HOW DO WE MANAGE HVIL LOOP FOR HIGH-VOLTAGE SYSTEMS?

For high voltage applications (mobility and stationary systems), we need to evaluate and manage continuously safety issues and missuses of high-voltage connections. That's why Deewex™ has developed a HVIL monitor device ESIL.

Performances of ESIL monitor device

It includes a signal generator and composite signal detection devices (intrinsically and mechanically dependent with trip condition signals)

It monitors continuously and in real-time the healthy of the guard loop

Its automotive qualified and sealed connector is suitable for harsh environment

Its HVIL circuit have an intrinsic safety design, that is, a single failure of a critical component will not affect the misjudgment of the HVIL guard loop

User can activate the guard loop remotely or locally (through push-button or hardware wired signal – that can be used as redundancy for CAN commands)

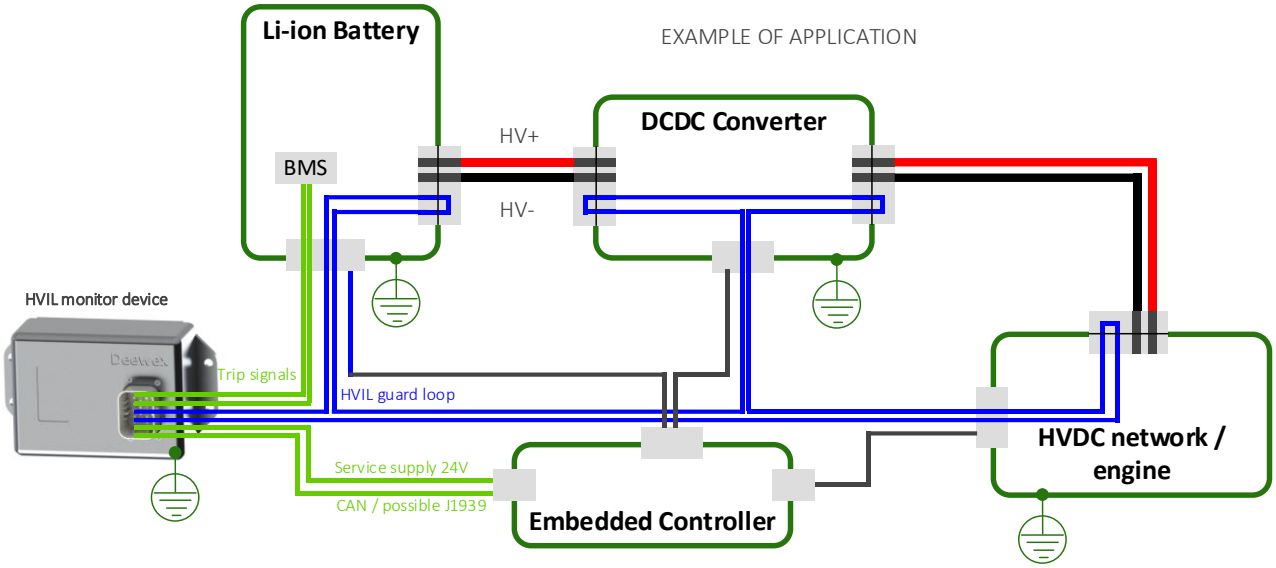
ESIL device

More information by clicking here

ESIL is a turnkey solution to manage HVIL safety loop for high-voltage systems.

You need only to connect it into your application, power supply from 9V to 36V, and use CAN bus, hardware signal, or push-button to manage your own HVIL circuit.

Its interlock or trip signal can be used as dry contact or push-pull to drive ON/OFF the power source of high-voltage.



Diagnostic

The HVIL monitor diagnose all the following single failures and some of them are broadcasted to a general controller (customer side):

- Disconnection of guard loop,
- Increasing of loop impedance

The following single faults are detected in intrinsic safety:

- Short circuit,
- Short circuit to ground

The single fault “Short circuit to Service power supply” is not possible.

The HVIL signal is sourced from an internal isolated 24V, and it is unidirectional.

Precaution for installation and commissioning

To keep the HVIL protection safe when cabling, the wiring harness of HVIL loop shall not have branch contact points and it shall be kept far from high-voltage wiring harness.

To use high-voltage connectors equipped only with the 2 small pins for interlock connection

To disconnect HVIL monitor and wiring first before disconnecting others high-voltage parts and connectors.

To connect HVIL monitor and wiring last after connecting others high-voltage parts and connectors.

To use certified high-voltage connectors guaranteeing strong sealing of high voltage lines against water, dust, moisture to avoid overheating or sparks. The connector shall also be robust to disengaging, disconnection and fire jumping.

When the high-voltage source is disengaged from the high-voltage circuit, be careful with the capacitive loads and high-voltage cables that are still charged maybe for 5 minutes for passive systems. This will prevent electric shocks to operators.

What happen is case of hazard?

When a hazard is detected by the HVIL monitor device, it processes the following actions:

- Generating through the CAN bus failure alarms related to internal faults or guard loop failures
- Sending trip signal to the high-voltage power source or to the user safety controller to cut off the high-voltage.

You have questions or you want a quotation of our HVIL monitor device?

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