

# SCU - Safety Control Unit



## AUTOMATIC STOP AND SAFETY CONTROL SYSTEM FOR ANTENNA MEASUREMENT FACILITIES

**The Safety Control Unit (SCU)** is designed to provide automatic stop and safety control features to an MVG antenna measurement system in order to create a safety perimeter and enhance worker safety as well as protect the DUT and overall test range from erroneous, damaging, or harmful events. The SCU serves as the safety hub between the motion control system, through the Emergency Stop Unit (E-Stop AL-9504-2), and sensors such as opened-door sensors, temperature sensors, and smoke detectors located inside and outside the chamber.

### APPLICATIONS

- Antenna measurement facilities
- Test environment safety

### PRODUCT HIGHLIGHTS

- Hardware relay switches for maximum reliability (programmable relay system)
- Key-switch for local/remote mode
- System state optical indicators
- Integrated buzzer alarm with snooze button
- Flexibility with sensor interfaces- one or several possible

## The SCU enhances worker safety by adding a safety perimeter to an antenna measurement system.

The safety perimeter is represented by the test chamber with doors closed. When this perimeter is accidentally violated while an automated test is running, the SCU stops the positioning system in order to safeguard the operator from any moving machinery.

The main function of the SCU is to stop any positioner motion upon alarm. It activates the interlock between the emergency stop of the positioning system and sensors in the chamber, such as for door openings, temperature changes, and/or smoke detection. In order to protect both operators and equipment, the SCU prohibits the operation of the positioning system when any fault state occurs (e.g. when the chamber doors are opened; when the air temperature exceeds a given threshold). However, the operator can intentionally deactivate the safety perimeter by selecting the "Local" mode on the SCU. This state is typically used during maintenance operations carried out by trained personnel.

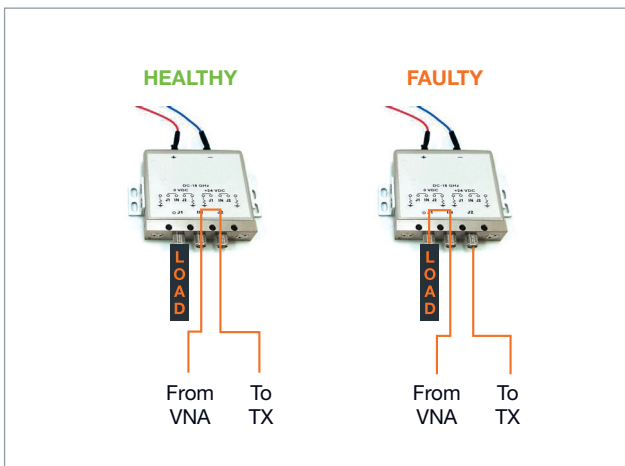
In some applications, the presence of RF signals during the test may represent a risk for the operators. Typically, a risk may occur when an operator opens the chamber doors while a test is in progress. Two independent solutions are offered with the SCU to control the RF power generated by the Device Under Test (DUT).

The first solution (OPT001) is based on an RF bypass switch integrated in the SCU. The unit is equipped with input and output RF connectors for connection to the Tx port of the RF test source (e.g. VNA). An RF bypass switch interrupts the RF path in the event of an alarm (e.g. accidental opening of the chamber doors).

The second solution (OPT002) operates on the power supply of the DUT. The Power Supply Management Unit (PSMU) is an add-on to the SCU, used for the detection and deactivation of current in the power cables feeding the DUT.

When the DUT is energized and a current in the cables is sensed, the appropriate warning devices are enabled (e.g. Test-in-Progress sign). If the SCU goes into fault state (e.g. doors open), power to the DUT is disabled. (\*)

The PSMU is interconnected with the SCU and the DUT power supply unit. It supports both AC and DC power supplies and has connectors at the back for the input from the power supply and for the output to the DUT. The front panel is equipped with optical indicators that will help the user determine the current system state.



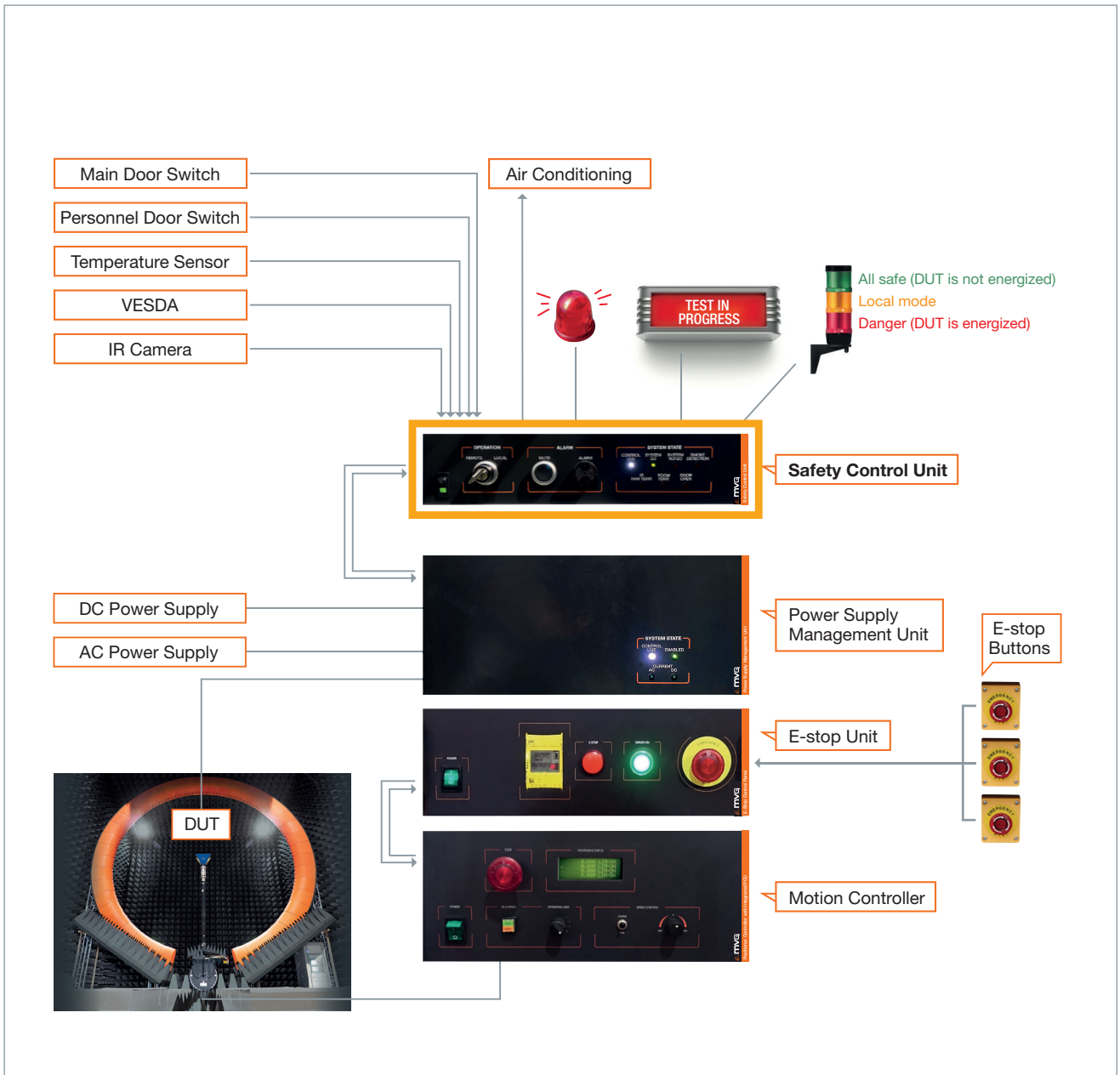
Integrated RF bypass switch - interrupts RF path when fault occurs - Example: a door is open, RF is cut off



Example of a test chamber with door open

(\*) If a door is opened while a test is in progress, a siren will sound, warning the operator to take action and close the door. Such an alarm will initiate a time counter, which will activate the interlock to the DUT to shut-down the device in case the action is not taken within a given delay.

# + Safety Control System Overview\*



\* Suggested options included. For additional options, consult our sales team or your preferred MVG contact.

# Specifications - SCU Safety Control Unit

PARAMETER	MODEL
	SCU

## OPERATIONAL

<b>Front Panel Controls &amp; Indicators</b>	<ul style="list-style-type: none"> <li>• C Power On/Off</li> <li>• Key-switch for local/remote mode</li> <li>• System state optical indicators</li> <li>• Integrated buzzer alarm with snooze button</li> <li>• RF in/out<sup>(1)</sup></li> </ul>
<b>Rear Panel Connectors</b>	<ul style="list-style-type: none"> <li>• J1: To/from PSMU</li> <li>• J2: To/from AL-9504-02</li> <li>• J3: Beacon/Sounder</li> <li>• J4: 3-color warning lights</li> <li>• J5: Test in progress</li> <li>• J6: Air conditioning<sup>(2)</sup></li> <li>• J7: Door switch group 1</li> <li>• J8: Smoke detector</li> <li>• J9: Door switch group 2</li> <li>• J10: Temperature probe</li> <li>• J11: IR camera</li> <li>• J12: Expansion</li> </ul>

## ELECTRICAL

<b>AC Input Power</b>	<ul style="list-style-type: none"> <li>• 230 VAC / 110 VAC</li> </ul>
<b>Compatible products</b>	<ul style="list-style-type: none"> <li>• Emergency Stop Unit (AL-9504-2)</li> <li>• Door opening sensors NO/NC<sup>(3)</sup></li> </ul>

## PHYSICAL

<b>Dimensions</b>	<ul style="list-style-type: none"> <li>• 2U rack</li> </ul>
<b>Weight</b>	<ul style="list-style-type: none"> <li>• 10 kg</li> </ul>

## OPTIONS<sup>(4)</sup>

	DESCRIPTION	COMPATIBLE PRODUCTS <sup>(5)</sup>
<b>Opt 1</b>	Integrated RF bypass switch	-
<b>Opt 2</b>	Power Supply Management Unit (PSMU)	-
<b>Opt 3</b>	Interlock with IR camera for local temperature monitoring	IR Radiometric Camera with 24V NO/NC alarm contact
<b>Opt 4</b>	Room temperature controller with remote probe	
<b>Opt 5</b>	Interlock with fire detection system	VESDA VLF-250 <sup>(6)</sup>
<b>Opt 6</b>	Interlock with HVAC system	HVAC unit with external control NO/NC
<b>Opt 7</b>	3-color warning light system (red, amber, green)	-
<b>Opt 8</b>	Beacon/Sounder (requires OPT001 or OPT002 or an external signal)	-
<b>Opt 9</b>	Test in progress sign (requires OPT001 or OPT002 or an external signal)	-

(1) Option 1

(2) Opt 6- When the chamber is equipped with a stand-alone air conditioning system, the SCU allows efficient power savings by automatically turning off the HVAC during setup operations. It also serves as a bridge between the VESDA system and the HVAC in the case of a smoke detection alert.

(3) NO/NC = normally open/normally closed

(4) Any of the sensor units can be connected individually or in addition to others

(5) Compatible products are not included/can be purchased separately

(6) VESDA = Very Early Smoke Detection Apparatus.

