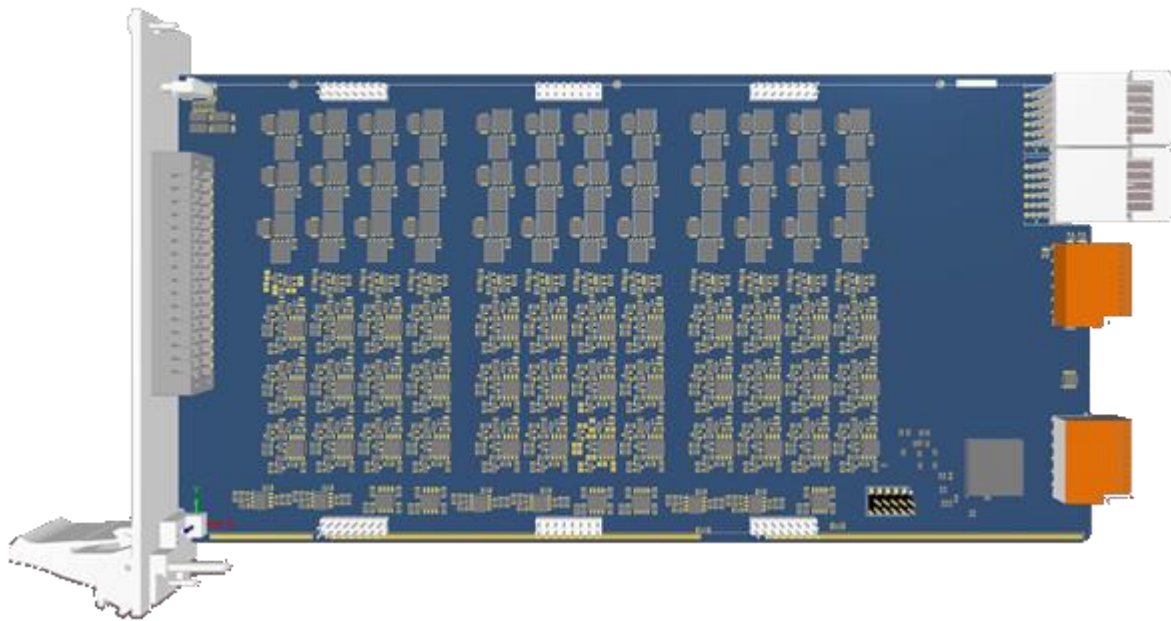


## 12 Channel Multi-Purpose Board

KADRO-MPB-12 for SLSC



## Overview

The KADRO-MPB-12 is a 12-channel multi-purpose board that connects the device under test (DUT) and loads to the test system. The board is recommended to be used in Hardware-in-the-Loop systems where high flexibility on the pin configuration is required.

The KADRO- MPB -12 is designed for the National Instruments (NI) Switch Load Signal Conditioning (SLSC) system, to be used in Hardware-In-the-Loop (HIL) simulators.

The board interfaces NI PXI and/or Compact-RIO instrumentation devices for the purposes of developing, verifying, and validating electronic control unit software and hardware.

The KADRO-MPB-12 board is hosted in NI SLSC chassis and provides I/O interfacing to the DUT and loads through connectors on the front panel. The board utilizes digital signal conditioning and fault injection on all channels. Adding add-on boards such as KADRO-RES-4 and/or KADRO-AMP-4 together with external NI PXI and Compact-RIO modules the KADRO-MPB-12 easily can change each pin on the card to different functions such as Analog In/Out, PWM In/Out, Digital In/Out and also support resistor emulation.

By using software, such as VeriStand, the pins on the board can be modified, which enables the users to update the test system without changing hardware.

## Application

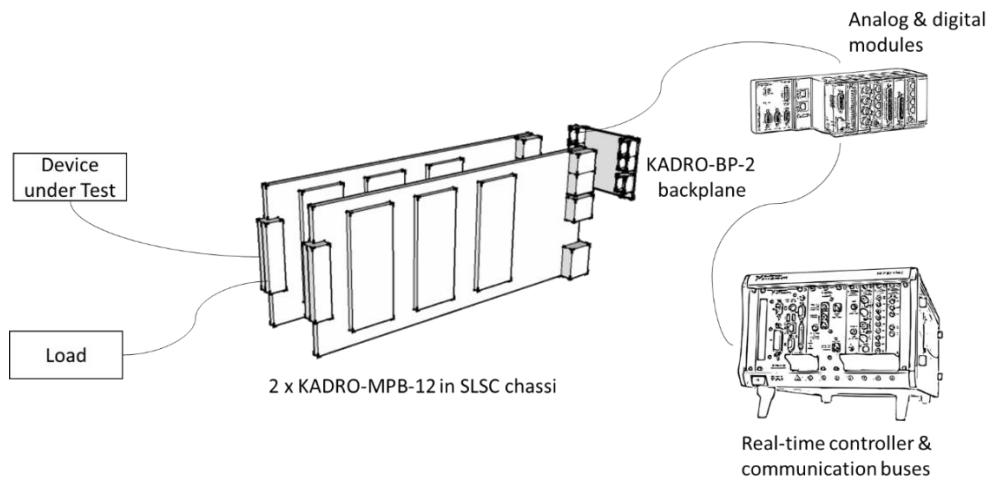
- ✓ Hardware in the Loop (HIL) testing
- ✓ Fault insertion unit in HIL applications
- ✓ Signal routing
- ✓ Load switching
- ✓ Signal and condition
- ✓ Fault insertion

## Features

- ✓ 60V
- ✓ 10A per channel
- ✓ 12 independent and isolated channels in three banks
- ✓ 3 Expansion Slots for Add-on boards
- ✓ Two common buses per bank with switches to each channel
- ✓ Brake up switch for each channel
- ✓ Runtime programmable level threshold on each channel
- ✓ Parallel connection possibility for high current signals (120A)

## How it works

The KADRO-MPB-12 board can be used to generate and measure analog, digital signals and pulsed signals. With add-on board such as KADRO-RES-2, the card also can be used for validation of resistive sensors.

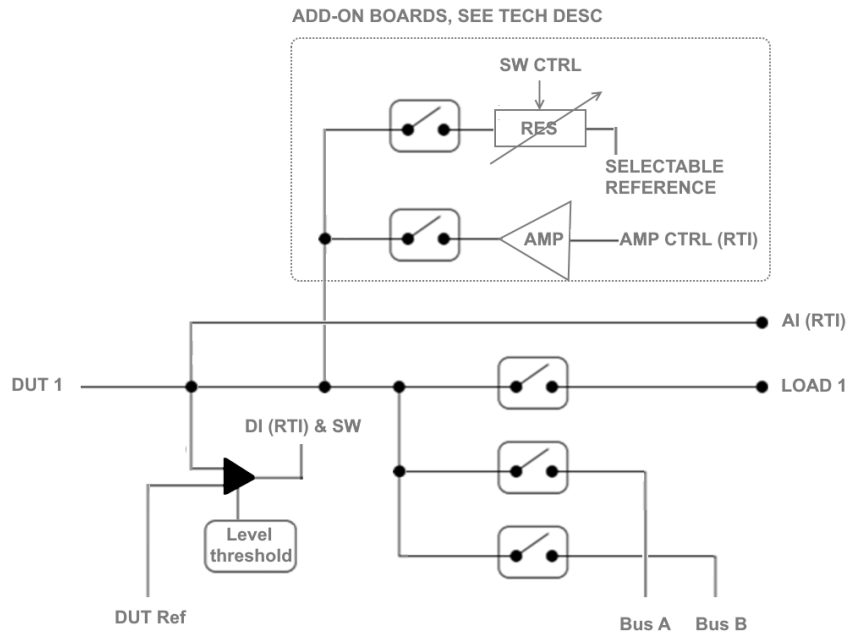


The KADRO-MPB-12 board can be attached in pair through the RTI backplane through KADRO-BP-2. This backplane is needed to reach fully flexibility and easy connection to Analog & digital modules for NI PXI and/or Compact-RIO instrumentation devices.

### Configuration and monitoring in VeriStand

- ✓ Easy operation using NI Veristand and Aliaro VS HIL Configurator.
- ✓ Custom Devices in Veristand is included

## Signal Conditioning



- Bus A = AUX1a/b/c (depended on bank)
- Bus B = AUX2a/b/c (depended on bank)

## Add-on boards

The KADRO-MPB-12 card has three (3) expansion slots for add-on boards for adding additional functionality for enabling more flexibility in the system.

✓ **KADRO-AMP-4 Amplifier Board**

The KADRO-AMP-4 add-on board amplifies voltage and current making it possible to use standard I/O instrumentation devices for operation. The board supplies four (4) independent channels (bank) with amplifier functionality (enables Analogue and Digital Out).

Amplifier capabilities:

- Input +/- 10V
- Output Amplification runtime selectable -5 to 55V, 200mA, 10kHz

✓ **KADRO-RES-2 Programmable Resistor Emulator Board**

The KADRO-RES-2 add-on board is programmable resistor emulation card for simulation of resistive sensors. The board enables two (2) independent channels.

Resistor capabilities

- 20 Ohm - 110kOhm, accuracy 1% at lower ranges

✓ **Custom piggy**

3 slots available on Kadro-MPB for custom made design capabilities.

## Hardware Specifications

Maximum ratings		
Category	Condition	Value
Max. Operating Voltage	Any pin	+60V
Min. Operating Voltage	Any pin	-60V
Max. continuously current	Any pin	10A

Technical Data		
Category	Condition	Value
No of channels		12
No of banks		3
Power supply		24VDC, +/-5%
Max peak current		50A/1ms
Channel to channel isolation (50Ω/1MHz)		60dB
KADRO-AMP-4 Current drive	Any pin	100mA per channel
KADRO-RES-2 Range	Any pin	20 Ohm to 110 kOhm accuracy 1% at lower ranges

Physical Characteristics		
Category	Condition	Value
Module Dimensions	Excluding front handle	144.32mm x 30.48mm x 295 mm (H x W x D)
Front Panel Connector		1 x female Weidmuller 32 high density (left 16 pins for DUT and right 16 pins for external loads)

Environmental		
Category	Condition	Value
Operating Humidity	Relative, non-condensing	10 – 90%
Storage Humidity	Relative, non-condensing	5 – 95%
Operating Temperature	Forced-air cooling from SLSC chassis	0°C-40°C
Storage Temperature		-40°C-85°C

## CE Compliance

The KADRO-MPB-12 board meets the requirements of the European Directives for electrical equipment for measurement, control, and laboratory:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

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