ISO 10605 Automotive ESD Discharge Networks

Interchangeable RC modules for automotive electrostatic discharge testing

KINGPO automotive ESD discharge networks provide selectable RC configurations for compatible ESD simulators used in ISO 10605 test systems. Available configurations include **150 pF / 2000 Ω, 330 pF / 2000 Ω and 330 pF / 330 Ω**, enabling laboratories to extend existing ESD generators to additional automotive discharge conditions.

Product Type: Interchangeable RC discharge network / RC module

Primary Standard: ISO 10605:2023

Main Purpose: Configure generator discharge conditions for automotive ESD testing

Typical Users: Automotive EMC laboratories, test houses, OEM and Tier 1 validation

ISO 10605 automotive ESD discharge network configurations

Available Configurations & Technical Specifications

Configuration	Storage Capacitance	Discharge Resistance	Application	Standard
150 pF / 2000 Ω	150 pF	2000 Ω	Automotive ESD testing	ISO 10605
330 pF / 2000 Ω	330 pF	2000 Ω	Automotive ESD testing	ISO 10605
330 pF / 330 Ω	330 pF	330 Ω	Automotive ESD testing	ISO 10605

Selection Note: A 150 pF / 330 Ω network is also commonly used in automotive ESD testing and is the conventional RC configuration associated with IEC 61000-4-2. Select the required network from the applicable test procedure and confirm generator compatibility.

Parameters to Confirm: Maximum operating voltage, component tolerance, mechanical interface and compatible ESD generator model should be confirmed for the selected configuration before quotation.

Why Different RC Networks Change the ESD Discharge

The storage capacitance (C) and discharge resistance (R) form part of the generator discharge path and influence how electrical energy is stored and released during the ESD event.

C - Storage Capacitance
Determines available charge and stored electrical energy before discharge.

R - Discharge Resistance
Influences current decay and overall discharge-current behavior.

RC - Discharge Condition
Establishes the discharge condition required by the applicable automotive ESD procedure.

ESD Generator → RC Discharge Network → Discharge Tip → DUT

At the same charging voltage, increasing capacitance increases available charge and stored energy, while changing discharge resistance primarily affects current-decay behavior. Actual waveform performance should be evaluated as a complete generator-network system rather than inferred from nominal RC values alone.

ISO 10605 vs. IEC 61000-4-2

Item	IEC 61000-4-2	ISO 10605 Automotive Testing
Common RC configuration	150 pF / 330 Ω	150 pF / 330 Ω plus additional RC conditions depending on the test procedure
Additional automotive networks	Not the primary focus	330 pF / 330 Ω; 150 pF / 2000 Ω; 330 pF / 2000 Ω

RC Network Configurations

150 pF / 2000 Ω
Interchangeable ISO 10605 RC module

330 pF / 2000 Ω
Interchangeable ISO 10605 RC module

330 pF / 330 Ω
Interchangeable ISO 10605 RC module

Installation & Use Guidelines

01 Select the Correct RC Network
Confirm the capacitance and discharge resistance required by the applicable ISO 10605 procedure or customer test specification.

02 Power Down Before Replacement
Stop the test and disable the high-voltage output. Follow the generator manufacturer's discharge and safety procedure before removing or installing an RC module.

03 Check Installation & Interface
Verify that the module is correctly seated and that the mechanical interface, high-voltage contacts and network connection are suitable for the ESD generator.

04 Confirm Before Testing
Verify the installed RC configuration against the test plan. Where required, check generator output with an appropriate ESD current target and measurement system.

Safety Note: ESD generators operate at high voltage. Discharge-network replacement and verification should be performed by qualified personnel in accordance with the generator operating and safety instructions.

Generator Compatibility & Waveform Verification

Matching capacitance and resistance values alone do not guarantee compatibility. Mechanical interface, high-voltage connection, insulation design, network-recognition method and supported operating range should also be confirmed.

After a discharge network is installed or changed, waveform verification may be required by the applicable test procedure or laboratory quality system. The discharge network establishes the RC condition, while an ESD current target and measurement chain are used to evaluate the actual generator output.

System Configuration Note: The RC network is one part of the complete ESD test chain; generator setup, grounding, electrode arrangement, waveform verification and test procedure must also meet the applicable requirements.

Typical Applications

Automotive EMC Laboratories
Expand compatible ESD generators with additional ISO 10605 RC configurations.

Third-Party Test Laboratories
Support customer projects requiring different automotive ESD discharge-network values.

Automotive OEM & Tier 1 Validation
Support ESD validation of ECUs, BMS electronics, sensors, body-control modules and related electronics.

ESD System Expansion & Retrofit
Add automotive RC capability to an existing compatible generator without replacing the complete ESD system.

Compliance & Technical Inquiry

Designed to support ISO 10605 automotive ESD configurations when used with a compatible generator and appropriate test setup. Confirm generator compatibility and operating conditions before use.

Before Quotation: Confirm the applicable ISO 10605 procedure, required RC configuration, generator model, operating voltage and existing interface information for retrofit projects. **KINGPO Engineering Support:** www.dgkingpo.com

Standard reference: ISO 10605:2023. Confirm the applicable edition and customer-specific test plan.