CSM HV Breakout Module Instruction Manual

Contents

CSM HV Breakout Module

General safety instructions

Please observe the following safety instructions and signs provided with the measurement modules as well as the safety-specific information in the accompanying technical documentation.

WARNING!	
	HV Breakout Modules of type HV BM 3.3 are used in high-voltage applications. **Improper use poses risks such as life-threatening electrical shocks and fire hazards.** • Only use qualified and trained personnel (observe local guidelines/regulations). • Do not modify the HV measurement module in any way, neither electrically nor mechanically. • Observe safety instructions.

WARNING!	
	The orange lid of the device housing can be removed to mount or dismount the HV power cable s. If the lid of the housing is not mounted and the HV cables are not de-energized, there is a risk of accidentally touching non-insulated contacts at high-voltage potential. If the device is not de-energized, there is a risk of life-threatening electrical shocks! • Before removing the lid, make sure that the HV power cables are de-energized. • Remove the lid only to connect the HV power cables and then re-mount it properly. • Fasten the HV power cables with the supplied or suitable ring terminals and nuts. • Only operate the high-voltage measurement module when the lid is mounted. • Observe the mounting instructions in the user guide. It is particularly important that lid and ca ble glands are properly mounted in order to ensure the tightness of the housing.

WARNING!	
	When using HV power cables made of aluminum in combination with ring terminals for HV powe r cables made of copper, the contact resistance between the two components increases. **This can lead to a massive increase in temperature and in the worst case to the development of fire.** • Use ring terminals for copper cables only in combination with HV power cables made of copp er! • Observe safety instructions. • HV power cables made of aluminum require a specific connection technology. Please contact our technical support for further information.

WARNING!	
	The measurement module has to be connected to the vehicle’s potential equalization or protecti ve earth (PE) in order to ensure user safety. **In the event of a fault, there is danger to life due to high-voltage potential if this connection is not established.** • Connect the measurement module to the vehicle’s potential equalization or PE using a suitab le ground cable. • Only use qualified and trained personnel.

WARNING!	
	The internal temperature of the measurement module and the temperature of the shunts must n ot exceed +120 °C. As soon as the temperature of a shunt exceeds this value, the HV Breakout Module sends the error code “0x8001” instead of the measured values for U and I. The user usu ally does not see this error code but the error message “THERMAL_OVERLOAD” that has been generated from the DBC or A2L file. This data is sent until the temperature of all shunts drops b elow +115 °C again. Exceeding the specified temperature impairs the operational safety of the HV measurement mo dule. There are risks including life-threatening electrical shocks and fire hazards. • Tighten the nuts for fastening the ring terminals with the specified torque to keep the contact resistance low (observe the installation instructions in the user guide). • Reduce or interrupt the current flow through the shunts to prevent a further temperature incre ase of the module. • Always monitor the temperatures in order to make sure that the threshold value will not be ex ceeded.

WARNING!	
	The measurement module can heat up considerably if it is operated in a specific working environment (e.g. engine compartment). The shunts integrated in the measurement module can also build up heat during operation under high load. **Touching the surface of the module may cause serious burns.** • Let the measurement module cool down before handling, especially before removing the orange-colored lid. • Wear appropriate safety gloves.

- Only use qualified and trained personnel for handling HV Breakout Modules.
- Make sure that HV Breakout Modules are only operated within an operating temperature range of -40 °C to +120 °C and at a relative humidity of max. 95 % (non condensing).
- To ensure operational safety, an isolation test in accordance with the latest edition of EN 61010 has to be carried out at least once per year.
- The entire documentation that has been delivered with the HV Breakout Module has to be read thoroughly before initial operation. The operating personnel has to be instructed accordingly. Please contact CSM GmbH with any further questions.

Specifications:

- Product Name: HV Breakout Module Type 3.3
- Application: High-voltage measurement in automotive systems
- Safety Features: Overheat protection, grounding requirements
- Operating Temperature: -10°C to 60°C
- Humidity Range: Up to 95% (non-condensing)

Product Usage Instructions:

Safety Instructions:

Ensure to read and understand all safety instructions provided with the product before usage. Failure to follow safety guidelines may result in serious risks.

Grounding Requirements:

Connect the measurement module to the vehicle's potential equalization or protective earth using a suitable ground cable to ensure user safety.

Temperature Management:

Monitor the temperature of the module closely to prevent exceeding specified limits. Tighten the nuts for fastening the ring terminals with the specified torque to maintain low contact resistance.

Overheat Precautions:

If the module heats up considerably, allow it to cool down before handling. Wear appropriate safety gloves when handling the module to prevent burns.

Maintenance:

Perform an isolation test in accordance with EN 61010 at least once per year to ensure operational safety. Read the entire documentation provided with the HV Breakout Module before initial operation.

FAQ:

Q: Can I use aluminum ring terminals with copper power cables?

A: No, it is recommended to use ring terminals for copper cables only in combination with HV power cables made of copper to prevent contact resistance and potential fire hazards.

Q: How often should I perform an isolation test?

A: It is recommended to perform an isolation test in accordance with EN 61010 at least once per year to maintain operational safety.

Documents / Resources

	CSM HV Breakout Module [pdf] Instruction Manual Type 3.3, HV Breakout Module, HV Module, Breakout Module, HV, Module

References

- Home | CSM GmbH
- User Manual