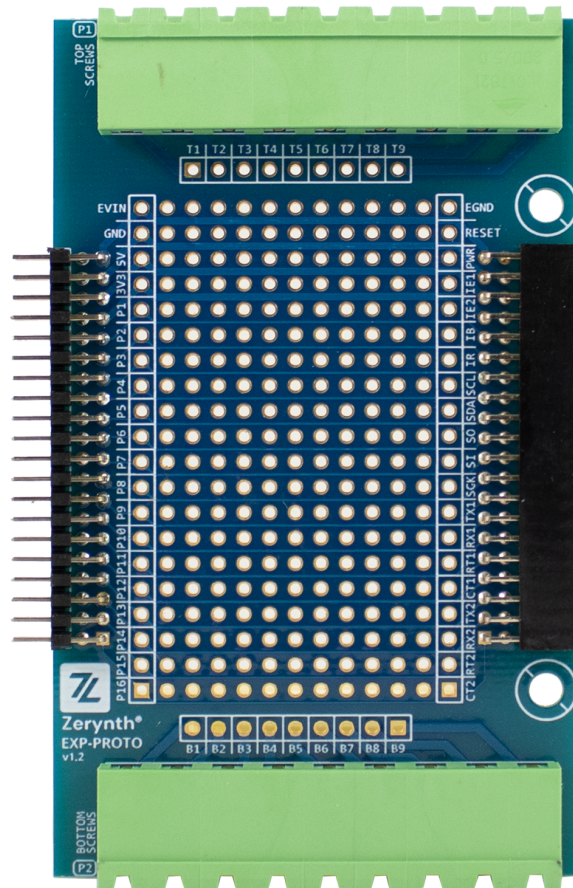


EXP-PROTO User Manual



For more details, visit: www.zerynth.com

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Contents of the present documentation refers to products and technologies described within. All technical data contained in this document may be modified without prior notice. The content of this documentation is subject to periodic revision.

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Overview

The **EXP-PROTO expansion board** is a prototyping board that enables connecting and interfacing external sensors, actuators or devices.

The EXP-PROTO gives flexibility to the user to prototype any sensor, display, MCU or IC in their project. The developer is free to connect any device to the board and interface it using the zBUS.

Zerynth expansion boards work seamlessly with all of the Zerynth Development boards. Combined, they can act as a Development Board for prototyping a Product, and a core for industrial applications.

Zerynth provides hardware development services and Certification services for users who are interested in releasing their product into the market. For inquiries, Please contact us on: www.zerynth.com/contact

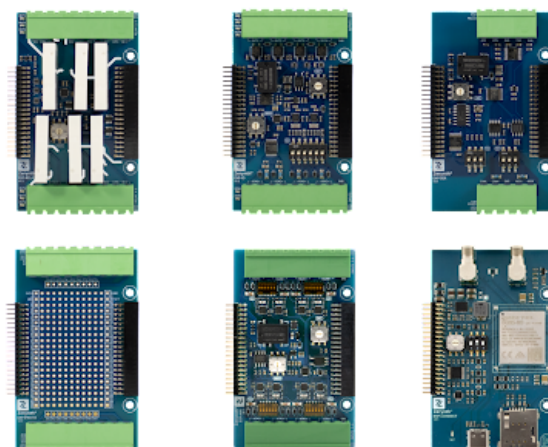
Modular Expansion System

Zerynth Development boards offer a game-changing way of connecting and adding functionalities to your application in a simple and easy way.

The development board offers a modular expansion system that adds expansion boards through the connectors on the board (zBUS).

Expansion boards vary in features and functionality. Currently, Zerynth offers :

- **EXP-AIN:** Expansion board with 8 Industrial analog input channels
- **EXP-CONNECT:** GSM-NB-IoT and GPS enabled expansion module.
- **EXP-IO:** Industrial input/output board with 4 solid-state relays, 2 analog channels (4-20mA/0-10V/NTC/current clamp) channels, 2 opto-isolated digital inputs
- **EXP-RELAY:** Expansion board with 6 Electromechanical power relays.
- **EXP-SER:** Serial Communication board with : CAN, RS232 and RS485 interfaces.
- **EXP-PROTO:** Prototyping board for connecting and testing different types of sensors and devices.



Screw Description

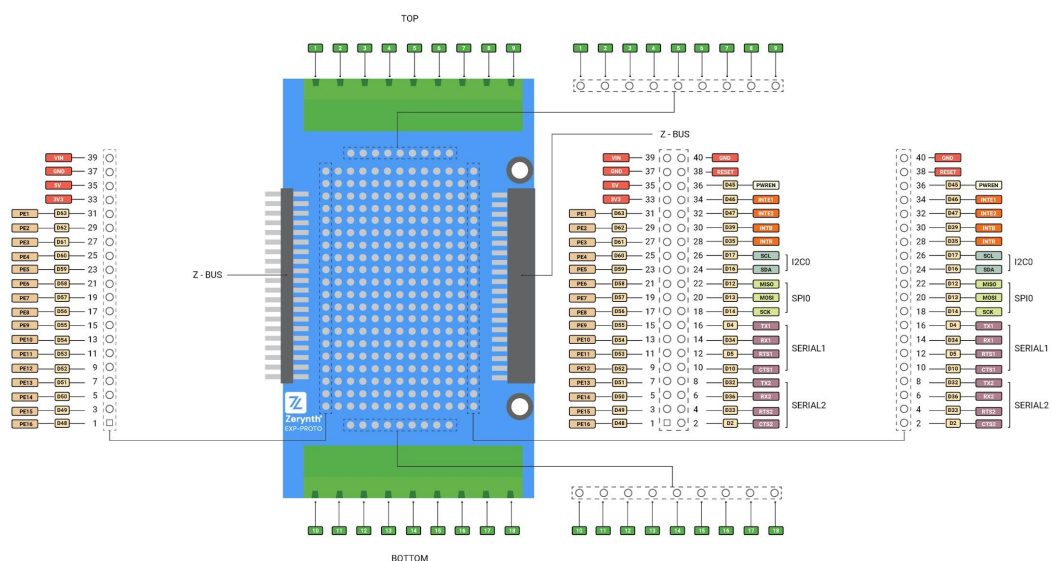
- **P1 Top screws:** Each pin in P1 is connected directly to header H1, Enabling easy access and control of signals to H1.
- **P2 Bottom Screw:** Each pin in P2 is connected directly to header H2, Enabling easy access and control of signals to H2.

Technical Specifications

| Environmental Conditions | |
|--------------------------|------------------------|
| Temperature | -40 to +85 °C |
| Humidity | Max 80% not condensing |
| Storage Temperature | -40 to +85 °C |
| Degree Protection | < IP40 |

Pin Map

EXP-PROTO



zBUS Pin Description

| PIN-Name | Description |
|---------------|---|
| EVIN | External power supply voltage (9-36V) |
| RESET | Reset pin, Active low. |
| PWREN | enable/disable the power in the zBUS |
| 5V | Regulated 5V power supply |
| INTE1 | Configurable interrupt for DB-ZM1 on-board port expander. |
| 3V3 | Regulated 3.3V power supply. |
| INTE2 | Configurable interrupt for DB-ZM1 on-board port expander. |
| PE1-16 | Digital I/O pins connected to ZM1 on-board Port Expander |
| INTB | Not Connected for DB-ZM1 |
| INTR | Native Interrupt: user configurable |
| SCL | I2C Serial Clock |
| SDA | I2C Serial Data |
| MISO | SPI Master Input Slave Output |
| MOSI | SPI Master Output Slave Input |
| SCK | SPI Serial Clock |
| TX1 | UART/USART 1 Transmit Data |
| RX1 | UART/USART 1 Receive Data |
| RTS1 | UART/USART 1 Request To Send |
| CTS1 | UART/USART 1 Clear To Send |
| TX2 | UART/USART 2 Transmit Data |
| RX2 | UART/USART 2 Receive Data |
| RTS2 | UART/USART 2 Request To Send |
| CTS2 | UART/USART 2 Clear To Send |



Note: Zerynth CANNOT be held responsible for any mis-use resulting from the connection of components with the EXP-PROTO. Zerynth maintains responsibility only for hardware components designed and certified by Zerynth. For inquiries, Please contact us on: www.zerynth.com/contact

Zerynth SDK

Zerynth SDK is the official development framework for Zerynth hardware, It includes a compiler, device drivers and libraries drivers, In addition to simple tutorials, example codes, and application examples.

Zerynth SDK and all the required libraries can be installed on Windows, Linux and Mac using the Zerynth Installer (<https://www.zerynth.com/zsdk>).

Declaration of Conformity

IMPORTANT: KEEP THESE INFORMATION FOR FUTURE REFERENCE FOR FULL SET UP AND INSTALLATION INSTRUCTIONS PLEASE VISIT docs.zerynth.com

Warnings

- All external power supplies used with Zerynth boards must comply with the relevant regulations and standards applicable in the country of use and must provide a voltage between 9 and 36 VDC.
- The manufacturer cannot guarantee compliance with the RED directive if the end user uses custom circuits other than those supplied by Zerynth (used in conformity tests).
- All expansion boards that require CE marking have been tested and meet the essential requirements set by the Directives: 2014/30/EU (EMC), 2014/35/EU (LVD), 2011/65/EU (RoHS). The declaration of conformity (DoC) can be downloaded from the website <https://www.zerynth.com/download/20246/>
- All Zerynth boards have undergone compliance testing for conducted and radiated emissions meeting the requirements of the following standards: FCC Part 15 B and IC ICES-003.
- Any device or component connected to one of the expansion connectors must comply with the electrical characteristics defined in the specifications described in the complete manual to ensure that the performance and safety requirements are met.
- Each cable used to connect other devices or components to the Zerynth boards must be less than 300 cm long and must offer adequate insulation and operation so that the appropriate performance and safety requirements are met.

Instructions for safe use

- Do not expose this product to water or moisture and do not place it on a conductive surface while it is operating.
- Do not expose this product to excessive heat sources which could cause it to operate outside the permitted temperature range defined in the specifications (-40, +85 ° C).
- Be careful when handling the product to avoid mechanical or electrical damage to the printed circuit board and connectors.
- If a board looks damaged, do not use it.
- Do not touch the printed circuit board when it is powered and never operate on live electrical parts.
- The printed circuit board must not come into contact with conductive objects when it is powered.
- Discharge static electricity from your body and touch only the edges of the board to minimize the risk of damage from electrostatic discharge.



EN - Waste Electrical and Electronic Equipment (WEEE) Symbol

The use of the WEEE symbol indicates that this product/board may not be treated as household waste. By ensuring this product/board is disposed of correctly, you will help protect the environment. For more detailed information about recycling of this product/board, please contact your local authority, your household waste disposal service provider or the shop where you purchased it.

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[EXP-PR-01-N000](#)