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wireflow

AC0022-002, rev C

WF 3154
User Manual



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Support information

Technical support and Product information

www.wireflow.se

WireFlow headquarters

WireFlow AB
Theres Svenssons gata 10
SE-417 55 Göteborg

Please see appendix “Technical support and Professional services” for more information.

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Important information

Copyright

The WF 3154 module and accompanying software driver is Copyright © 2012, WireFlow AB.

High risk activities

The software and hardware is not designed, manufactured or intended for use or resale as on-line control equipment in hazardous environments requiring fail-safe performance, such as in (but not limited to) the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines, or weapons systems, in which the failure of the Software could lead directly to death, personal injury, or severe physical or environmental damage ("High Risk Activities"). WireFlow and its suppliers specifically disclaim any express or implied warranty of fitness for High Risk Activities.

Compliance

CE - European Union EMC and Safety Compliance CE

This product meets the essential requirements of applicable European Directives, as follows:

- Electromagnetic Compatibility (EMC) Directive 2004/108/EC
- RoHS Directive 2011/65/EU

Please contact WireFlow to get a copy of the Declaration of Conformity for the WF 3168 module

Device information

Features

- Four independent, galvanically isolated channels
- Entirely solid-state design
- Two general purpose short circuit rails.
- LabVIEW driver included
- Compatible with NI VeriStand

Specifications

Number of Channels	4
Max Voltage	58V
Max Current	2.5A/channel
	(6A peak < 100ms)
Channel resistance	< 0.1 Ω
Max power dissipation	1.5W / module
Update Rate	200S/s

Pinout

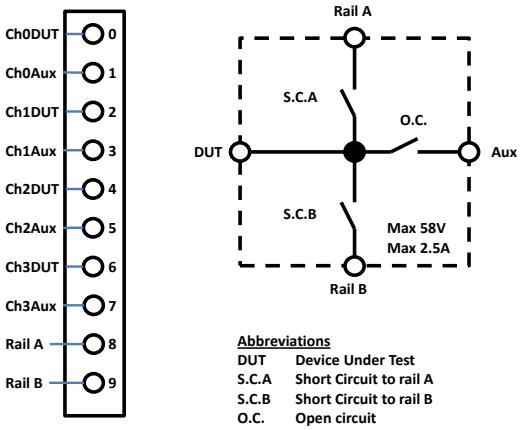


Figure 1 – Module pinout

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Software

The WF 3154 is delivered with a LabVIEW driver. This chapter describes the installation, requirements and basic usage.

Requirements

- LabVIEW Full (version >= 2017 SP1*)
- LabVIEW FPGA module
- NI RIO (version >= 17.6)
- VI Package Manager (for installation)

* Previous version of this driver (v 2.0.1) is available on www.wireflow.se and supports LabVIEW2011.

The WF 3154 driver currently requires the LabVIEW FPGA toolkit. The software for the WF 3154 is delivered as a VIPM packet (.vip) and requires the free version of VI Package Manager (VIPM) to be installed (available at jki.net or from ni.com).*

Installation

The easiest way to install the WF 3154 software is (when VIPM is already installed);

1. Double click the *.vip package
2. Follow the instructions in VIPM to select LabVIEW version where to install the driver
3. Agree to the Software License Agreement to finish installation

Once installed the necessary files should be installed in the LabVIEW application folders, see the ***API*** section for details.

Supported Platforms

The WF 3154 module can be used in any C-Series chassis, with LabVIEW FPGA programming enabled. This currently excludes the CompactDAQ series of chassis, but includes cRIO, EtherCAT and FPGA expansion chassis.

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API

Once the WF 3154 module has been added to the project the module can be controlled using property nodes and I/O nodes.

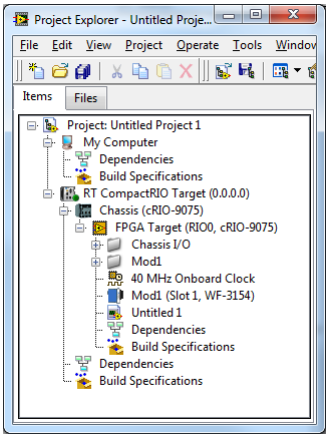
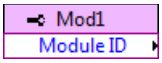
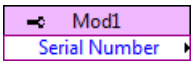
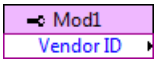


Figure 2 – The WF 3154 module added to the project

The property nodes return information about the current firmware, the information returned is;

- 

This is the identification number of the WF 3154 module
- 

Serial number of the module
- 

Vendor identification number (in this case WireFlow)

The output Fault Injection mode is set by the FPGA I/O nodes.

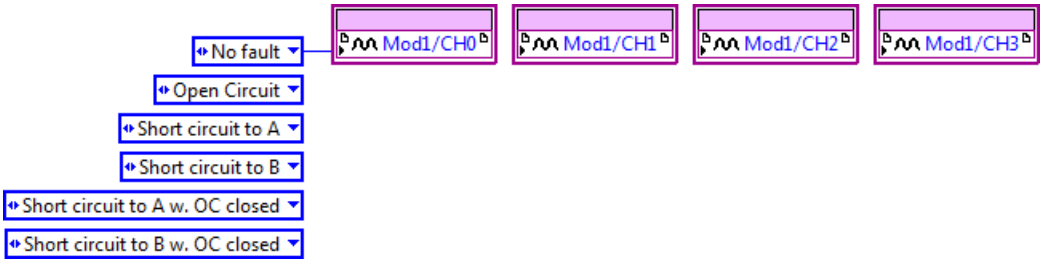


Figure 3 – IO nodes for normal operation mode

The different modes for a channel determine which relays that should be closed. The following sub-sections explain this in more detail.

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No fault

This is the normal operation mode, i.e. the DUT signal is directly routed to the Aux output.
Relays closed: O.C.

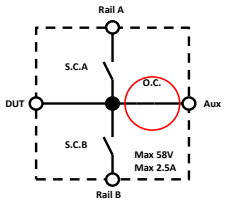


Figure 4 – No Fault relay usage

Open Circuit

This mode introduces an Open circuit fault, i.e. the DUT signal is disconnected from all signals.
Relays closed: None

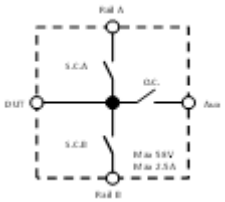


Figure 5 – Open Circuit relay usage

Short circuit to A

This mode introduces a short circuit fault, i.e. the DUT signal is connected to the Rail A signal.
Relays closed: S.C.A.

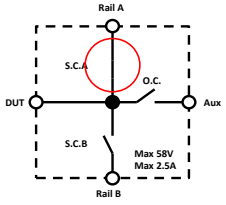


Figure 6 – Short Circuit to A relay usage

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Short circuit to B

This mode introduces a short circuit fault, i.e. the DUT signal is connected to the Rail B signal.
Relays closed: S.C.B.

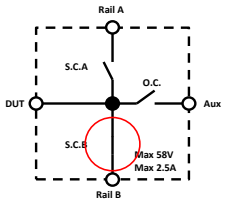


Figure 7 – Short Circuit to B relay usage

Short circuit to A w. OC closed

This mode introduces a short circuit fault to both Aux and DUT connection, i.e. the DUT signal is connected to the Rail A signal but still connected to the Aux signal.
Relays closed: S.C.A. and O.C.

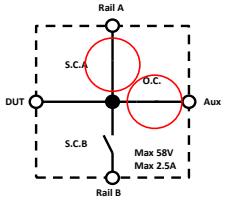


Figure 8 – Short Circuit to A with OC closed relay usage

Short circuit to B w. OC closed

This mode introduces a short circuit fault to both Aux and DUT connection, i.e. the DUT signal is connected to the Rail B signal but still connected to the Aux signal.
Relays closed: S.C.B. and O.C.

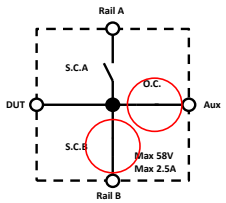


Figure 9 – Short Circuit to B with OC closed relay usage

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Examples

The shipping example demonstrates the usage of the API driver methods. To find the example, open LabVIEW example finder and search for the WF 3154.

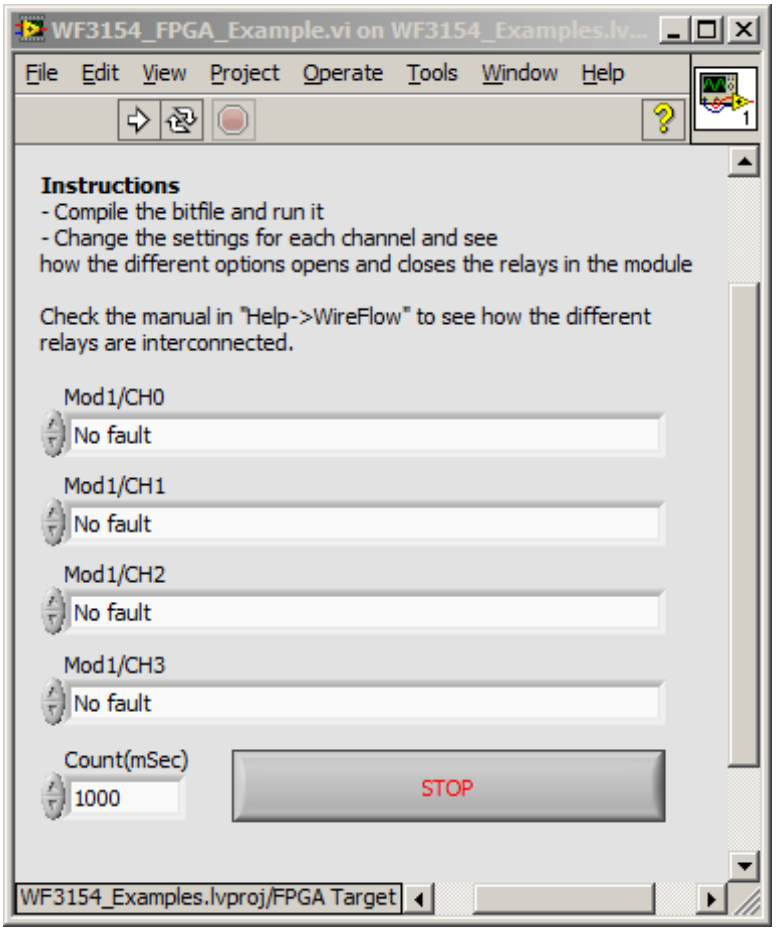


Figure 10 – Individual control of each channel

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Troubleshooting

Installation

During the installation progress the program folder is modified (new files are added to the <LabVIEW> directory). On some operating systems or windows installation it might therefore be necessary to install the driver package with administrator rights.

Technical support and Professional services

If you need to contact support please include the following information for faster handling

- Product number
  printed on the side of the module, ACxxxx
- Serial number
  printed on the side of the module, s/n XXXXXX
- HW version
  printed on the side of the module, vX.X.X
- Driver version (as indicated in VIPM)
- LabVIEW version
- NI-RIO version
- NI-FPGA version
- Target platform
- General description of the problem.

If possible, please include sample code that exemplifies the problem.

Please send support questions to support@wireflow.se, and set the subject to "Support WF 3154"

Waste Electrical and Electronic Equipment (WEEE)



EU Customers At the end of the product life cycle, all products must be sent to a WEEE recycling center. For more information about how to, visit ww.wireflow.se/weee.

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