

KingPo

Medical Test Equipment

IEC 60601-2-31 Defibrillation Pulse Tester

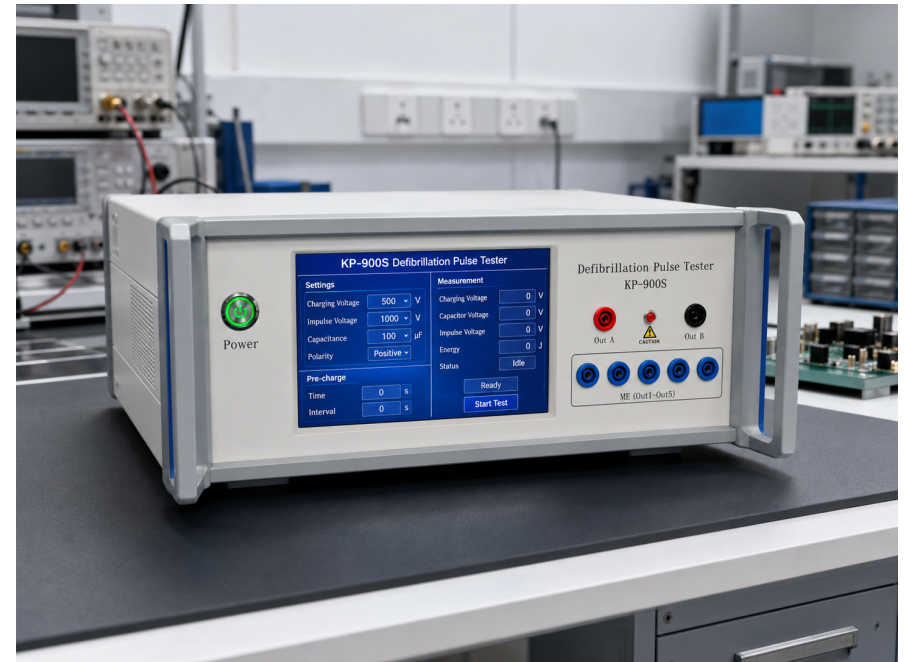
KP-900S Product Catalogue

Laboratory test equipment for external cardiac pacemaker defibrillation protection testing with controlled RCL pulse output, built-in three-chamber test network and waveform verification support.

900 V / 50-55 J

IEC 60601-2-31

RCL



Standards

IEC 60601-2-31:2020 / YY 9706.231-2023

Test Object

External cardiac pacemakers with internal power source

Pulse Output

900 V, 50-55 J, Tw50 4.05-4.6 ms

Interfaces

OutA / OutB, ME (Out1-Out5)

Product Overview and Test Architecture

The KP-900S is a dedicated benchtop instrument for IEC 60601-2-31 related defibrillation protection testing of external cardiac pacemakers with internal power source. It generates a controlled RCL discharge pulse and applies it through a built-in three-chamber external pacemaker test network for repeatable laboratory verification.

Standard-oriented test scope

Designed for IEC 60601-2-31:2020 and YY 9706.231-2023 related external cardiac pacemaker defibrillation protection testing.

Built-in RCL pulse generation

Integrated controlled discharge path with $C = 120 \mu\text{F}$, $L = 25 \mu\text{H}$ and $RL + R = 1 \text{ Ohm}$ circuit condition.

Three-chamber test network

Built-in external pacemaker test network helps reduce external fixture assembly and supports consistent EUT connection.

Waveform verification support

Calibration mode and waveform checks support output voltage, polarity sequence and T_{w50} verification for laboratory quality systems.

KP-900S

Defibrillation Pulse Tester



RCL discharge circuit

Three-chamber test network

Pulse polarity sequence

Calibration mode

Functional Test Flow

1 Set Parameters

Voltage, polarity and pulse count are configured on the touchscreen.

2 Charge Circuit

The internal high-voltage circuit charges the storage capacitor.

3 RCL Discharge

The controlled discharge path shapes the pulse output.

4 Apply to EUT

The pulse is applied through the three-chamber test network.

5 Verify Result

Post-test function and waveform records support compliance evidence.

Detailed Technical Specifications

The following parameters summarize the KP-900S catalogue-level configuration. Final setup, voltage verification and documentation should be reviewed according to the applicable standard version, sample connection method and laboratory procedure.

Standard and Test Scope

Parameter	Specification
Product model	KP-900S
Applicable standards	IEC 60601-2-31:2020 / YY 9706.231-2023
Test object	External cardiac pacemakers with internal power source
Test purpose	Defibrillation protection testing
Operation modes	Test mode / calibration mode

Instrument Configuration

Parameter	Specification
Pulse output terminals	OutA / OutB
Test network interface	ME (Out1-Out5)
Control interface	Touchscreen operation
Power supply	AC 220 V +/-10%, 50/60 Hz
Power consumption	<30 W
Dimensions	480 x 460 x 200 mm
Weight	Approx. 20 kg
Customization	Panel marking and interface labeling can be discussed

Pulse Output and Waveform Parameters

Parameter	Specification
Pulse test circuit	RCL discharge circuit
Capacitance	120 uF +/-5%
Inductance	25 uH +/-5%
Resistance condition	RL + R = 1 Ohm +/-5%
Maximum pulse voltage	900 V (+2.5% / -0%)
Energy range	50 J to 55 J
Waveform timing	Tw50: 4.05 ms to 4.6 ms
Pulse polarity	Positive / negative polarity selectable
Pulse sequence	3 pulses of one polarity -> >=60 s pause -> 3 pulses of opposite polarity
Test cycles	1-999 times

Technical Note

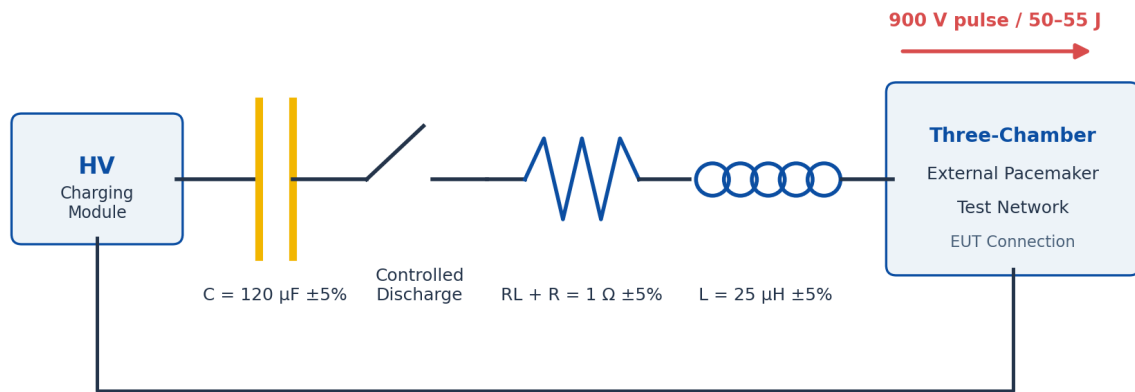
For IEC 60601-2-31 compliance testing, the RCL discharge circuit, pulse voltage, energy range, waveform timing, polarity sequence and built-in three-chamber test network should remain aligned with the applicable standard requirements. Appearance or interface labeling can be discussed, but should not affect required waveform performance.

RCL Discharge Circuit and Test Method

The RCL discharge circuit defines the pulse energy path and waveform behavior. The built-in three-chamber external pacemaker test network provides the EUT connection path for standard-related defibrillation protection testing.

RCL Discharge Circuit Concept

Representative functional path for IEC 60601-2-31 defibrillation protection testing



Note: This is a conceptual diagram for catalogue explanation. Final verification should follow the applicable standard and laboratory procedure.

Core Circuit Values

C: 120 μF +/-5%

L: 25 μH +/-5%

RL + R: 1 Ohm +/-5%

Output: 900 V / 50-55 J

Test Method Notes

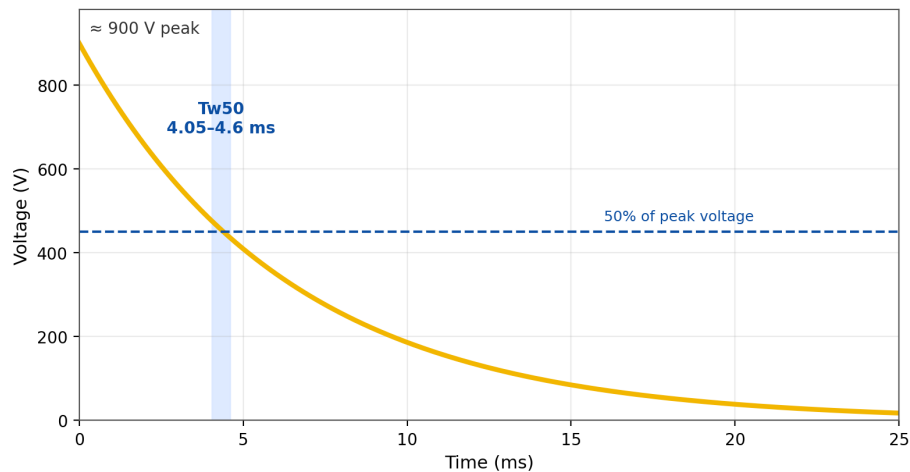
- Set required voltage, polarity and pulse count.
- Confirm EUT connection through the built-in test network.
- Run pulse sequence and evaluate the sample according to laboratory procedure.

1 Prepare EUT — 2 Set Voltage — 3 Charge RCL Circuit — 4 Discharge Pulse — 5 Verify Response

Waveform Reference and Verification

Representative waveform illustrations help explain the pulse decay behavior, Tw50 verification window and standard polarity sequence. Actual verification should follow the applicable standard version and laboratory procedure.

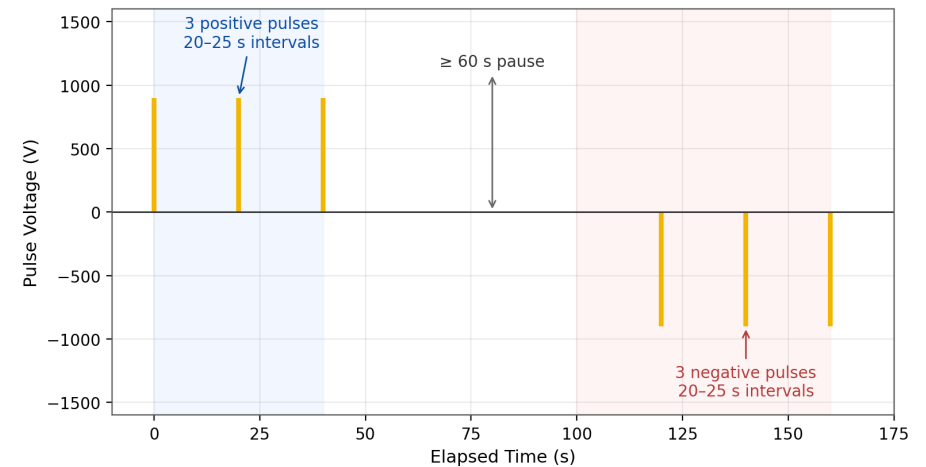
Representative Defibrillation Pulse Decay



Pulse Decay Profile

Representative decaying waveform showing an approximately 900 V peak and Tw50 4.05-4.6 ms window.

Standard Polarity Sequence



Polarity Sequence

Three pulses of one polarity at 20-25 s intervals, followed by a pause of at least 60 s, then three pulses of opposite polarity.

Verification Guidance

1. Confirm applicable IEC 60601-2-31 or YY 9706.231 version before formal testing.
2. Verify output voltage, pulse polarity, waveform timing and test network integrity as part of routine quality control.
3. Keep waveform verification records and inspection documents for traceability.

Applications, Safety and Product Distinction

Typical Users

- External cardiac pacemaker manufacturers
- Medical device testing laboratories
- Quality inspection institutions
- R&D; and regulatory compliance teams

Operation Notes

- Confirm test clause and sample connection before pulse output
- Operate only in a controlled laboratory environment
- Check grounding, cable connection and output terminal
- Do not connect this instrument to a patient



Calibration and Maintenance

- Use calibration mode for voltage verification
- Verify waveform timing and pulse polarity regularly
- Inspect test network interfaces and output terminals
- Keep calibration and waveform verification records



Product Distinction

- IEC 60601-2-31: external cardiac pacemakers
- IEC 60601-2-4: defibrillation electrodes
- This product is not an electrode performance tester
- Use the correct system for the correct standard

Technical Inquiry and Expert Support

KingPo supplies the IEC 60601-2-31 Defibrillation Pulse Tester for defibrillation protection testing of external cardiac pacemakers with internal power source. Our engineering team can review your test clause, sample connection method, waveform verification requirement and laboratory setup.

Please Provide the Following Information

- **Applicable standard:** IEC 60601-2-31:2020, YY 9706.231-2023 or internal test procedure
- **Test object:** External cardiac pacemaker with internal power source
- **Related clause:** Defibrillation protection test requirement and laboratory procedure
- **Test requirement:** RCL pulse test, polarity sequence, pulse count or waveform verification condition
- **Connection requirement:** Built-in three-chamber test network or special sample connection need
- **Documentation:** Calibration record, waveform verification record, inspection report or user manual
- **Customization needs:** Front panel labeling, interface marking, logo position or packaging requirement

Product Page



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