



Specialized Defibrillation Pulse Testing Solution for ISO 27186:2020 Compliance

1. Executive Summary

The **KP-1240S High Voltage Current Carrying Test System** is a precision-engineered pulse generation instrument specifically developed for the medical implantable device industry. It provides a standardized platform for evaluating the high-voltage and high-current endurance of quadripolar (IS-4/DF-4) connector systems. By simulating monophasic truncated exponential defibrillation pulses, the KP-1240S enables manufacturers to verify the structural and functional integrity of active implantable cardiac rhythm management devices in strict accordance with **ISO 27186:2020 Annex E**.

2. Advanced Engineering & Technical Precision

The KP-1240S integrates sophisticated energy control and safety mechanisms to deliver laboratory-grade reliability:

- **Precision Pulse Generation:** Capable of generating monophasic truncated exponential (MTE) waveforms that accurately mimic the discharge of an external defibrillator.

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- **High-Energy Handling:** Engineered to deliver a peak voltage of **1.53 kV** and a peak current of **≥50 A** under standard 100 Ω loads, ensuring the connector can withstand maximum clinical stresses.
- **Superior Circuit Isolation:** Features advanced isolation barriers (**>10 kV**) between the high-voltage output and control electronics to ensure operator safety and system longevity.
- **Integrated Safety Protocol:** Includes automatic residual energy discharge after each pulse, overload protection, and high-response emergency stop functions.
- **Digital Control Interface:** Equipped with a touchscreen PLC for real-time waveform monitoring and precise adjustment of pulse parameters, facilitating a "zero-error" testing environment.

3. Technical Specifications

Table 1: Waveform Performance Parameters

Parameter	Specification	Reference / Remark
Regulatory Standard	ISO 27186:2020 Annex E	High-current carry for 4-pole connectors
Waveform Type	Monophasic Truncated Exponential	Defibrillation simulation
Peak Voltage	0–2 kV (Measured at 1.53 kV)	Programmable high-voltage range
Peak Current	≥50 A (under 100 Ω load)	High-current withstand verification
Pulse Duration	10–20 ms (Default: 18 ms)	Controlled decay sequencing
Rise Time	<10 μs	Fast-transient pulse simulation

Table 2: System Operating Specifications

Parameter	Specification	Notes
Load Simulation	50–100 Ω Built-in	Resistive patient impedance simulation
Repetition Rate	1–10 pulses per minute	Manual or automated sequencing
Output Polarity	Positive / Negative Selectable	MTE requirement compliance
Power Supply	AC 220 V ±10%, 50/60 Hz	Standard lab power consumption <500 W

4. Industrial Applications & Strategic Value

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- **Implantable Device Manufacturers:** Essential for high-current endurance validation of IS-4/DF-4 connectors in pacemakers, ICDs, and CRT devices.
- **Third-Party Compliance Labs:** Reliable tool for traceable certification testing according to international medical standards.
- **R&D Optimization:** Enables engineering teams to optimize connector geometry and material selection to maximize high-current tolerance.
- **Regulatory Submissions:** Facilitates the generation of robust technical data for FDA, CE, and NMPA market approval applications.

5. Global Support & Procurement Advantages

- **High-Efficiency Automation:** Automated pulse sequencing significantly reduces testing time and human error.
- **Certified Excellence:** Manufactured in an ISO 9001/14001/45001 facility. Supports ISO 17025 traceable calibration.
- **Engineering Reliability:** Backed by a full one-year warranty and comprehensive technical support from KingPo's headquarters in Dongguan.

Note: To maintain measurement traceability, KingPo recommends annual calibration of the high-voltage and high-current circuits. Always use a calibrated high-voltage oscilloscope and current probe to verify the output waveform before commencing critical test sequences.

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