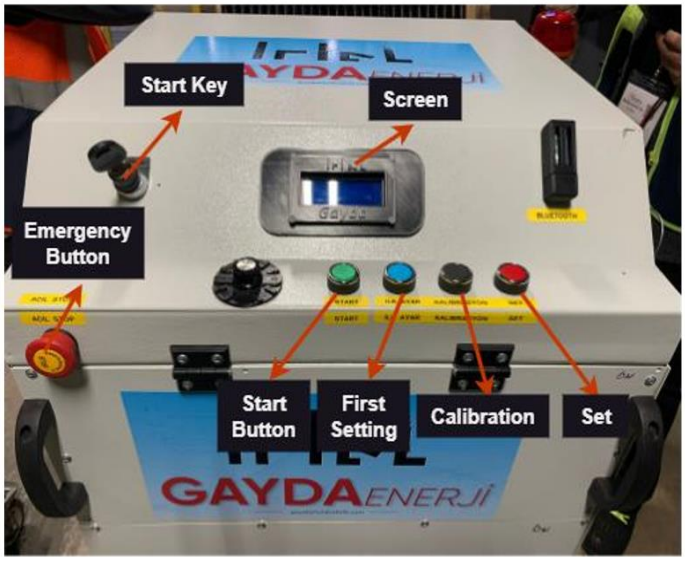
7. Bluetooth Connection

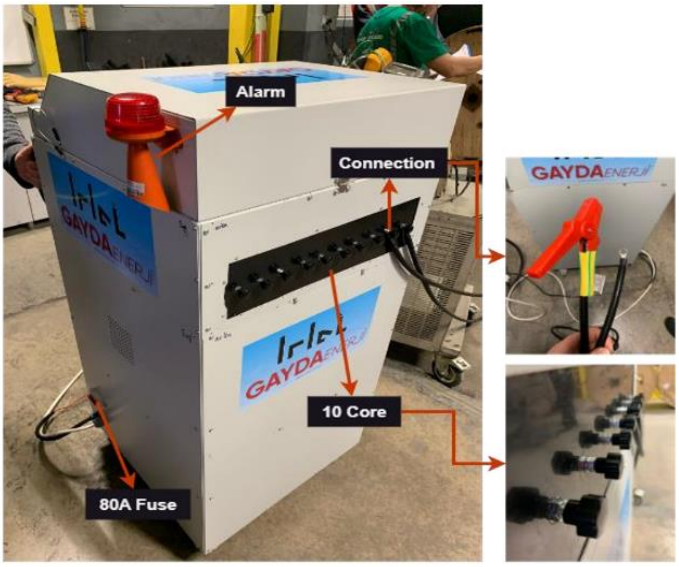
- Only connect to trusted devices via Bluetooth to prevent unauthorized access or interference.

Failure to follow these instructions may result in electric shock, device damage, or inaccurate test results. If you are unsure about any procedure, contact authorized personnel or GAYDA Enerji support for assistance.

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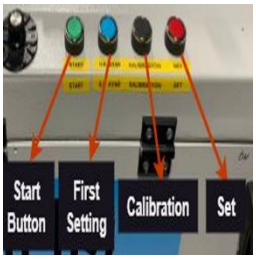
3. Device Overview





3.1. Key Components

10-Core Connection Terminal	Dedicated terminal block used for connecting up to 10 individual cable conductors for sequential or simultaneous testing. Clearly labeled and isolated to ensure safe and organized connection.	
Power Cable	Connects the device to the power supply with correct phase-neutral alignment to protect internal components.	
Multifunction Potentiometer	**Multifunction Potentiometer** A single potentiometer is used for both mode selection and voltage adjustment: 1. At startup, turning it left selects **Manual Mode**, and right selects **PC Mode**. 2. In **Manual Mode**, it is also used to set test parameters like voltage, current, and time.	

Fuse (80A)	Protects the system from current overload.	
Alarm System	Provides audible or visual alerts in case of cable failure, overcurrent, or unsafe conditions.	
LCD Display	Displays real-time voltage, current, test status, and conductor faults.	
Control Buttons:	Green (Start), Red (Set), Blue (First Setting), and Black (Calibration).	
Bluetooth Module:	Allows wireless communication with the PC software for advanced test control and monitoring	

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3.2. Control Buttons

Start Button (Green)	Starts the test based on set parameters.	
Set Button (Red):	Confirms input values during manual configuration.	
First Setting Button (Blue)	Activates parameter entry mode.	
Calibration Button (Black)	Runs calibration to ensure proper measurement accuracy.	
Adjustment Potentiometer	Switches between manual and PC modes; also used to tune voltage/current values.	
Emergency Stop Button (Red):	Instantly halts the operation in emergencies.	

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4. Setup and Installation

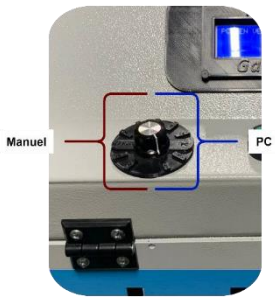
This section explains how to properly connect and prepare the device for operation in a cable factory environment.

4.1. Power Connection

- Connect the power cable to a properly grounded outlet.
- **IMPORTANT:** Ensure that the **phase (L)** and **neutral (N)** pins are correctly aligned. Incorrect connection may cause **damage to the auto transformer**.
- Switch the **80A fuse** to the **ON** position.
- Release the **Emergency Stop Button** to power up the system.

4.2. Initial Preparations

- Insert and turn the **Start Key** to activate the system.
- Use the **multifunction potentiometer** to select the operating mode:
  - Turn **left** for **Manual Mode**
  - Turn **right** for **PC Mode**



- Verify that the **LCD display** lights up and the system is responding.
- If using **PC Mode**, ensure the software is running and the Bluetooth connection is established.
- Connect the cable conductors to the **terminal block**, selecting anywhere from **1 to 10 cores** depending on your test requirements.

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5. Operating Instructions

5.1. Manual Control Mode

Step 1: Select Manual Mode

- After powering on the device, turn the potentiometer to the left to activate Manual Mode.
- The system will automatically reset the variac voltage to zero.





Step 2: Choose an Option

- the first option, if a new value is not going to be entered manually, the system continues with the previously entered measurement values.

- If a new value is to be entered and manual adjustment is desired, press the red button (SET) . If no button is pressed, the system will be ready either to start operation with the green button (START) or to enter new values with the blue button (FIRST SETTING).
- When the green button (START) is pressed, the testing process begins.

- If a new value is to be entered, press the blue button (FIRST SETTING) for test setup, followed by the red button (SET). As a result, the Manual Value Entry screen will appear.

Step 3: Choose Test Type

- If you turn the Adjustment Potentiometer to the left, the Normal Cable test will start. If you turn it to the right, the Aging Tab test will begin.



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Step 4: Adjust and Confirm Test Settings in Normal Cable Mode”

The potentiometer is used to adjust parameters such as voltage and current, while the red button (SET) is used to confirm the selected value and move on to the next setting. In order, the following steps are performed:

1. **Select Test Voltage (HV)**



2. **Set High Voltage (HV) Current Limit**



3. **Set the variac current**
   maximum current is. (Recommended: 50A. This value may vary if there are more or thicker cables. In such cases, please consult GAYDA Enerji.)



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4. **Set the test duration is (in seconds).**



5. **Select the number of conductors to be tested is set .**



6. **Finally, press the red button (SET) one last time to confirm all settings.**

Step 5 : Start Test or Reset Settings

After entering the values, press the green button (START) to begin the test. (To reset the settings, press the blue button (FIRST SETTING).



- The device checks each conductor sequentially during the set time and identifies any damaged ones.



- When the test is complete, the damaged conductors are displayed on the device's LCD screen.

5.2. PC Control Mode

Step 1 : Launch PC Application



- In PC control mode, open the application provided to you by GAYDA Enerji, following the same sequence as in manual mode.

- When the program opens, the login screen appears on the right. Enter the name of the test to be performed and the name of the operator conducting the test in order. Then enter the following in sequence:
  - **The voltage to be applied**
  - **Auto transformer current limit**
  - **High voltage (HV) current limit**
  - **Duration to be applied**
  - **Number of cables and number of cable cores**

Press the Next button to continue.

Step2:Establish Bluetooth Connectio

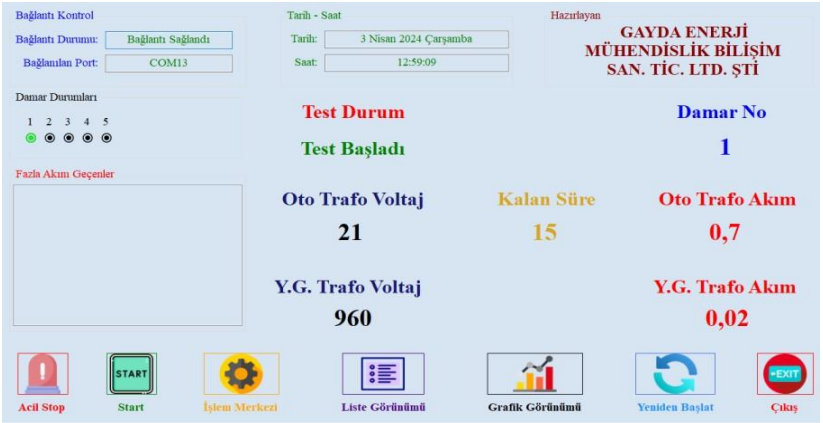


connection control panel will appear. On this panel, select the port connected to the device via Bluetooth and press the Connect button. When the connection is successful, the text will turn green and the message “Connection Established” will appear on the screen.
(If the connection is not established, please check your Bluetooth connection again and try turning the device or Bluetooth off and on.)

Press the Next button

Step 3: Run and Monitor the Test

The control screen will appear. You can start your test by pressing the “Start” button on the screen. You can stop the test in case of emergency or review the graphical displays. On the interface, you can monitor the applied voltage and current under the headings: HV Voltage, HV Transformer Voltage, and HV Transformer Current. If desired, you can restart the test or exit.



- When the test is complete, damaged conductors are shown in red under the “Conductor Status” tab.