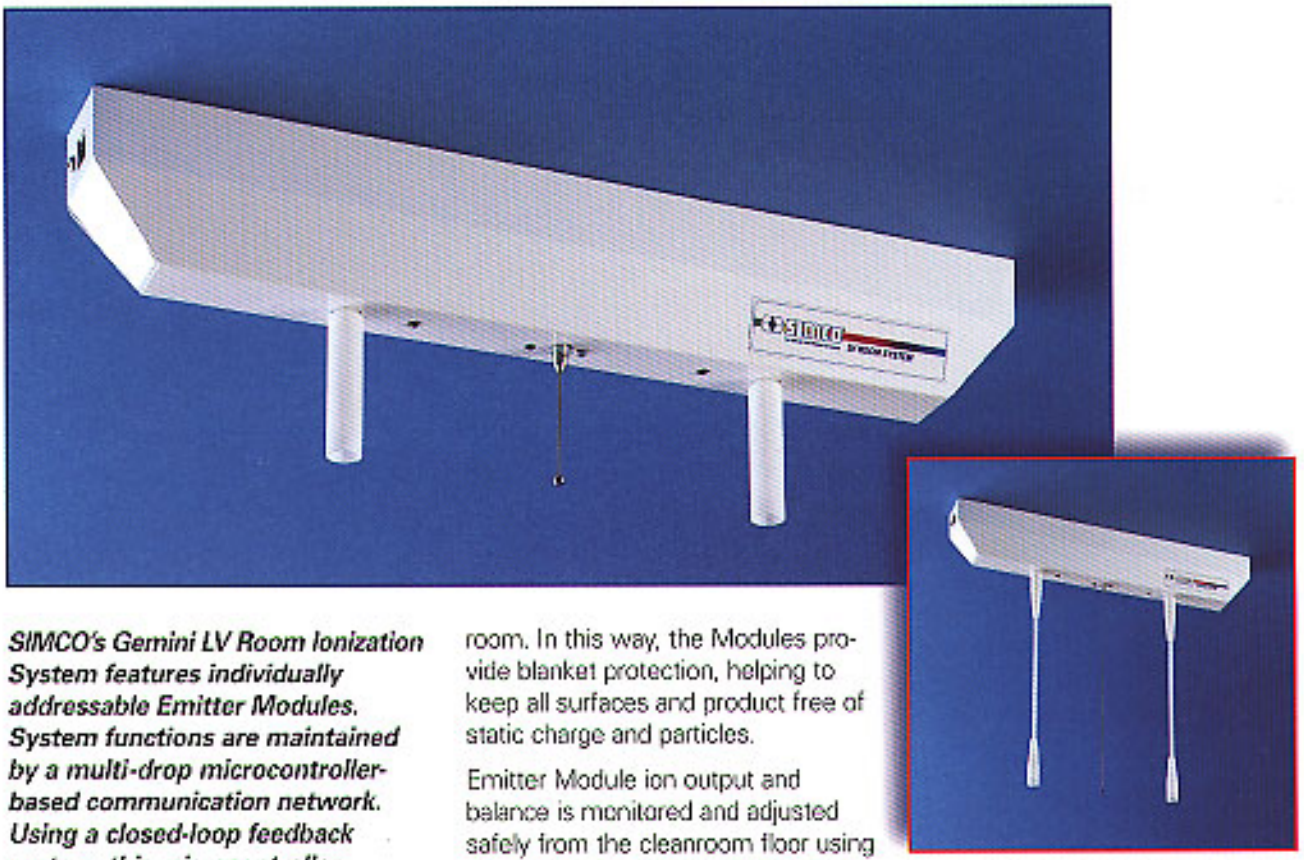
SIMCO
An Illinois Tool Works Company

Static Control and Cleanroom Products

Gemini™ Low-Voltage (LV) Room Ionization System

Emitter Module



SIMCO's Gemini LV Room Ionization System features individually addressable Emitter Modules. System functions are maintained by a multi-drop microcontroller-based communication network. Using a closed-loop feedback system, this microcontroller system offers unprecedented levels of performance.

The System's flexibility allows easy positioning of the Emitter Modules in the ceiling or where they are most needed in the cleanroom. The Module profile is designed to minimize unidirectional airflow turbulence. It features SIMCO's patented non-metallic Germanium emitters designed for ultra-clean ionization.

Each Emitter Module contains emitter points, switching power supplies, and Microcontroller Intelligence designed to maintain critical ion output and balance. Each Module produces both positive and negative ions which neutralize airborne particles so they do not adhere to cleanroom surfaces. Filtered unidirectional airflow sends the ions downward through the room. In this way, the Modules provide blanket protection, helping to keep all surfaces and product free of static charge and particles.

Emitter Module ion output and balance is monitored and adjusted safely from the cleanroom floor using the Gemini System Controller or the hand-held infrared Remote Control. Select Steady State or Pulse mode for each individual Emitter Module or for the entire group. A data port for communications to a PC or facility monitoring system is included.

Features:

- Integrated Total Communication
- Microcontroller Intelligence
- Closed-loop feedback system
- Individually adjustable Modules via Controller or Remote
- Easily replaceable emitters available in several lengths
- Germanium (for ultra-clean environments) or tungsten emitters
- Easy mounting in flush or T-grid ceiling systems

Gemini's Microcontroller Intelligence reliably maintains critical operating parameters

Benefits:

- Maintains critical ion output and balance parameters
- Unprecedented levels of performance and control
- Safe, simple control from the cleanroom floor
- System flexibility allows ideal positioning of Modules where most needed
- Easy calibration and maintenance

Typical Applications

- Semiconductor Manufacturing
- Flat Panel Display Manufacturing
- Medical and Electronic Device Assembly

Gemini™ Low-Voltage (LV) Room Ionization System

Emitter Module

Specifications:

Input:
<28 VDC

Control Signal:
0±5 VDC, RS-485, 2-wire control signal from the system controller

Output Voltage:
0-20 KVDC, ±10 % for each polarity. Positive and negative ion output adjustable at each emitter by Remote or System Controller; for entire group by System Controller

Output Current:
<10 mA

Connector:
RJ-45 telephone-type modular jack at each end of the emitter module

Output Control:
Microcontroller to maintain communication with the System Controller plus ion output and balance setting of positive and negative power supplies

Regulation:
Output and balance stability independently monitored by an integrated external sensor and microcontroller. Controlled for each polarity at each emitter.

Indicators:
Red LED indicates an Alarm condition when the emitter is unable to maintain the preset regulation. Green LED confirms communication with the Remote Control; green takes precedence over red. Two green LEDs located near each emitter indicate the respective polarity and duration of ion emission.

Operating Mode:
Selectable Pulse or Steady State DC operation

Emitter Points:
Germanium for ultra-clean requirements; 100% tungsten for Class 1 compatible; easily replaceable

Emitter Rods:
Available in several lengths; detachable at base of emitter module

Sensor:
Discrete and replaceable. Sensor voltage informs the microcontroller of the instantaneous voltage to maintain ion output.

Control:
Two-digit code rotary switches on back of unit establish a unique address

Mounting:
Attaches to the "T" grid using stainless steel clips or inside ceiling channel of all popular flush-mount ceiling systems. Emitter rods project below the ceiling.

Dimensions:
17.24 x 1.875 x 2.75 inches, (437.90 x 47.63 x 69.85 mm)

Enclosure:
Aluminum

Finish:
Powder-coated polyester

Color:
Gloss White

Agency Listings:
UL, CUL; CE compliant

System Controller and Infrared Remote

Integrated Total Communication verifies system operating parameters.

Gemini LV System functions are maintained by a multi-drop microcontroller-based communication network. The System Controller maintains contact between each Emitter Module and itself to verify system operations. Under normal conditions, the LCD displays "System OK" to provide assurance that no alarm conditions exist. Should a system fault occur, the controller identifies the address and type of fault on its LCD.

Adjustment to ion output and balance can be made to individual modules or to the entire group. Operating mode (Steady State or Pulse) and pulse frequency are adjusted from the Controller. Adjustment to ion output and balance are made to an individual Emitter Module or to the entire group using the System Controller or the hand-held infrared Remote Control.

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