

IEC 60601-2-31

Defibrillation Protection Test Pulse Generator

KP-900S | External Cardiac Pacemaker Test Equipment

KingPo



Product overview. The KP-900S is a dedicated defibrillation protection test pulse generator for external cardiac pacemakers with internal power source. It reproduces a controlled RCL discharge pulse for IEC 60601-2-31:2020 and YY 9706.231-2023 related verification. The test helps determine whether the pacemaker avoids permanent damage and maintains basic safety and essential performance after pulse exposure.



Maximum pulse voltage

900 V

+2.5% / -0%

Pulse energy range

50-55 J

Measured: 52 J

Tw50 parameter

4.05-4.6 ms

Voltage above 50%

Pulse circuit

RCL / 120 μ FCapacitance $\pm 5\%$

PURPOSE AND STANDARD SCOPE

Designed for IEC 60601-2-31:2020 and YY 9706.231-2023 related defibrillation protection testing of external cardiac pacemakers with internal power source. Final suitability depends on the complete laboratory arrangement, including the DUT connection, test network, measuring instruments and applicable standard edition.

KEY FEATURES

- 900 V maximum pulse voltage
- Tw50: 4.05-4.6 ms
- Three positive + three negative pulses
- Programmable controller and touchscreen
- 50-55 J pulse energy range
- Positive / negative polarity selectable
- Built-in three-chamber pacemaker test network
- Overvoltage protection and parameter memory

APPLICATION-SPECIFIC TEST ARCHITECTURE

Test Principle and Technical Specifications

Application. During the test, a controlled high-energy pulse is applied through the required pacemaker test network and DUT connection arrangement. After the sequence, the device is evaluated for continued basic safety and essential performance.

Product distinction. The KP-900S is not a general-purpose impulse generator; its output circuit, timing, energy and polarity sequence are application-specific.



HOW THE TEST IS USED

Test Principle

1 Configure

Set voltage, pulse count, first-pulse polarity and timing.

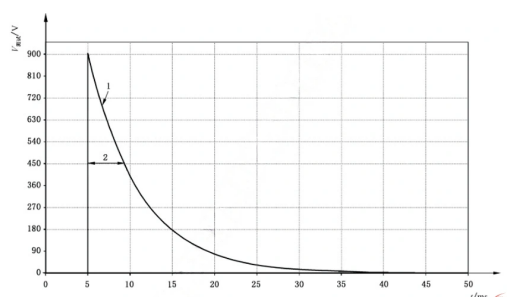
2 Generate

Charge and release the controlled RCL discharge pulse.

3 Evaluate

Verify safety and essential performance after exposure.

REFERENCE PULSE WAVEFORM



The reference curve illustrates the decaying pulse profile and the Tw50 interval during which the voltage remains above 50% of its maximum value.

Standard and Test Application

Model	KP-900S
Product type	Defibrillation Protection Test Pulse Generator
Standards	YY 9706.231-2023 / IEC 60601-2-31:2020
DUT	External cardiac pacemaker with internal power source
Purpose	Defibrillation protection verification

Pulse Output and Waveform

Circuit	RCL circuit
Capacitance	120 μ F $\pm$ 5%
Maximum voltage	900 V, +2.5% / -0%
Energy range	50-55 J
Measured record	52 J
Tw50	4.05-4.6 ms
Polarity	Positive / negative selectable

Sequence and Built-in Network

Pulse sequence	3 positive pulses, then 3 negative pulses
Pulse interval	20-25 s
Switching interval	At least 60 s
Test network	Three-chamber external cardiac pacemaker test network
Figure	Figure 201.105 related
Test cycles	1-999 times

Control, Power and Structure

Control	Programmable controller
Display	Color touchscreen
Protection	Overvoltage protection
Memory	Retained after power interruption
Power supply	AC 220 V $\pm$ 10%, 50/60 Hz
Dimensions	320 x 260 x 150 mm
Weight	Approx. 2 kg

TECHNICAL NOTE

Formal results depend on the complete test setup, DUT connection, waveform and energy verification method, measuring instruments and applicable standard edition.

REFERENCE AND MEASURED RECORDS

Waveform Verification, Applications and Support

Measured Decay Waveform



Measured peak approximately 902.8 V; positive pulse width approximately 4.4142 ms.

Positive / Negative Pulse Sequence



Three positive pulses followed by three negative pulses with controlled timing intervals.

VERIFICATION GUIDANCE

Waveform timing, peak voltage and energy should be verified according to the laboratory quality system. Confirm calibration records, waveform screenshots, inspection reports and traceability requirements before ordering.

Typical Applications

- IEC 60601-2-31 defibrillation protection testing
- YY 9706.231-2023 medical electrical safety verification
- External cardiac pacemaker R&D; validation
- Pre-compliance testing before third-party certification
- Factory quality control and design verification
- Waveform, timing and energy verification

Compliance and Regulatory Assurance

The KP-900S is designed to support IEC 60601-2-31:2020 and YY 9706.231-2023 related verification. Final compliance depends on the complete laboratory arrangement, standard edition, measuring instruments, DUT connection and verification method.

Technical Inquiry and Expert Support

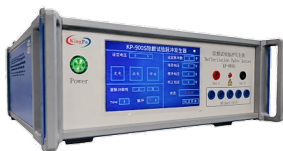
Please provide the following information so the applicable test configuration and documentation scope can be confirmed before quotation:

- Applicable standard and edition
- DUT type and pacing configuration
- Required defibrillation protection clause
- Waveform / energy verification method
- Required calibration, inspection or traceability documents

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Product Configuration and Laboratory Use



Angled product view



Generator with test accessories



Front panel and output terminals