

# HVSB – High-Voltage Safety Box

1200V | 200A





## Optimized lab safety for associates and DUTs

for the safe testing of power electronics in early development stages



## Safe switching and monitoring of high-voltage

up to 1200V and 200A thanks to comprehensive integrated safety functions



## Flexible integration into existing lab environment

thanks to standardized interfaces and 19-inch technology

### PRODUCT BENEFITS

The High-Voltage Safety Box from Bosch Engineering ensures maximum safety in high-voltage labs when testing the power electronics of an electric vehicle's drive. The compact HV safety module includes all relevant safety and convenience functions required for the electric circuit of the component under test.

Thanks to the flexible integration of the HV safety box into existing lab equipment, many tests on the power electronics of electric vehicles can be performed in the high-voltage lab instead of on a test bench. This helps to protect both associates and the power electronics during day-to-day testing operations in the development lab.

The resulting safety concept covers potential causes of accidents and minimizes risks when working on high-voltage circuits. In addition, the device under test is protected against damage during the testing procedure, while component wear is also reduced. This is particularly advantageous for prototype components that only exist in limited numbers.

The HV safety box is conveniently operated via a touchscreen display or an external monitor, which provides a clear overview of all operating parameters such as status messages, information regarding system settings, and potential error warnings.

The many features of the HSVB include insulation monitoring, an interlock circuit, integration into a lab's emergency stop concept, and a programmable logic control (PLC) interface to enable application-specific integration into the test automation of the respective environment and remote operation of the HSVB.

The HSVB was developed alongside the Bosch Engineering High-Voltage Lab Rig (HVLRL) and can be integrated into this test system.

### SCOPE OF SERVICES

- Safe switching and monitoring of high-voltage up to 1200 volt / 200 ampere
- Insulation and operation monitoring
- HV interlock
- Safety PLC
- Precharge and active fast discharge function
- Emergency stop
- Touchscreen or external monitor as central control and display unit
- Communication interfaces
- Safety and convenience functions
- Integration into test automation



High-Voltage Safety Box (HSVB)



Example: HSVB integrated in the HVLRL

## TECHNICAL PROPERTIES

|   |  |
|---|--|
| Dimensions (H×W×D)                              | 19", 9HE<br>400×483×605 <sup>1</sup> mm                |
| Weight  | 37 kg  |
| Supply voltage                                  | 230V AC  |
| Ampacity  | 200A   |
| Dielectric strength                             | 1 200V   |
| Insulation monitoring                           | ✓  |
| Interlock                                       | ✓  |
| Safety PLC                                      | ✓  |
| Emergency stop                                  | ✓  |
| Precharge function                              | ✓  |
| Precharge resistor                              | 47 Ohm, 300W, 7 500J                                   |
| Active DUT fast discharge function to under 60V | ✓  |
| Discharge resistor DUT capacity                 | 305 Ohm, 280W, 7 200J                                  |
| Discharge resistor support capacitor            | 204 Ohm, 300W, 7 500J                                  |
| Perm. ambient temperature                       | 5–40°C   |
| HV connector (DC)                               | Stäubli 10BV   |
| Automation and remote control interfaces        | Digital I/O + ext. emergency stop, CAN 2.0B            |
| Communication interfaces                        | 1×DVI (monitor)<br>1×USB                               |
| Peripheral interface                            | Climate/test chamber (OSSD)                            |
| Control and operation module                    | Touchscreen (PLC-compatible), external monitor + mouse |
| Developed acc. to standards                     | DIN EN ISO 13849<br>DIN EN 61010<br>DIN EN 61326 (EMC) |
| Devices under test (DUT)                        | E.g., inverters, converters (DC/DC)                    |

## ORDER DATA

| Part designation               | Part number     |
|--------------------------------|-----------------|
| HVLR – High-Voltage Lab Rig    | F037.B00.680-0x |
| HVSB – High-Voltage Safety Box | F037.B00.681-0x |

**Price and delivery time**  
On request

## INDIVIDUAL CUSTOMIZATIONS

|   |
|---|
| <b>We offer individual customizations to suit your specific requirements</b><br><u>On request</u> |
|---|

<sup>1</sup> Depth incl. control elements and connections = approx. 710 mm