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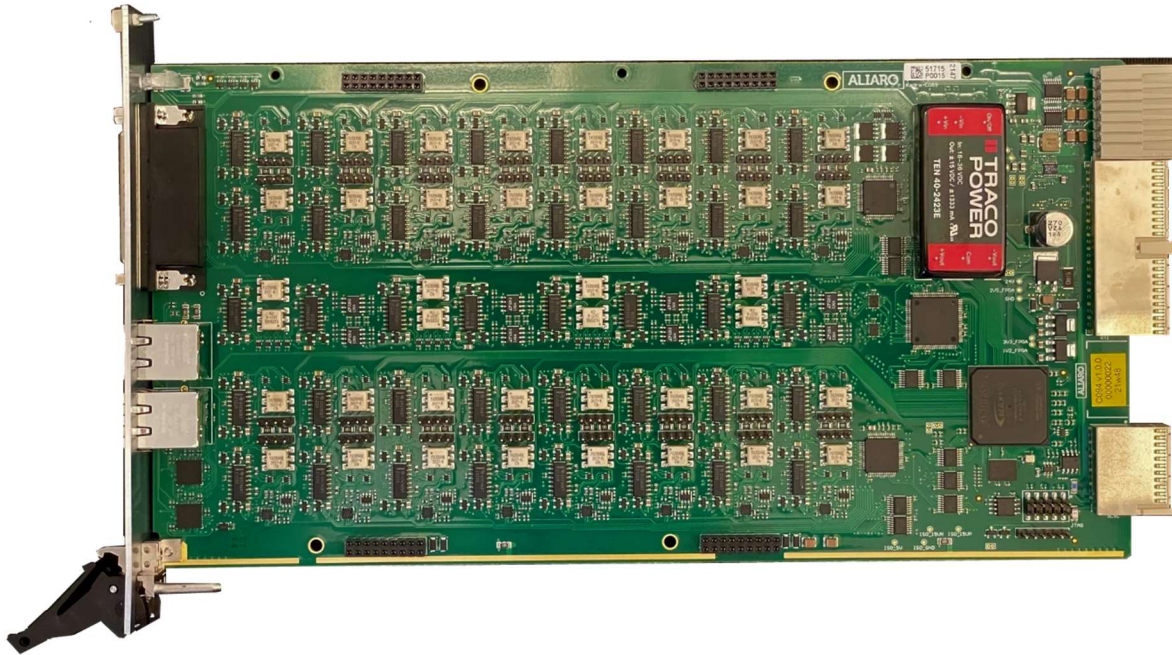
32 Channels Multi-Function Board

AL-1032 for SLSC

This document describes the AL-1032 board for National Instruments SLSC-12001 chassis.

Definitions

This document describes the performance of the described board under specific operating conditions which are covered by the board warranty.

These conditions can be classified into two main sections:

- *Typical* specifications describe the performance met by most boards.

- *Nominal* specifications describe an attribute that is based on design, conformance testing, or supplemental testing for this specific board.

Specifications are *Typical* unless otherwise noted.

Conditions

Specifications are valid under the following conditions unless otherwise noted.

The AL-1032 board is mounted in a standard NI SLSC chassis. This chassis should conform to the NI recommended cooling requirements and use a standard power supply that meets the specifications provided in the chassis user guide. All aspects of the SLSC chassis should follow NI guidelines.

Please Note - These specifications only apply to the product as provided by ALIARO. Modifications to the board may invalidate these.

Caution - Observe all instructions, warnings and cautions in the board documentation. Using the board in a manner not specified by this document can damage the board and compromise the built-in safety protection. Return damaged models to ALIARO for repair.

Overview

This document is a quick start guide on how to use the AL-1032 Multi-Function I/O board from ALIARO. It is intended to be used by industry professionals to:

- Understand what steps need to be taken when purchasing an AL-1032 board

- Provide an overview of what software/hardware is required for the AL-1032 board

- Be a practical step-by-step guide for engineers working with the AL-1032 board

This document is not intended to provide a list of all the product features (this is provided by the device's specification sheet). It is also not a software guide for controlling the board (this is provided by specific software manuals or help documentation).

The AL-1032 is a SLSC board designed to be used with a NI SLSC chassis. It provides a total of 32 configurable channels for analog/digital I/O. The functionality of the board can also be extended using optional piggyback plugin boards.

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Contents

Description

AL-1032 is a multifunction I/O board designed for easily providing fault insertion and switching for up to 32 channels. Each channel can be configured as analog input, analog output, digital input, or digital output. How one configures a channel dictates what channels are accessible through the rear connectors. This is important to note for when, for example, when you want to use external ADCs and DACs.

The Board provides functions for:

- Fault Insertion (All Channels)
    o Short to + (AUX1) Rail
    o Short to – (AUX2) Rail

- Digital Signals: Signal conditioning and I/O

    o Each channel can be configured as digital input or output to and from digital I/O (TTL)
      on the backplane by use of the FPGA logic.

    o Digital output signals can be configured as pull down, pull-up or both (option)

    o Digital input signals use an individual threshold to detect different signal logic levels.

    o The digital input and output can also be set using the build in I/O functions

- Analog Out: Signal conditioning and I/O

    o 8 channels (channels 25-32) are designed to use an optional piggyback board such as the amplifier piggyback board for internal (onboard D/A converters) or external source (external D/A converter). 8 channels are directly routed to the backplane for external source (or other purposes)

    o 8 channels (channels 17-24) are directly routed to the backplane (pass through) for external source (or other purposes).

    o 16 channels (channels 1-16) can be generated through onboard D/A converters.

- Analog In: Signal conditioning and I/O
    o 16 channels (channel 1-16) are routed with attenuation through onboard A/D converters to the backplane for external A/D converters.
    o All 32 channels have internal A/D converters.

Other features:

The board is isolated to keep the test system and DUT separated to provide a high signal integrity and minimize interference.

The board uses the SLSC interface for setting and reading the status of the board, in addition a Ethernet interfaces provides faster communication.

The board uses standard high-density D-sub connectors on the front and NI's standard backplane for 16ch AI, 16ch AO and 32 DIO signals.

Features

Block Diagram

The figure below shows the key functional components of the AL-1032 Board.
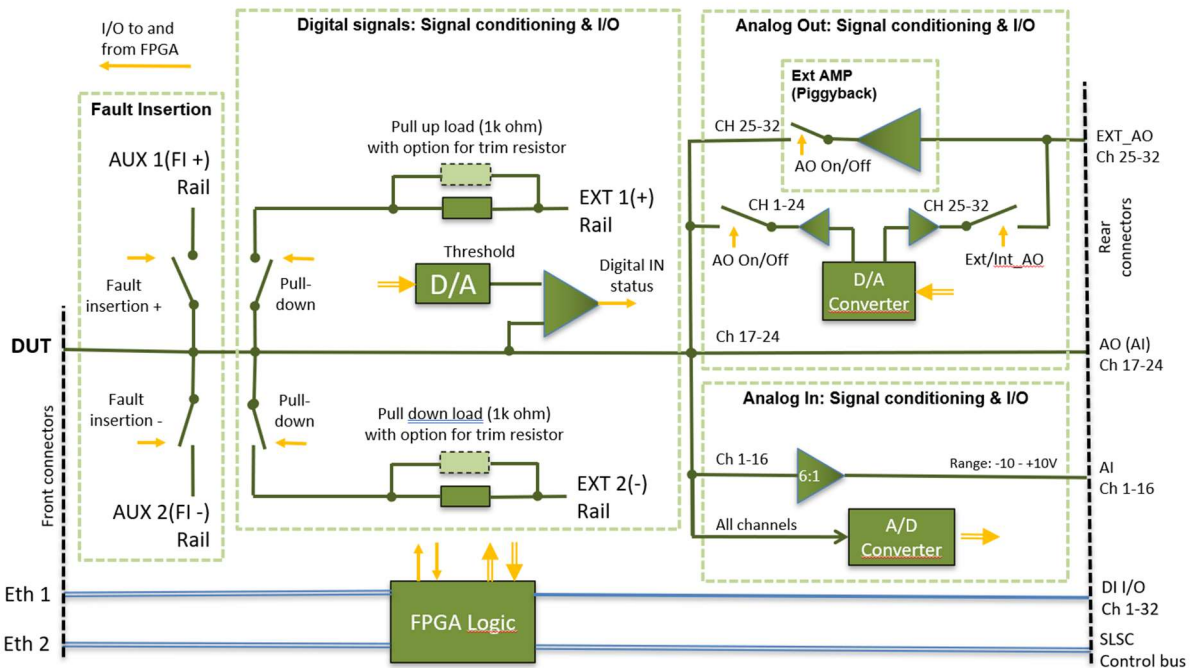
Figure 1: AL-1032 Block Diagram

LED Indicator

The AL-1032 Board has 2 LEDs which indicate the status of the board. All states are shown l the table below.

Table 1: LED Indicator States

LED Name	LED Behaviour	Definition of Behaviour
Power	Off	No power present on board
	Solid Green	Board powered
	Blinking Red	Board fault
Ready	Off	Board is not powered
	Solid Green	Board is ready to be used
	Blinking Amber	Board is active (communicating with chassis)

Cables and Accessories

The table below contains information about all cables and accessories available for the AL-1032.

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Accessory	Description
Piggyback Boards	Amplifier Piggyback (Kadro-C023)
Rear Transition Interfaces (RTIs)	AL-1032 RTI (Kadro-C103)
Cross Connection Boards	IX XCB AL-1032 (Kadro-C109)

Pinout and Signal Descriptions

The following section describes the connectors located on the AL-1032 Board. Please note that Connector XJ3 and XJ2 are primarily designed with a Rear Transition Interface in mind. Connector XJ1 will connect with the SLSC Chassis and does not require any action from the user.
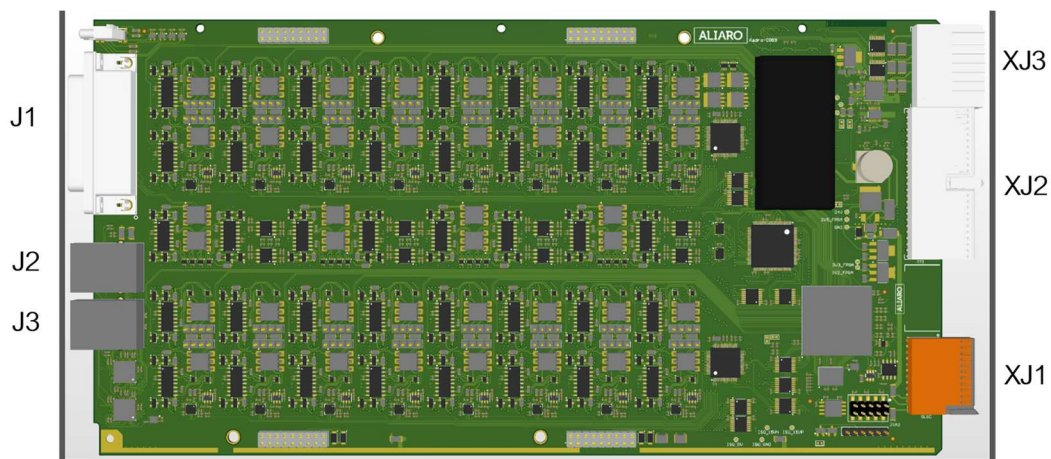
Figure 2: 1032 Connector Overview

J1 - DUT Connector (Front)
This is a High-Density D-Sub-44 female connector.
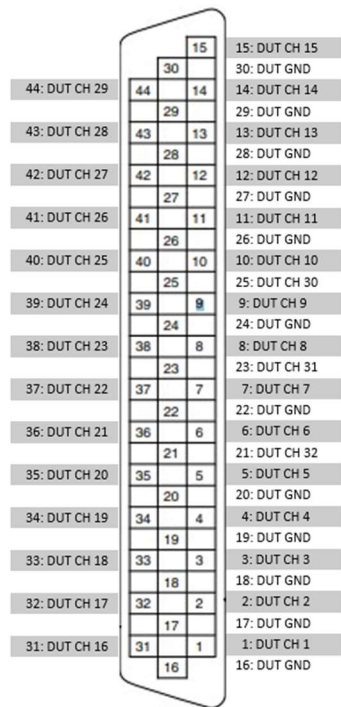
Figure 3: J1 Connector

J2 - Connector (Front)

This is a RJ45 Ethernet port which is used by the system for UDP communication to a host PC. It should be connected if communicating with the card over UDP (and not using DAQ hardware to format results to a Host PC.)

J3 - Connector (Front)

This is a RJ45 Ethernet port should not be connected to. This port will be used in the future.

XJ1 - Connector (Rear)

This is the connection to the SLSC backplane.

XJ2 - Connector (Rear)

This is an ERNI 354142 Connector.

Row	E	D	C	B	A
1	DIO Ch 4	DIO Ch 3	N.C	DIO Ch 2	DIO Ch 1
2	DIO Ch 8	DIO Ch 7	N.C	DIO Ch 6	DIO Ch 5
3	DUT GND A	DUT GND A	DUT GND A	DUT GND A	DUT GND A
4	DIO Ch 12	DIO Ch 11	N.C	DIO Ch 10	DIO Ch 9
5	DIO Ch 16	DIO Ch 15	N.C	DIO Ch 14	DIO Ch 13
6	DUT GND A	DUT GND A	DUT GND A	DUT GND A	DUT GND A
7	DIO Ch 20	DIO Ch 19	N.C	DIO Ch 18	DIO Ch 17
8	DIO Ch 24	DIO Ch 23	N.C	DIO Ch 22	DIO Ch 21
9	DUT GND A	DUT GND A	DUT GND A	DUT GND A	DUT GND A
10	DIO Ch 28	DIO Ch 27	N.C	DIO Ch 26	DIO Ch 25
11	DIO Ch 32	DIO Ch 31	N.C	DIO Ch 30	DIO Ch 29
15	AI Ch 4	AI Ch 3	N.C	AI Ch 2	AI Ch 1
16	AI Ch 8	AI Ch 7	N.C	AI Ch 6	AI Ch 5
17	DUT GND	DUT GND	DUT GND	DUT GND	DUT GND
18	AI Ch 12	AI Ch 11	N.C	AI Ch 10	AI Ch 9
19	AI Ch 16	AI Ch 15	N.C	AI Ch 14	AI Ch 13
20	DUT GND	DUT GND	DUT GND	DUT GND	DUT GND
21	Ch 20	Ch 19	N.C	Ch 18	Ch 17
22	Ch 24	Ch 23	N.C	Ch 22	Ch 21
23	DUT GND	DUT GND	DUT GND	DUT GND	DUT GND
24	AO (Amp) Ch 28	AO (Amp) Ch 27	N.C	AO (Amp) Ch 26	AO (Amp) Ch 25
25	AO (Amp) Ch 32	AO (Amp) Ch 31	N.C	AO (Amp) Ch 30	AO (Amp) Ch 29

E D C B A

PCB rear view (from backplane)

Connector: ERNI 354142
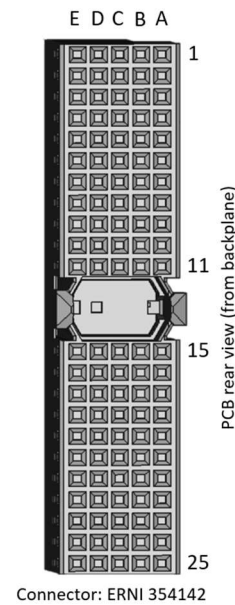
Figure 4: XJ2 Connector

XJ3 - Connector (Rear)

This is a connection point the various signals being passed into the AL-1032 Board. It is most easily accessed by using an optional RTI Board. ALIARO do not recommend soldering or attaching jumpers directly to these pins, as this may cause damage to the AL-1032 Board.

XJ3 Connector Pinout

Pin	Signal name
H	AUX 1 (FI+)
G	AUX 2 (FI-)
F	EXT 1A(+)
E	EXT 2A (-)
D	EXT 1B (+)
C	EXT 2B (-)
B	AMP +
A	AMP -
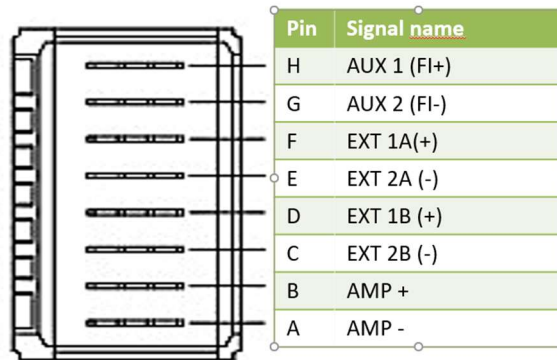
Figure 5: XJ3 Connector

General Signal Capabilities

- The AL-1032 Board is isolated to keep the test system and DUT electrically separated. This ensures high signal integrity and minimizes interference.
- The board utilizes the SLSC interface for setting and reading the status of the board, in addition to an Ethernet interface provides faster communication.
- The board uses standard high-density D-sub connectors (on the front of the board) and NI's standard backplane for 16ch AI, 16ch AO and 32 DIO signals.
- The 1032 has a specialized RTI backplane.

Table 3: General Signal Capabilities

Parameter	Value	Comments/Additional
Voltage range	-60V to 60V	
Internal time resolution	10ns	FPGA clock 100MHz
Temperature range	0°C to +40°C	

Fault Insertion Capabilities

Fault insertion is the process of sending a known error (fault) to a Device Under Test (DUT) to understand the reaction from the device. This includes several types of simulated failures such as short or open circuits, error signals or sensor failures.

Failure signals can be passed to the DUT using the two Fault Insertion (FI) busses (AUX 1 & AUX 2). FI busses are available on all channels.

FI busses are in most cases connected to (DUT +) and (DUT −) to simulate short circuits. FI busses may also be used for advanced fault insertions, such as using external power supplies to simulate surges or other unwanted conditions.

Table 4: Fault Insertion Capabilities

Parameter	Value	Comments/Additional
Current protection (DUT to AUX)	1000mA	

Digital Signal Capabilities

The AL-1032 Board provides digital input or output signal conditioning on each channel. This is done using 32 isolated TTL I/O signals available via a RTI backplane.

The SLSC control interface is used to configure each of the I/O signals with each input signal being configured using a threshold. This enables the detection of any logic level such as 3.3V, 5V, 12V or 24V.

Output signals may be configured as being either pull-up, pull-down, or both.

In addition, the SLSC and the Ethernet interface provide I/O functionality for setting and reading the digital I/O. This avoids the need for additional DAQ cards.

Table 5: Digital Signal Capabilities

Parameter	Value
Digital In: Threshold, range	0 to 30 V
Digital In: threshold, resolution	12 bit
Digital In: Threshold, hysteresis	0.2 V
Digital In: Threshold, accuracy	0.2 V
Digital Input: Frequency range	0 to 10 MHz
Digital In: Latency (DUT => DI I/O)	50 ns

Digital Out: Pull down resistance	PU/PD Resistance
PWM out: Frequency range	0 to 100kHz
PWM out: Duty-Cycle	10 to 90%
PWM out: Duty-Cycle resolution	100ns
Digital Out: Max Current (/Rail)	1000mA
Digital Out: Raise/fall time	< 1ms
Digital Out: Latency (DI I/O => DUT)	100ns

Analog Output Capabilities

The AL-1032 Board has a total maximum of 32 AO channels. These are divided into 2 sets of channels, 1 to 24 and 25 to 32. All channels are equipped with D/A converters which are set by the SLSC interface (static) or by the Ethernet interface.

Channels 25 to 32 can be passed through an optional piggyback board (such as the amplifier piggyback board). The output of those 8 channels can also be generated by internal D/A converters.

Table 6: Analog Output Capabilities

Parameter	Value	Comments/Additional
AO Bandwidth (DUT to AO Ch 17-24)	10 MHz	(3 db/50 ohm)
AO Isolation (DUT to AO Ch 17-24)	40dB	(50 ohm)
AO Channel 1 to 24		
Voltage range	-12 to +12V	
Maximum current	10 mA	
Resolution	12 bits	
Sample rate	0 to 10kS/s	
AO Channel 25 to 32		
Voltage range	-20 to +20V	
Maximum current	100 mA	
Resolution	12 bits	
Sample rate	0 to 10kS/s	

Analog Input Capabilities

The AL-1032 Board has 32 AI channels which are equipped with internal A/D converters for signal sampling. The data from the internal A/D converters is then read by the SLSC interface (static) or by the Ethernet interface.

The board also provides signal conditioning (attenuation) on 16 channels for external A/D converters.

Table 7: Analog Input Capabilities

Parameter	Value	Comments/Additional

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Voltage range	-60 to 60V	
Resolution	16-Bit	
Bandwidth	25 kHz	

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Installation

Electromagnetic Compatibility (EMC)

This product is intended for use in industrial locations. Harmful interference may occur in certain installations, such as if the product is used in residential or commercial areas. This may also occur when the product is connected to a peripheral device or test object that outputs electromagnetic noise or other interference.

To minimize interference with radio and television reception and prevent unacceptable performance degradation, install, and use this product in strict accordance with the instructions of the product documentation.

Furthermore, any modifications to the product not expressly approved by ALIARO may void your warranty and your authority to operate it under your local regulatory rules.

⚠️ **Caution** - To ensure the specified EMC performance, operate this product only with Shielded cables and accessories.

Unpacking the board

The AL-1032 board ships in an antistatic box to prevent Electrostatic Discharge (ESD). ESD can damage the device components. Users should be familiar with the steps to prevent ESD damage when handling the device.

⚠️ **Warning** - Never touch the exposed pins of the connectors.

To prevent ESD damage when handling the device, please take the following precautions:

- Ground yourself before handling. Use a grounding strap or by touching a grounded object.

- Touch the antistatic package to a grounded metal part before removing the device from the package. A good example would be the metal part of your computer chassis.

Remove the device from the package and inspect it for damages such as loose components. Contact ALIARO if the device appears damaged in any way. Do not use a damaged device with any other components. Store the device in antistatic protection when not in use.

What You Need to Get Started

Additional components which connect to the AL-1032 are shipped separately. These could include:

Piggyback Connector Boards	These add extra functionality to the board
Cross Connection Boards	These are used to route signals in test systems
Rear Transition Interfaces (RTIs)	These are used to provide connection points on the rear of SLSC boards

To set up and use the board you need the following items:

Hardware

- SLSC-12001 chassis
- SLSC AL-1032 board(s)
- SLSC AL-1032 RTI
- Power cable
- Power input connector
- Grounding wire
- Grounding lug

Tools

- Screwdriver as needed for your application
- Wire stripper

Documentation

- SLSC-12001 Chassis Getting Started Guide and Specifications

⚠ **Warning** - Do not touch the contacts or remove the I/O boards or cables while the system is energized. The SLSC chassis and the AL-1032 do not support hot plug-in. The entire chassis must be powered off when a board is inserted or removed.

Installing the AL-1032

⚠ **Warning** – Do not touch the contacts or remove the I/O boards or cables while the system is energized.

1. Power off the main DC power source or disconnect the power source from the chassis before installing any boards or RTIs.

2. Ensure that the chassis is powered off. The POWER LED should be off. If the POWER LED is not off, do not proceed until it is off.

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> **Please Note** - The SLSC chassis and the AL-1032 do not support hot plug-in. The entire chassis must be powered off when a board is inserted or removed.

3. Loosen the screws on the upper rear panel of the chassis.

4. Position the RTI backplane at the desired slot and insert the securing screws, but do not fully tighten them.

5. Insert an AL-1032 board into the same slot as its corresponding RTI while firmly holding the RTI in place until the RTI is fully connected to the board.

6. Repeat steps 4 and 5 for all required RTIs.

7. Fully tighten the screws for all RTIs and the upper rear panel of the chassis. Wait until all RTIs and boards are installed before fully tightening the screws. This ensures the proper alignment for future connections between boards and RTIs.

8. Fully tighten the two board mounting screws on each newly installed board.

9. Power on the SLSC Chassis

Software Installation - SLSC LabVIEW Drivers

When the board is used with LabVIEW or TestStand, the ALIARO drivers need to be installed. Contact ALIARO support for the most recent version of our drivers: support@ALIARO.com

Software Installation - ALIARO Custom Devices

When KADRO-MPB-12 is used with VeriStand, Custom Devices needs to be installed. Contact ALIARO support for the most recent version of our Custom Devices: support@ALIARO.com

Software Installation - ALIARO xMove Configurator (Optional)

xMove Configurator is a tool for defining and editing VeriStand System definition files for HIL (Hardware-in-the-loop) test systems. It is specifically aimed at configuring ALIARO SLSC Multi-Purpose boards and NI boards.

The configurator uses a Predefined System Configuration file containing the system mapping and a VeriStand System Definition file defining all hardware. It empowers users to configure and reconfigure User Channels, Aliases and System Mappings for HIL systems.

For more information on xMove Configurator, check the xMove Configurator webpage on NI.com.

System Check

Finnish the installation by conducting a system check, see the chapter *Operation*.

Setting Up The AL-1032

Complete the following steps to get started with the AL-1032 Board.

Software Setup

The AL-1032 Multi-Function I/O Board is intended to be used with the following pieces of control software:

NI VeriStand	VeriStand application software helps you configure I/O channels, data logging, stimulus generation, and host communication for NI real-time hardware. If using VeriStand to control the AL-1032 Board, install the ALIARO SLSC custom device from ALIARO's website. VeriStand can be installed from NI's website.
xMove Configurator (Optional)	xMove Configurator is a configuration tool used to quickly configure test systems and test system components such as the AL-1032 Board. It achieves this by defining/editing VeriStand System definition files. We recommend using xMove with either of these software platforms for maximum efficiency. xMove can be download from NI's website. Contact ALIARO for more information.

Product Setup

When using the AL-1032 Board, the following hardware components are required:

- NI SLSC Chassis (SLSC-12001) and all associated components listed in the SLSC Chassis manual. This manual is located on NI's website.
- Cross Connection Board
- Rear Transition Interface (RTI)

Use the following steps to setup the AL-1032 Board in an SLSC Chassis:

⚠ **Warning** – Please complete the following steps with all devices powered off and with users and systems being safely grounded.

Choose a slot in the SLSC Chassis to install the AL-1032 Board. Before inserting the board, any RTIs and cross connection boards must first be mounted on the rear of the SLSC chassis. Both components are optional and are not required to use the AL-1032 board.

Now that all optional components have been installed into the chassis, the board can be inserted. Please refer to the specific SLSC Chassis Getting Started Guide and Specifications from NI to understand how to Install and Remove SLSC boards safely.

In addition to the mentioned guide, the board should also align with the RTI on the rear of the chassis. All pins should firmly connect to the corresponding position on the board without great resistance or the pins/connectors being bent.

Connect the RTI and the AL-1032 Board to any DAQ devices or stimuli as defined by their manufacturer.

Verifying The Setup

The diagram below provides an overview of all product components required and optional for performing verification. Please note, some components are only optional based on the SLSC boards being used and the requirements of your system.
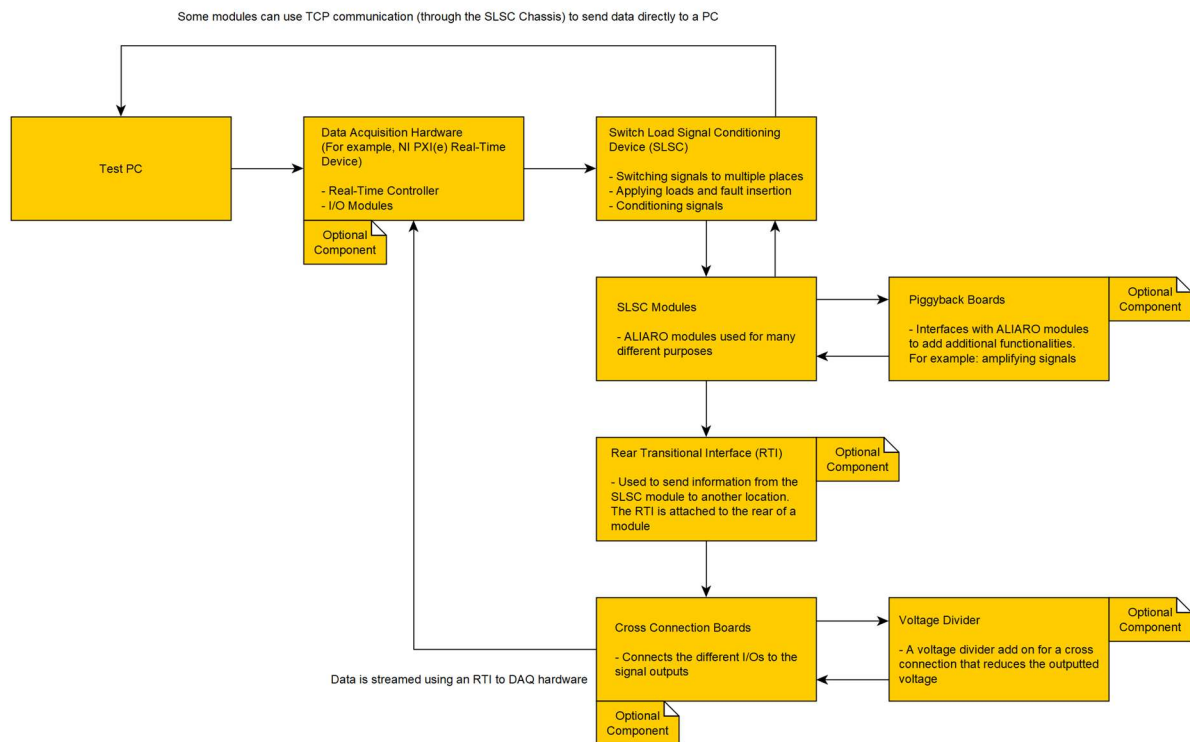
Figure 6: Verification System Overview

To verify that all software and product components have been correctly installed, perform the following actions:

- Power on the SLSC Chassis and observe the front of the AL-1032 Board. The AL-1032 Board has 2 LEDs which are described in the LED Indicator section of this document. Verify that both LEDs power solid green when the chassis is powered on. This verifies that the AL-1032 Board has been installed in the chassis successfully.

- **Using VeriStand** – Once the custom device has been installed, add the SLSC chassis to the system definition file under the Custom Devices section. Add the AL-1032 Board into this chassis configuration. Deploy the configuration to a target and use the parameters for the AL-1032 Board created by the VeriStand custom device.

- To fully verify the system, begin acquiring or transmitting data to/from the board using your control software. The ALIARO recommended verification process would be to configure 2 pins on the board, one as an input and one as an output. Connect these two pins together on the front of the AL-1032 Board. Output a signal from the output pin and verify the signal using the input pin.

  This concludes the verificaiton process

Operation

Safety Guidelines

Operate the ALIARO AL-1032 only as described in this document.

⚠️ **Warning** - Do not operate the device in a manner not specified in this document. Misuse of the device can result in a hazard. You can compromise the safety protection built into the device if the device is damaged in any way. If the device is damaged, contact ALIARO for repairs or replacement.

⚠️ **Warning** - Do not substitute parts or modify the device except as described in this document. Use the device only with the chassis, boards, accessories, and cables specified in the product specification.

⚠️ **Warning** - Do not operate the device in an explosive atmosphere or where there may be flammable gases or fumes. If you must operate the device in such an environment, it must be in a suitably rated enclosure.

System check using LabVIEW

This chapter requires the LabVIEW Development Environment and installation of the ALIARO LabVIEW drivers.

To identify hat the cards are correctly inserted and work properly with the right firmware, LabVIEW provides basic VI scripts to check SLSC cards mounted in chassis:

1. Open LabVIEW and select "*Help*" in the top menu bar and press "*Find Examples…*". This opens a new window listing pre-made LabVIEW examples.
2. Switch to the "*Search*" tab and enter keyword "*SLSC*" and search.
3. In the new filtered table (to the right) find and select VI called "*Configuration.vi*". This VI can locates all cards that are online in a SLSC chassis.
4. To find the newly inserted cards look for the SLSC chassis IP-address (in the table to the right).
5. Count the card(s) in the table and verify that all installed cards are being located by the program (this can be 1 to 11 cards per SLSC chassis).

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Maintenance

Power off all connected device before attempting any maintenance. After maintenance is complete, ensure that the device is fully dry and installed correctly, before powering the system back on.

⚠️ **Warning** - Many components within the chassis are susceptible to static discharge damage. Service the chassis only in a static-free environment. Observe standard handling precautions for static-sensitive devices while servicing the chassis. Always wear a grounded wrist strap or equivalent while servicing the chassis.

Clean dust from the chassis exterior and interior as needed, based on the operating environment. Periodic cleaning increase's reliability.

Use a dry, low-velocity stream of air to clean the interior of the chassis. Use a soft-bristle brush for cleaning around components

Before using the AL-1032

All input characteristics are DC, ACrms, or a combination unless otherwise specified. Maximum switching voltage (any polarity) **100 Vpeak**. Every card provides a fully capable fault insertion with external control during simulations or testing. Relays can be configured with XMove Configurator, VeriStand and LabVIEW

📝 **Please Note** - Steady state voltages applied to the AL-1032 between any two I/O connector pins in excess of the maximum switching voltage specification may damage the board

📝 **Please Note** - Signal connections through the AL-1032 are intended to go through the DUTn pin connections. Signal paths that do not use the DUTn pin connections bypass the internal overcurrent limiting features and may exceed the board's thermal capabilities.

Calibration

Recommended warm-up time	30 min
Calibration interval	1 year

Contact ALIARO to schedule calibration services. Additionally, you may be entitled to calibration if you have a service agreement.

If you have purchased a calibration system from ALIARO, we recommend using the system with your complete ALIARO test system or device, after the specified interval.

Specification

Environmental Characteristics

Temperature and Humidity

Operating temperature	0 °C to 40 °C
Storage temperature range	-40 °C to 85 °C
Operating relative humidity range	10% to 90%, noncondensing
Storage relative humidity range	5% to 95%, noncondensing

Physical characteristics

Category	Condition	Value
Board Dimensions	Excluding front handle	144.32mm x 30.48mm x 281 mm (H x W x D)
Front Panel Connector		1 x HD44, 2 x RJ45

Configuration and Accessories

For most applications, the AL-1032 needs to be configured with a backplane.

RTI Backplane

RTIs are used to format signals into common bus types and are mounted onto SLSC chassis using screws. These screws will be provided with the RTI board and will have a corresponding threaded hole on the top rear of the SLSC chassis. The RTI board will have several holes which the screws will fit through.

Mount the RTI with the external connectors (to measurement devices) and external references, facing away from the chassis. The available connectors will vary depending on which RTI is being used. The figure below shows an example RTI and how it is mounted on the SLSC Chassis.
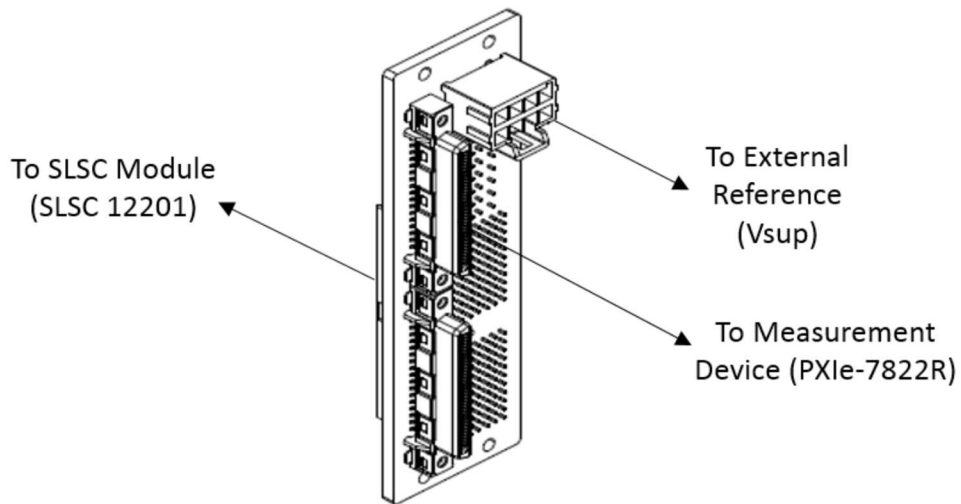
Figure 7: Example RTI

Cross connection boards are used to route/reorganize signals before being sent to DAQ equipment. They are placed over RTI boards and connect onto bus terminal points. Please refer to your specific cross connection board instructions to install the board

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Safety Guidelines

⚠ **Caution** - Ensure that hazardous voltage wiring is performed only by qualified personnel adhering to local electrical standards.

⚠ **Caution** - Do not mix hazardous voltage circuits and human-accessible circuits on the same board

⚠ **Caution** - When device terminals are hazardous (voltage is LIVE), you must ensure that devices and circuits connected to the device are properly insulated from human contact.

⚠ **Caution** - All wiring must be insulated for the highest voltage used.

Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information.

To obtain product certifications and the DoC for ALIARO products, please contact our support team at support@ALIARO.com

CE Compliance

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

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)
- 2011/65/EU; Restriction of Hazardous Substances (RoHS)

Electromagnetic Compatibility Standards

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 55011-2009 Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement CISPR 11:2009

- EN 55032:2012 Electromagnetic compatibility of multimedia equipment - Emission requirements CISPR 32:2012

- EN 61326-1-2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements IEC 61326-1:2012

ALIARO reserve the right to vary from the description given in this data sheet and shall not be liable for any errors.

Environmental Management

ALIARO is committed to designing and manufacturing products in an environmentally responsible manner. ALIARO recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to ALIARO customers. For additional environmental information, refer to the Minimize Our Environmental Impact web page at ALIARO.com/environment.

This page contains the environmental regulations and directives with which ALIARO complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers At the end of the product life cycle, all ALIARO products must be disposed of according to local laws and regulations.

For more information about how to recycle ALIARO products in your region, visit ALIARO.com/environment/weee