

Microfire LLC Isolated Carrier Board

Release Information

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Release History

Release	Date	Description
2.0.0	3/29/2023	Updated version
1.0.0	5/5/2021	Initial

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Certificate of Compliance

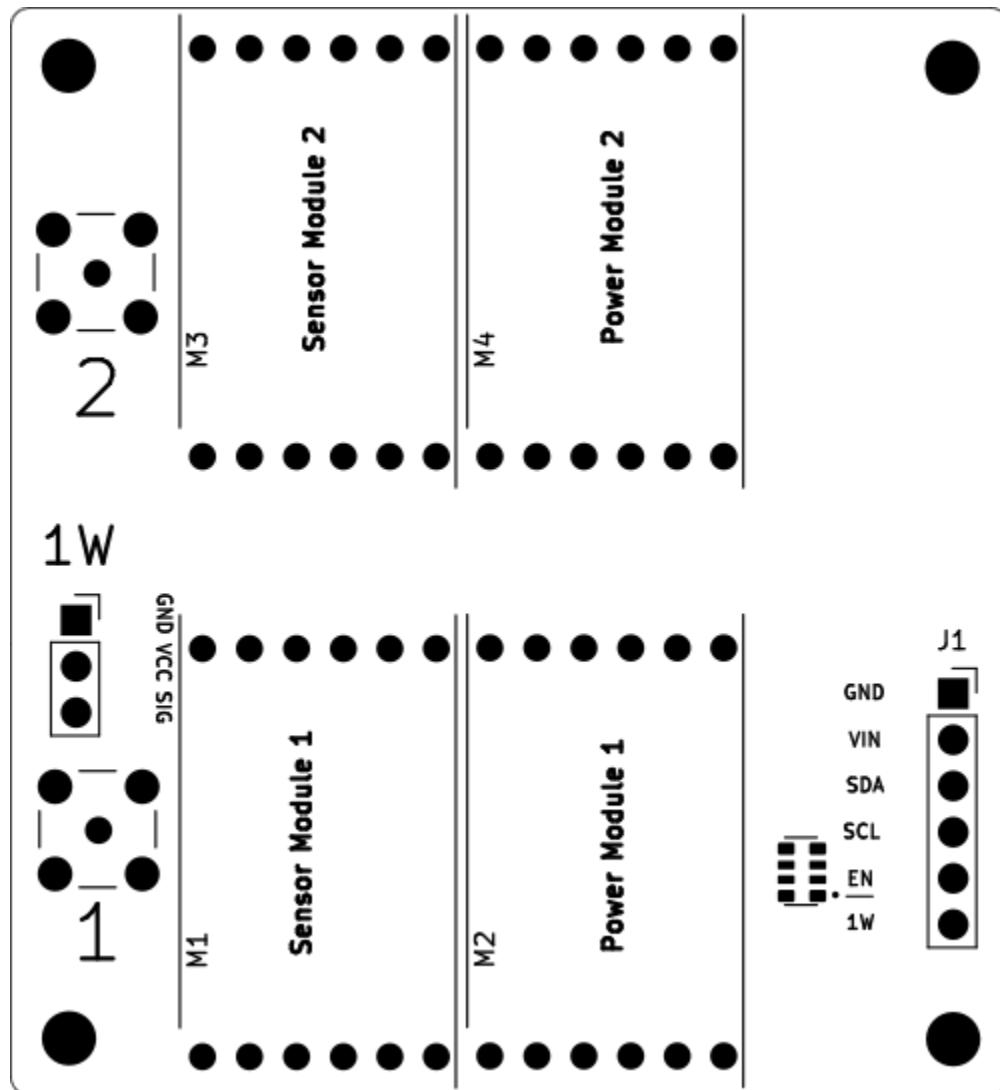
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Description

The Dual Isolated Carrier Board is a development board that incorporates a Microfire Mod-ISO and sensor module together with a pass-through I²C header, an SMA probe connector, and a 1-Wire connector for using a 1-Wire Temperature Sensor.

Features

- Carrier board for isolation and sensing modules
- Easy and permanent connections
- EN pin allows the board to fully shut down, reducing current to nearly 0 mA
- Allows for a fully functional system
- Designed to allow easy incorporation into existing hardware



Connections

Make the following connections.

Controller	Isolated Carrier Board
GND	GND
3.3 to 5 Volts	VIN
SDA	SDA
SCL	SCL
GPIO (optional)	1W 1-Wire interface
GPIO (optional)	<u>EN</u> enable/disable all modules

Modules

There are power module slots and sensor module slots. The modules are inserted into the headers with the same orientation as the text, ie. Power Module 1 and Mod-ISO silkscreen are both oriented in the same direction. The sensor modules are inserted in the same way. If isolation isn't being used, a Mod-Passthrough module can be used.

I²C

The I²C SDA and SCL lines are pulled HIGH by a 4k7 resistor. The bus operates up to 400KHz.

Probe

There is one SMA connector per isolation/module slot.

1. Attach the SMA to BNC cable to the connector.
2. Attach the probe

1-Wire Waterproof Temperature Sensor

The SIG line is pulled HIGH through a 4k7 resistor.

1-Wire DS18B20	Isolated Carrier Board
BLK	GND
RED	VCC
YELLOW	1W

EN Pin

The Mod-ISO modules have an enable pin that controls the power and I²C bus. When it is driven LOW, the modules and bus are enabled, when HIGH, the modules turn off for power-saving. The carrier board connects each Mod-ISO EN pin together and pulls them LOW through a 4k7 resistor, so you don't have to use the pin if you want them modules enabled all the time. To take control of the pin, connect it to a GPIO on your controlling device and drive it HIGH to disable the modules and LOW to enable them.

Software

The board is just a carrier board for the sensor modules and doesn't have any software requirements of its own. To use the mounted module or modules, install the appropriate libraries.

Arduino

All the required libraries can be installed through the Arduino IDE or PlatformIO library manager. Search for `Microfire` and all the available libraries will be in the results list. Examples are included.

Raspberry Pi

Links to the Python libraries for Raspberry Pi can be found on the sensor's [individual pages](#).

I²C Bus

The I²C system in Raspberry Pi OS is slightly different from an MCU. In an MCU, the I²C system is accessed by connecting the appropriate lines, SDA and SCL. In Raspberry Pi OS, there are also SCL and SDA pins that need to be properly connected, but the pins aren't how the I²C system is referenced in software.

Each set of SDA and SCL pins is given a bus number and treated as a file; they are listed in `/dev/i2c-#` where # is the bus number. By default, Raspberry Pi OS has the I²C system turned off. [Follow their directions](#) to enable the I²C system.

All the examples assume `i2c-1`. The pins for `i2c-1` **SDA** are **GPIO2** and **SCL** is **GPIO3**. [A pinout diagram can be found here](#).



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Certificate of Compliance

RoHS 3 Directive 2015/863/EU

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Modules

Mod-EC
Mod-pH
Mod-ORP
Mod-ISO_I2C_UART

Development Boards

Dual Isolated Carrier Board
Mod-EVAL
Mod-EVAL_ISO

Probes

Industrial pH Probe
Industrial EC Probe
Industrial ORP Probe
Lab pH Probe
Lab EC Probe
Lab ORP Probe

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