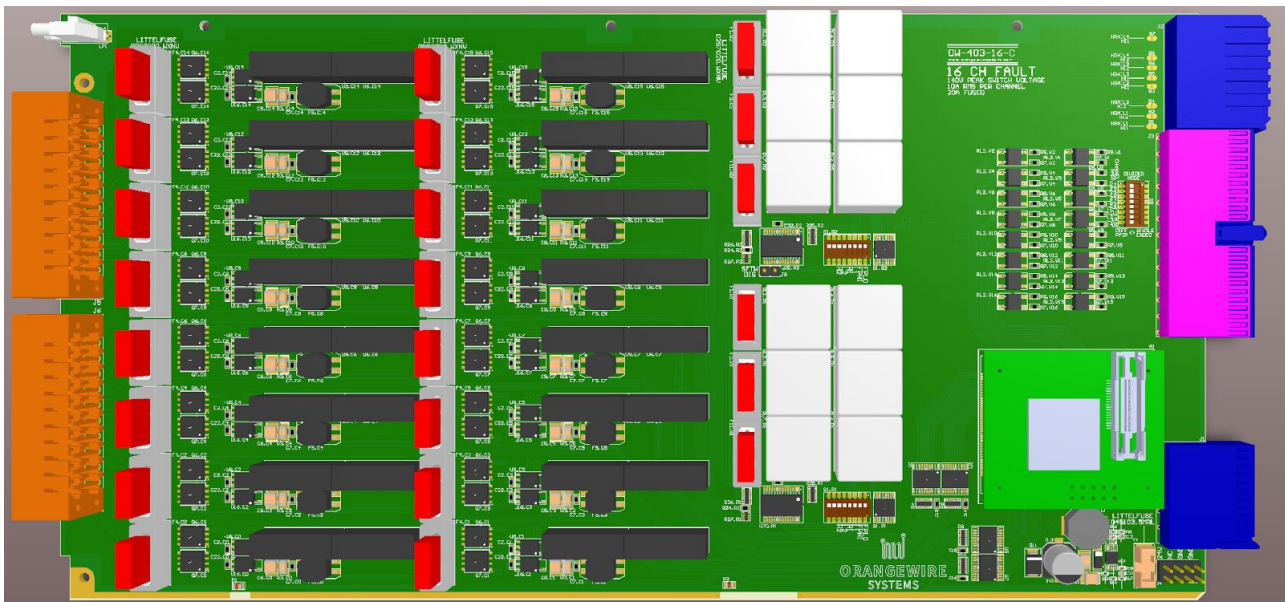


Datasheet

OW-403-16

16 Channel Fault Insertion



Overview

The OW-403-16 is a 16-channel Failure Insertion Unit (FIU) card that provides the ability to simulate electrical faults of loads with ability to support up to 17A per channel.

The OW-403-16 is designed for the National Instruments (NI) Switch Load Signal Conditioning (SLSC) system, to be used in Hardware-In-the-Loop (HIL) simulators. This card is used to test prototype or production Electronic Control Units (ECUs or generically Devices Under Test or DUTs) for the purposes of developing, verifying, and validating ECU software and hardware.

The 16 channel board has two banks of 8 channels. Each bank has a fault bus. Through software (NI Veristand, LabVIEW, TestStand), the fault bus can be connected to reference rails available on the backplane or the front panel. This allows channels to fault to primary and secondary power buses, ground, and to channels on other cards. This board may also be used for generic power switching applications.

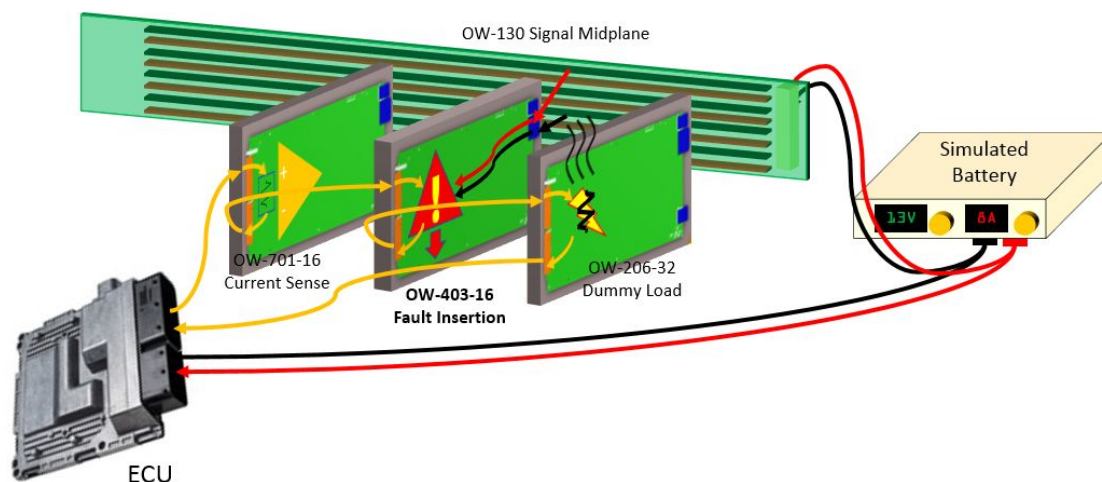
- 16-channel FIU
- For NI SLSC system
- 17A per channel
- 8 fault types per channel
- Switch simulated/real loads
- 0-140V operational range
- Use with NI PXI or CompactRIO

The fault states possible per channel are:

- Continuous Open Circuit
- Continuous Short Circuit to Ground (fault bus connected to ground)
- Continuous Short Circuit to Battery (fault bus connected to power)
- Continuous Short Circuit to Channel (fault bus connected to another channel)
- Intermittent Open Circuit
- Intermittent Short Circuit to Ground (fault bus connected to ground)
- Intermittent Short Circuit to Battery (fault bus connected to power)
- Intermittent Short Circuit to Channel (fault bus connected to another channel)

In addition, the OW-403-16 passes the input signals to the rear panel where they can be monitored or validated.

The OW-403-16 installs in the NI SLSC chassis and provides I/O interfacing to the DUT and loads through connectors on the front panel. It can be used with all OW load boards or it can be connected to real loads.



Application

The OW-403-16 is used to programmatically insert electrical failures of simulated and real loads connected to ECU actuator outputs. The intended functionality is to simulate a diagnostics failure event and test diagnostic software functions of the ECU. Enabling a fault condition on a channel will typically be part of an overall test routine to ensure that the ECU diagnostic function recognizes the fault correctly and takes the intended remedial action.

Specifications

Absolute Maximum Ratings	
Load Current Through Channel	17A Continuous or RMS
Fault Current	30A for 1s (20A Fuse)
Voltage	150V
Rear Panel Maximum Current	1mA

General	
Number of FIU Channels	16
Voltage Range	140V
Current per Channel	17A Continuous
Switching Latency	1us
Modes	No Fault Open Circuit Intermittent/Sustained Fail Rail Intermittent/Sustained Ground Intermittent/Sustained
Load connections	Single Load Connection
Physical	
SLSC Chassis slots required	1
DUT I/O Connector	4 10-pin Weidmuller 3.81mm Omnimate connectors
Safety	
Overcurrent	20A fuses per channel
Overvoltage	TVS diode: 167V activation, 150V reverse standoff