NovaCarts Pilot, Crash, Interlock Module

This board controls, simulates, and manipulates all the relevant special signals in hybrid vehicles and measures the activation time of the safeguards. It makes it possible to flexibly vary the resistance of the pilot-interlock current and simulate errors selectively. The pilot-interlock current can also be measured. Test engineers can greatly vary the crash signal parameters and thereby verify the threshold between the triggering of the security function and the activation of security devices, such as the disconnection of the high voltage lines. The board measures the time delay between crash signal activation and control device reaction down to the microsecond. In addition, the board offers a standard on-board diagnosis (OBD) error simulation for all signals as well as the simulation of battery balancing chips that are controlled over the I2C-Bus as a special feature.

Output parameters

» Pilot resistor
» Crash signal
» Activation detection scorer
» Fault simulation control contactors

Ethernet interface

» Plug-and-play capability
» Direct connection to Windows control software without an adapter
» Standalone operation without RT system

Galvanic isolation

» Safe applications up to 60 V

Connections

» 1 x simulation of pilot signal
» 1 x simulation of crash signal
» 1 x measurement of airbag ignition signal
» 6 x connection for recording relay switching times
» 1x I^{2}C simulation of up to 14 MAX11068 cellcontroller
» 3 x digital input
» 3 x digital output

Diagnosis and maintenance

» Simple maintenance through self-detection and configuration
» Advanced diagnostic capability
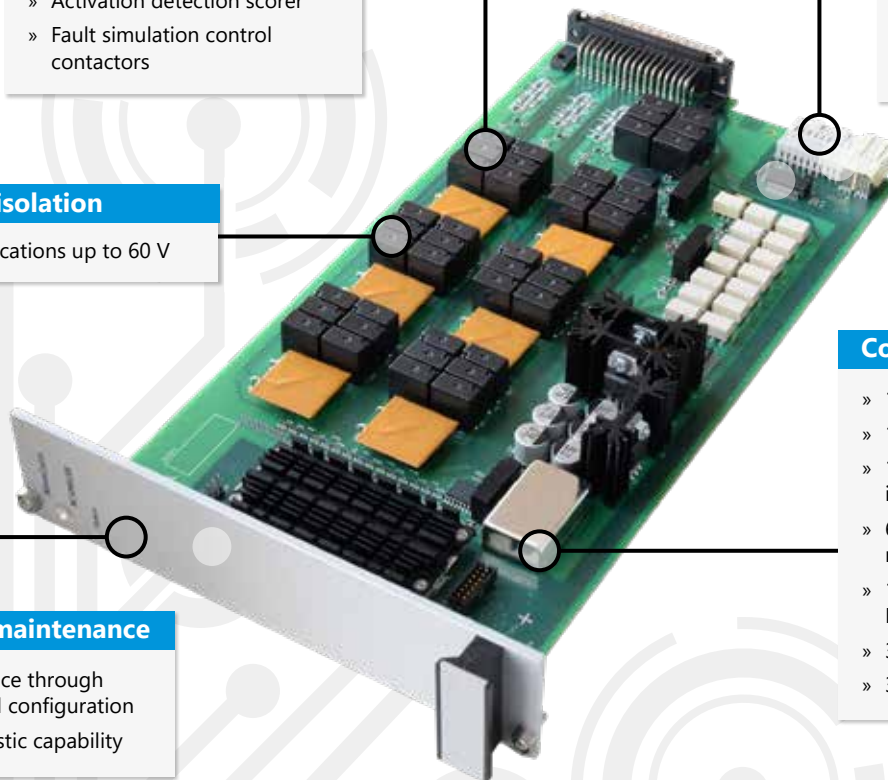
Features

Supply voltage	24 V, 1 A
Operating temperature	0 to +55 °C
Storage temperature	-20 to +70 °C
Humidity	10 to 90 % (no condensation)
Dimensions	Height: 4 U, Width: 8 U
Connection to RT system	Ethernet

Data Sheet

Module name: **NC-GMB1300**

Data sheet version: **1V8**

Specifications

Pilot signal	
Output impedance	10 Ohm to 500 Ohm, incremental 1 Ohm
Accuracy	+/- 1 % or +/- 1 Ohm
Measurement of pilot current	0 to 500 mA, dissolution 16 bit
Error simulation for pilot-line	short circuit to Kl. 31 short circuit to Kl. 30 Interruption of pilot-line All error types for both signals of the pilot line can be switched separately Safeguarding 7A
Crash signal	
Output current	0 to 5 A, (5 A for 20 ms), 500 mA over 10 s, resolution 12 bit
Impulse duration	1 µs to 10 s, incremental 1 µs
Impulse variants	1.2 A for t = 2,000 µs 1.75 A for t = 700 µs 0.4 A for t >= 10,000,000 µs 10 s (No-Fire-Condition)
Detection of dropout time relay on crash signal	0 to 65.5 ms, incremental 1 µs (resolution 16 bit)
Signal detection contactor signal	The recording of the contactor control takes place via two poles. The current control signal is also available as an average control signal.
Number of contactors	6
Input voltage range	0 - 60 V
Min. input impedance	1 MOhm
Switch threshold	> 5 V logically complies to 1, < 1 V logically complies to 0
Operating modes	PWM- or digital entry
Error simulation for control signal	
Number of channels	6 (separate errors to Rel+ and Rel- connectable)
Protection	7 A
Operting modes	Interruption of one or more channels
Conclusion of a positive potential (with and without interruption)	
Conclusion to mass (with and without interruption)	