



SIU - Safe Interlock Unit

The SIU is a state-of-the-art standalone interlock generator and measurement device, used to ensure protection against electrical shock in electric vehicles and machines. The Interlock Status is communicated on CAN as well as two digital outputs. The unit is available in an IP6K9K enclosure or as PCB to be integrated into a High Voltage Battery (HVB, RESS) or a Power Distribution Unit (PDU).

Description

The high voltage interlock is an important safety feature in EVs that makes sure, that the high voltage system is only activated when it is safe to do so.

By preventing hazardous situations from occurring, the high voltage interlock protects both the occupants of the vehicle and anyone else who may come into contact with it.

A-Samples are available in Q3/2023. B-Samples and custom features are available on request.



Features

Norms and Regulations

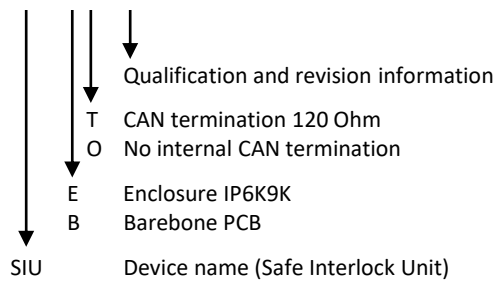
- AECQ-100 automotive compliant
- ISO 6469-3:2018 compliant
- ASIL Ready, ISO 26262 on request
- ISO 20653 IP6K9K (with enclosure)
- ECE R10 compliant on request

Technical Specification

- Redundant measurement
- Wide coverage of interlock loop fault diagnosis: Short to GND, short to battery, open loop, IL resistance
- Current driven interlock PWM
- Adjustable duty cycle & frequency
- Limited short circuit current, sink & drain
- Wide range supply (8-32V)
- Wakeup-Time <100ms
- Secured CAN2.0B interface, 500 kBaud
- High side status output

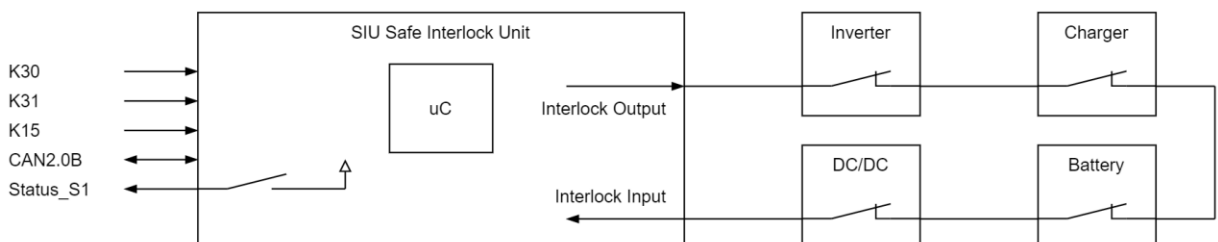
Order Information

SIU-ET-A01



Connector (not included)

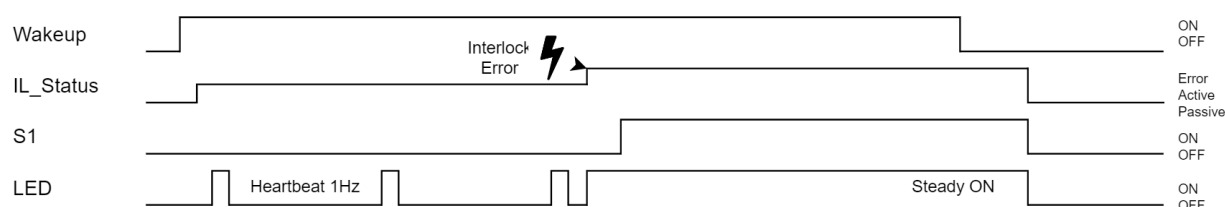
1x	Connector	Deutsch DTM06-12SA
12x	Contact	Deutsch 1062-20-0122
1x	CPA	Deutsch WM-12S
12x	Sealing Plug	Deutsch 0413-204-2005
1x	Boot	Deutsch DTM12S-BT



Pinning LV Connector X1

Pin	Name	Description
1	Ground (K31)	Supply GND
2	Supply (K30)	Supply, 8-32V, always on
3	Wakeup (K15)	Wake up, 8-32V
4	CAN_L	
5	CAN_H	
6	Status_S1_HS	High side status output, Supply voltage level, max 100mA
7	nc	
8	nc	
9	nc	
10	nc	
11	IL_Out	Interlock Out to vehicle
12	IL_In	Interlock In, return from vehicle

Sequence Diagram



CAN Interface

(500 kBaud, Message ID = 0x1B5, DLC = 8, Cycle Time = 10ms)

Signal	Value Range	Description
SIU_Checksum	0..255	CRC according to ISO tbd
SIU_MessageCounter	0..15	Message Counter according to ISO tbd
SIU_Status	Off, Selftest, On	SIU Microcontroller System Status
SIU_IL_Status	OK, Error, SNA	Interlock Status
SIU_E_IL_Open	OK, Error, SNA	Error Status: Interlock Circuit Open
SIU_E_IL_ShortToBat	OK, Error, SNA	Error Status: Interlock Short to Battery
SIU_E_IL_ShortToGnd	OK, Error, SNA	Error Status: Interlock Short to Ground
SIU_S1_Status	Output On / Off	S1 Switch State
SIU_IL_Resistance	0...4000 Ohm	Measured IL resistance
SIU_IL_Current	0...400 mA	Measured IL current

Technical Drawing

