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instruments

analog::blocks

Universal Prototype Boards

User Manual

Rev. 1.0

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1) General Description

The analog::blocks Universal Prototype Boards provide a flexible platform for building custom circuits without designing a dedicated PCB.

The boards provide direct access to the analog::blocks power rails, analog signal paths and digital interfaces. Prototype areas with 100 mil or 50 mil grid spacing can be used for application-specific circuitry.

Once populated, the board can be used like any other analog::blocks module and can be combined with Prototype Boards and Function Modules on the Base Board.

2) Common Board Layout

All Universal Prototype Boards use the same basic interface layout.

The GND pins of the module interface are connected to each other on the PCB. All other pins are not connected. Independent of the size of the board, the pinout is the same.

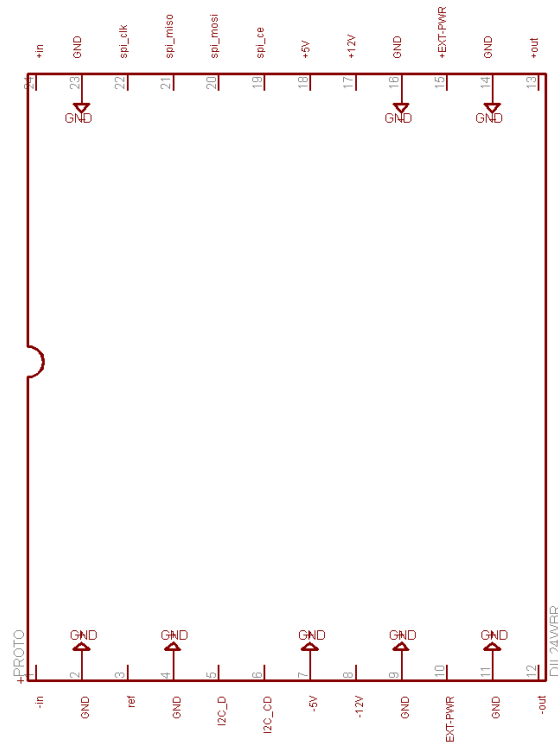


Figure 1: Common interface layout of the analog::blocks Universal Prototype Boards

The prototype pads are plated through, allowing components and connections to be routed easily between both sides of the PCB.

The plated-through prototype pads can also be used as vias, making it possible to change between the top and bottom side of the board without additional wire connections through the PCB.

The Transmission Line Board is an exception. It provides two 50 Ω transmission lines connecting the corresponding IN and OUT analog signal connections.

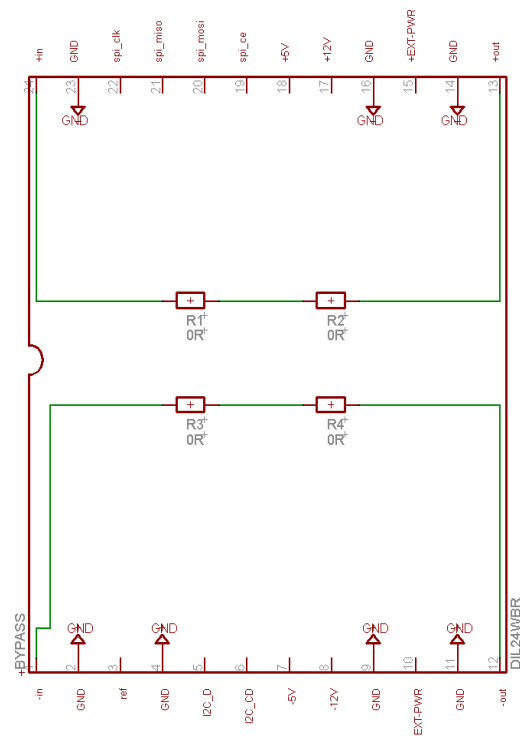


Figure 2: Interface layout of the analog::blocks Transmission Line Board

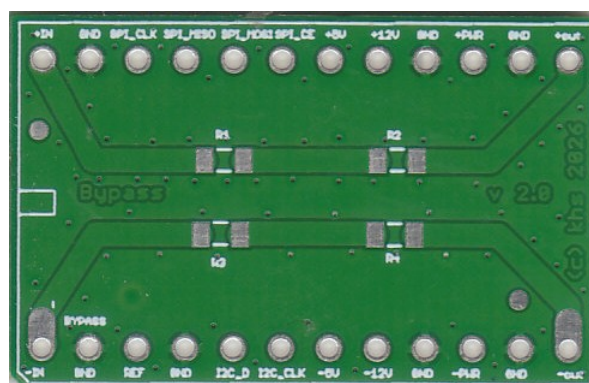


Figure 3: analog::blocks Transmission Line Board

3) Board Versions

Order Number	Grid	Size	Special Feature
ABL-PU-11-100	100 mil	Standard	Universal
ABL-PU-11-050	50 mil	Standard	Universal
ABL-PU-11-050-T08	50 mil	Standard	TSSOP-8 footprint
ABL-PU-11-050-T10	50 mil	Standard	TSSOP-10 footprint
ABL-PU-12-100	100 mil	Double height	Universal
ABL-PU-12-050	50 mil	Double height	Universal
ABL-PU-11-TRL	--	Standard	Dual 50 Ω transmission line

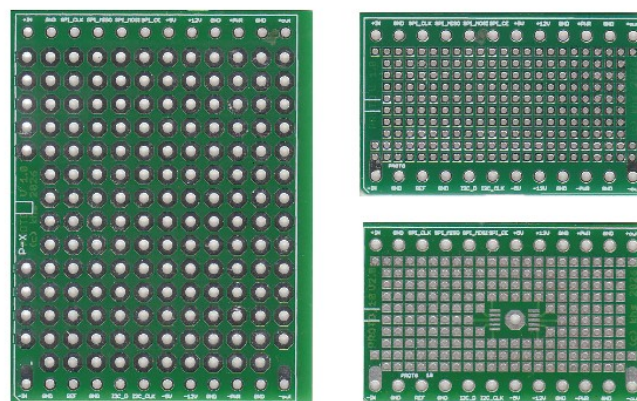


Figure 4: Selection of analog::blocks Universal Prototype Boards

4) Prototype Area

100 mil Prototype Boards are intended for conventional through-hole components and general-purpose prototyping.

50 mil Prototype Boards provide increased component density while retaining the standard 100 mil analog::blocks module pin spacing. They are particularly suitable for compact SMD circuits and adapter circuits.

Versions with dedicated TSSOP-8 and TSSOP-10 footprints simplify the use of fine-pitch integrated circuits.

5) Module Interface and Pin Assignment

The module interface consists of 24 contacts. The four corner contacts are the principal analog signal connections. The signal names IN and OUT describe their usual purpose; an individual module may use these analog contacts in the opposite direction.

All GND pins are connected together, so the ground connection can be made to the nearest GND pin.

Pinout

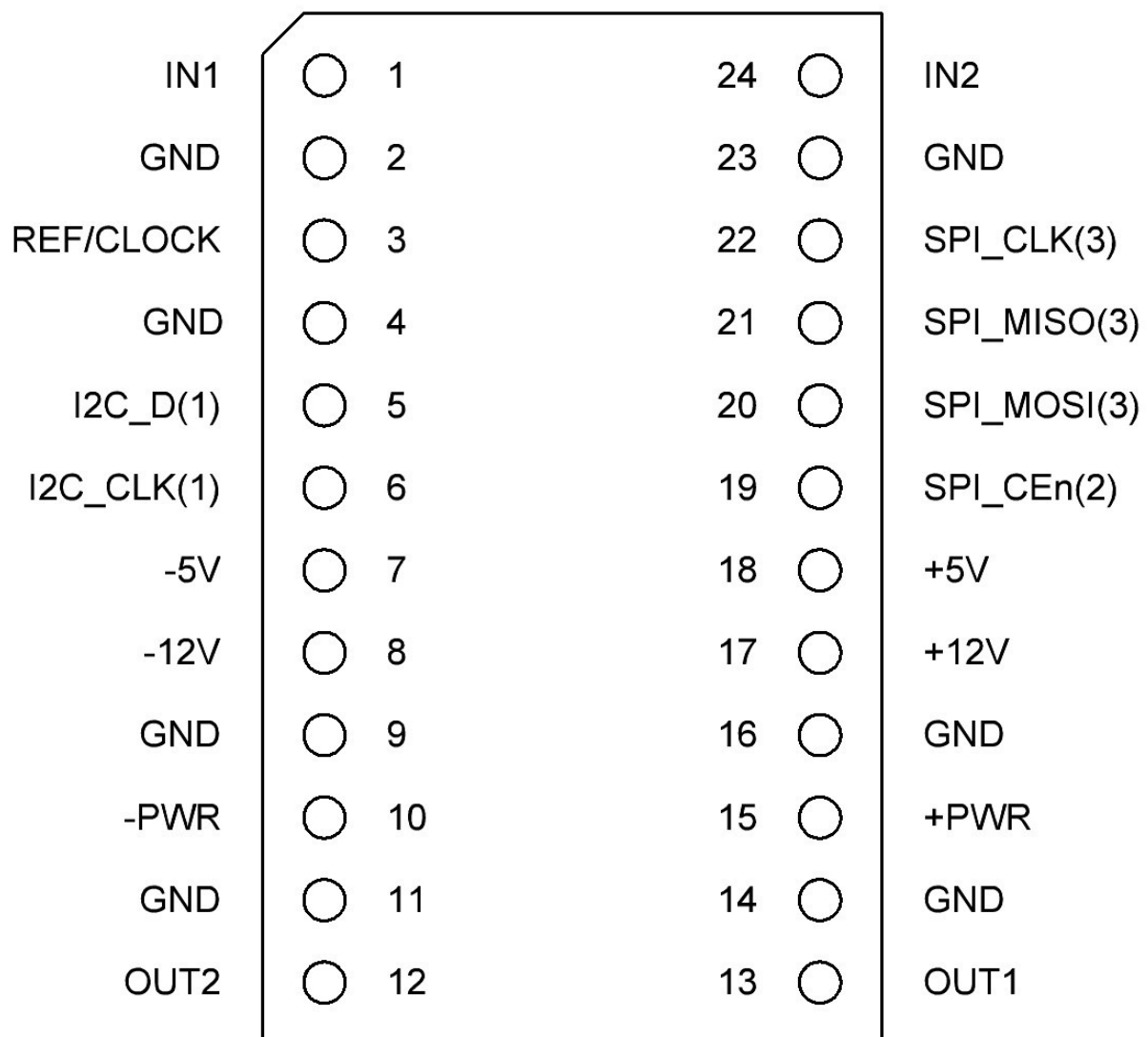


Figure 5: 24-pin analog::blocks module interface, top view.

6) Power and Digital Connections

The module interface provides $\pm 5\text{ V}$ and $\pm 12\text{ V}$ supply rails as well as the auxiliary +PWR and -PWR connections. The supply rails to be connected are determined by the requirements of the circuit implemented on the Prototype Board.

SPI and I²C connections are available for mixed-signal and digitally controlled circuits. Digital interface levels are 3.3 V. Unused digital interface pins should be left unconnected.

7) Layout Recommendations

- Keep sensitive analog signal paths short.
- Use the available ground connections adjacent to the analog signal contacts whenever possible.
- For high-frequency applications, minimize discontinuities and unnecessary wiring.
- Place supply decoupling capacitors close to active devices.
- Separate fast digital signals from high-impedance analog nodes where possible.

History:

Revision	date yy/mm/dd	Changes
1.0	26/09/21	Initial.