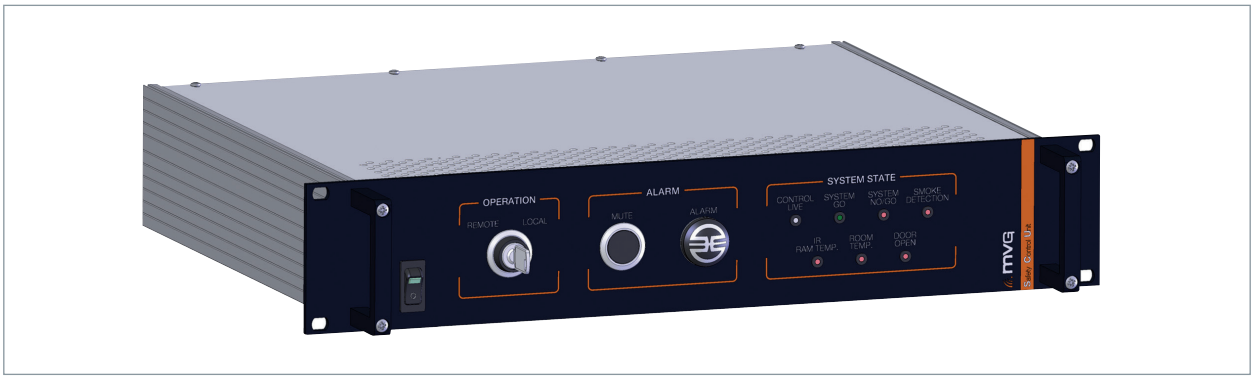
SCU - Safety Control Unit

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

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The SCU safety system is proposed as a baseline configuration with a selection of operator or equipment safety monitors or sensors as add-on options. Below is a short list of typical configurations, with specific customer configurations also optional.

SCU-B

The SCU-B is the baseline configuration of the SCU. Its main function 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. It prohibits the operation of the positioning system when any fault state occurs. (e.g. when the air temperature exceeds a given threshold).

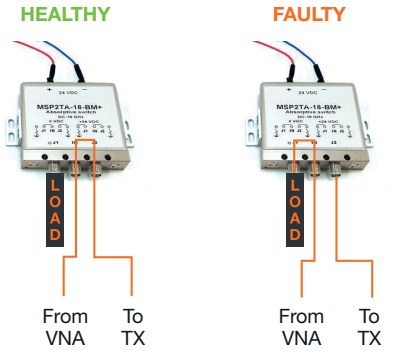
SCU-RF

A VNA evaluates the RF signals when conducting passive antenna measurements. The SCU-RF configuration allows for the detection of the level of RF power in the RF path via an integrated power sensor. An RF bypass switch interrupts the RF path in the event of an alarm (e.g. accidental opening of the chamber doors). The unit is equipped with input and output RF connectors for connection to the Tx port of the VNA.

SCU-OTA

The SCU-OTA configuration specifically takes into account Over-The-Air (OTA) antenna measurements with an active device under test (DUT). To detect when the test is in progress, an EMF probe is located inside the chamber to detect the presence of radio frequency waves (RF). Upon detection of RFs, the SCU will activate a signal visible to the operators outside the chamber or in the control room (i.e. «Test in Progress»).

The purpose is to avoid incidents where operators may be over-exposed to high levels of electro-magnetic energy. Typically, this event may occur when an operator opens the chamber doors while a test is in progress. If this happens, 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.

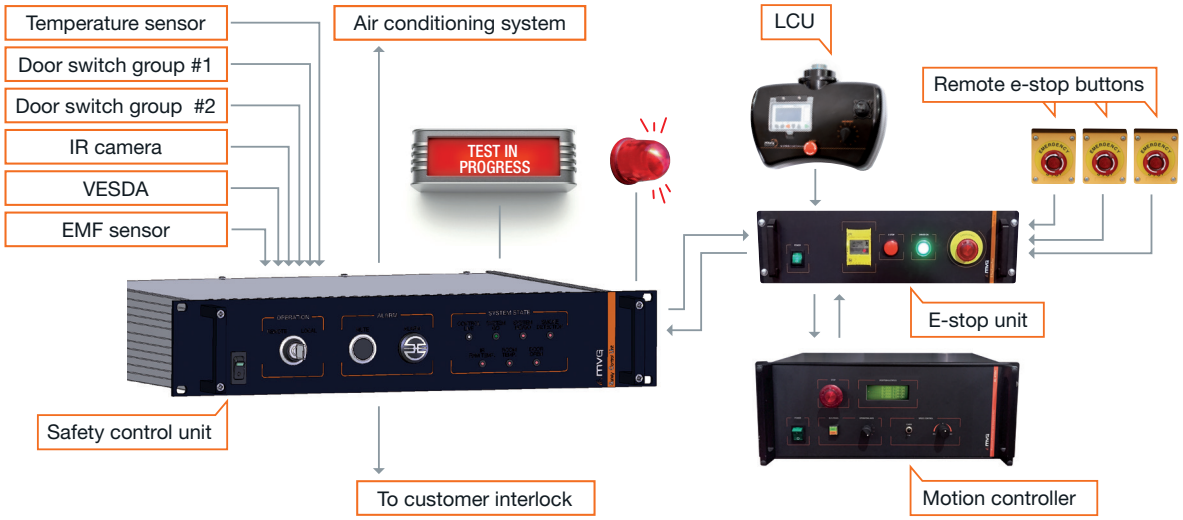


Integrated RFabsorptive switch - interrupted RF path when fault occurs - Example: a door is open, RF is cut off

	SCU SENSOR OR MONITORING SYSTEM CONFIGURATIONS	INPUT/OUTPUT SENSOR
SCU-B	E-stop units	In / output[1]
	Door opening sensors	Input
OPTIONS	IR camera for local temperature monitoring (1 x FLIR FC-334 R)	Input
	Room temperature controller with remote probe (AX-ET-1L-24)	Input
	Interlock to fire detection system (VESDA VLF-250)	Input
	Interlock to HVAC system (NO/NC)[2]	Output
	Interlock to CFE equipment (NO/NC)	In/output[3]
	Integrated RF power sensor and RF bypass switch	Input (switch) / output
	Remote EMF probe	Input

(1) Triggers SCU to activate other indicators
(2) NO/NC = normally open/normally closed
(3) Customer furnished equipment

Safety Control System Overview*



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

The SCU will enhance worker safety by adding a safety perimeter to the 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.
However, the operator can intentionally deactivate the safety perimeter, by selecting the “Local” mode on the SCU. In this case, a test can be run with doors open.

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 air temperature exceeds a given threshold)

Specifications - SCU Safety Control Unit

PARAMETER	MODEL
	SCU
OPERATIONAL	
Front Panel Controls & Indicators	• C Power On/Off • Key-switch for local/remote mode • System state optical indicators • Integrated buzzer alarm with snooze button • RF in/out(1)
Rear Panel connectors	• AC power input • e-stop interlock • External interlock • HVAC interlock(2)
(*) Opt 1 (**) Opt 6	
ELECTRICAL	
AC Input Power	• 230 VAC
Compatible products	• Emergency Stop Unit (AL-9504-2) • Door opening sensors NO/NC(3)
PHYSICAL	
Dimensions	• 2U rack
Weight	• 10 kg

OPTIONS(4)

	DESCRIPTION	COMPATIBLE PRODUCTS
Opt 1	Integrated RF power sensor and RF bypass switch	-
Opt 2	Interlock with remote EMF probe	MVG EME Guard Plus
Opt 3	Interlock with IR camera for local temperature monitoring	FLIR FC-series
Opt 4	Room temperature controller with remote probe	AX-ET-1L-24
Opt 5	Interlock with Fire Detection System	VESDA VLF-250
Opt 6	Interlock with HVAC System	VESDA VLF-250

(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.

Contact your local sales representative for more information
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