AtlasScientific™

Environmental Robotics

V 1.5

Electrically Isolated

EZO™ Carrier Board Gen 2

Data input	**UART or I²C**
Voltage input	**3.0V – 5.0V**
Probe connector	**Female SMA**
Current consumption	5V **28 mA** 3.3V **22 mA**
Power saving mode *(OFF pin)*	**2.6mA**

VCC OFF GND TX RX

AtlasScientific **Isolated Carrier Board**

RoHS

Written by Jordan Press
Designed by Noah Press
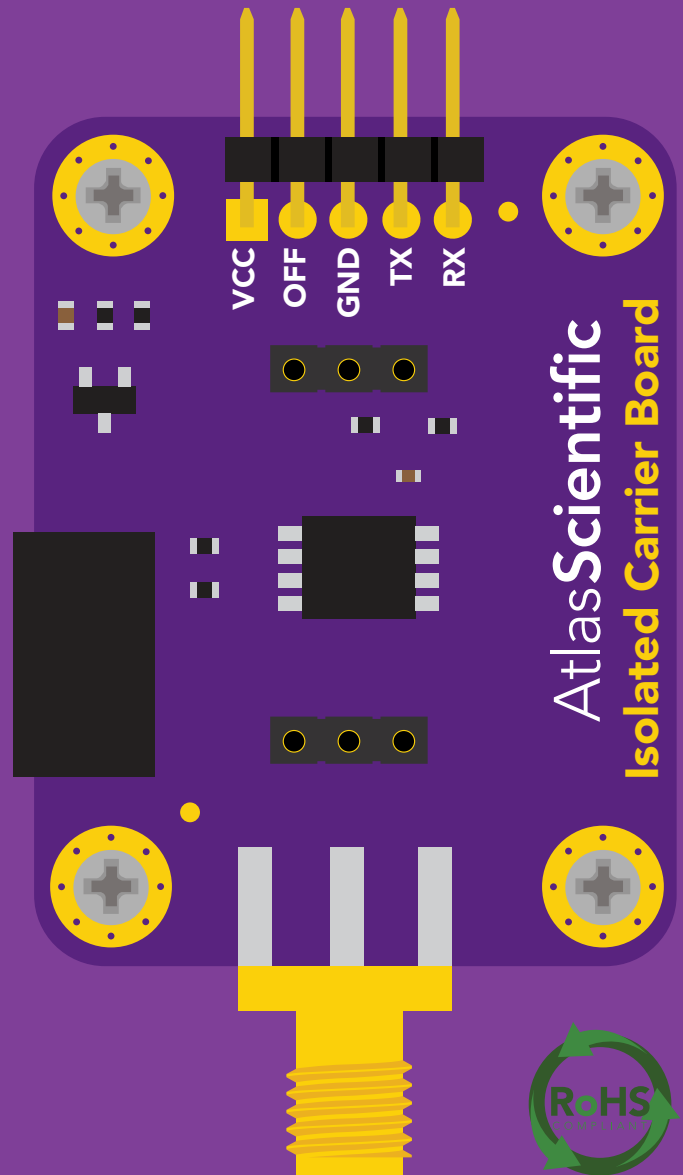
Carrier board dimensions

32mm (1.2")

24mm (0.9")

56.2mm (2.2")

42mm (1.6")

34mm (1.3")

VCC OFF GND TX RX

*Atlas*Scientific **Isolated Carrier Board**

Female SMA

9.6mm (0.3")

7mm (0.2")

22.3mm (0.8")

11mm (0.4")

6.2mm Ø (1/4") 36UNS-2B
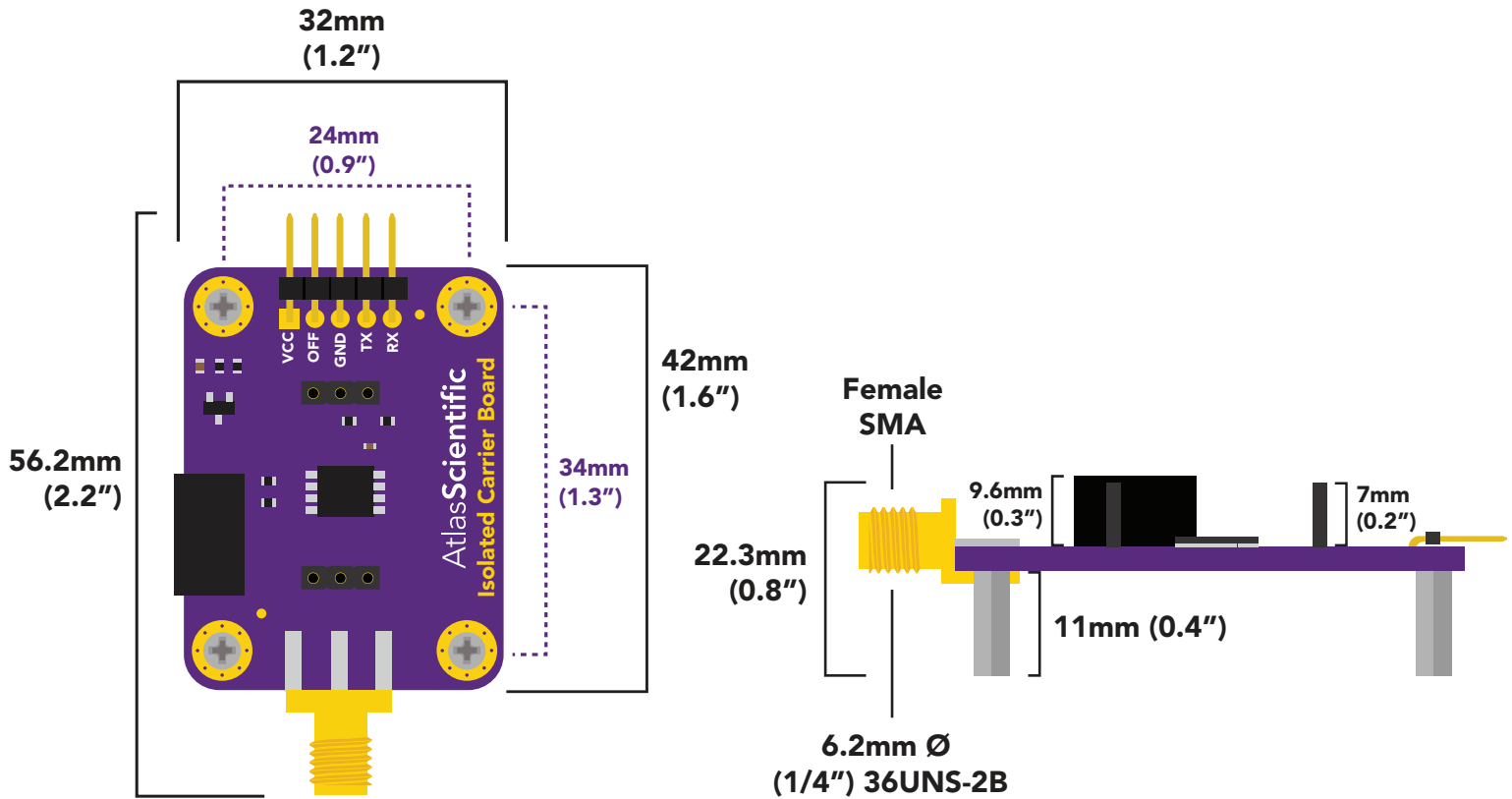
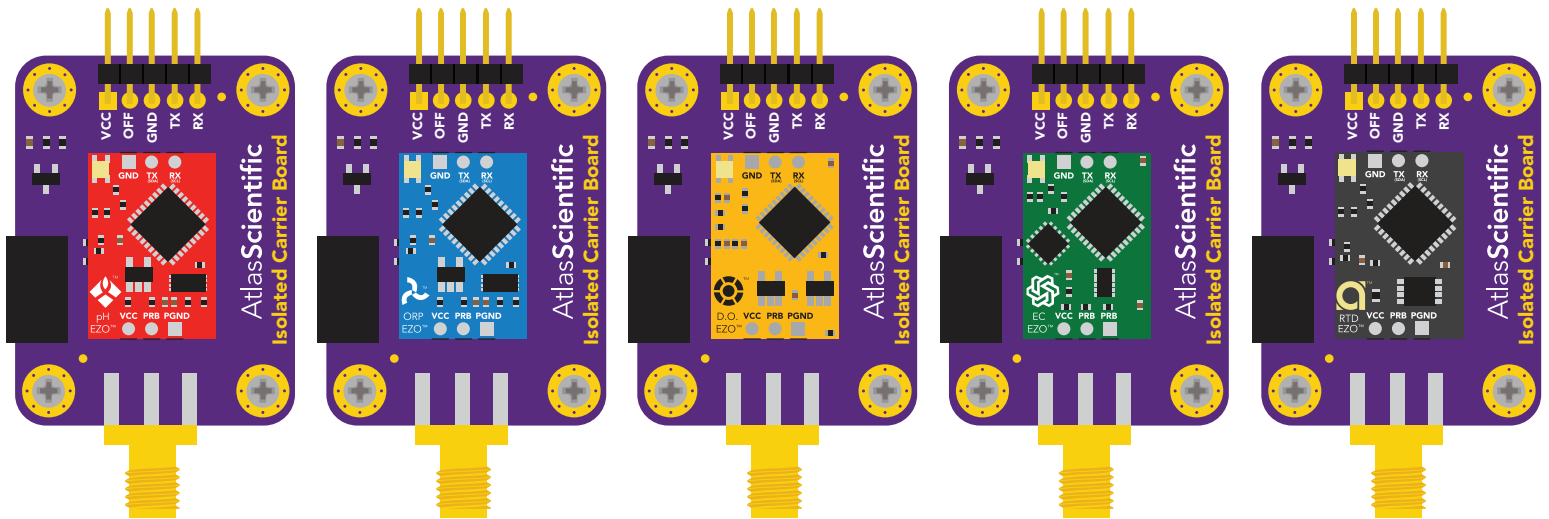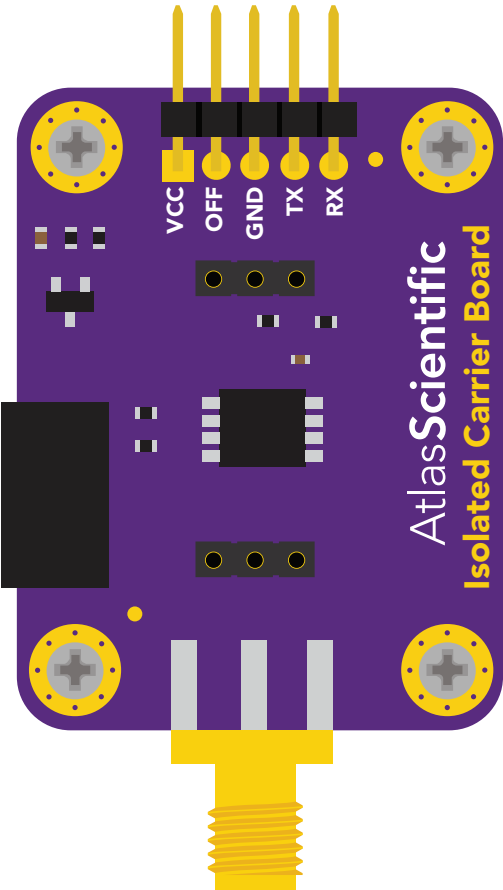**The Electrically Isolated EZO™ Carrier Board works with almost all EZO™ circuits, except the EZO™ Embedded Flow Meter Totalizer.**

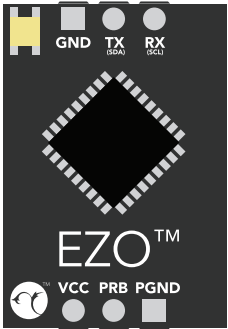pH EZO™ — GND TX RX — VCC PRB PGND — *Atlas*Scientific **Isolated Carrier Board**

ORP EZO™ — GND TX RX — VCC PRB PGND — *Atlas*Scientific **Isolated Carrier Board**

D.O. EZO™ — GND TX RX — VCC PRB PGND — *Atlas*Scientific **Isolated Carrier Board**

EC EZO™ — GND TX RX — VCC PRB PRB — *Atlas*Scientific **Isolated Carrier Board**

RTD EZO™ — GND TX RX — VCC PRB PGND — *Atlas*Scientific **Isolated Carrier Board**

The Electrically Isolated EZO™ Carrier Board does not come with EZO™ class devices.

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Current consumption

VCC OFF GND TX RX

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Isolated Carrier Board

i = 28mA

+

GND TX (SDA) RX (SCL)

EZO™

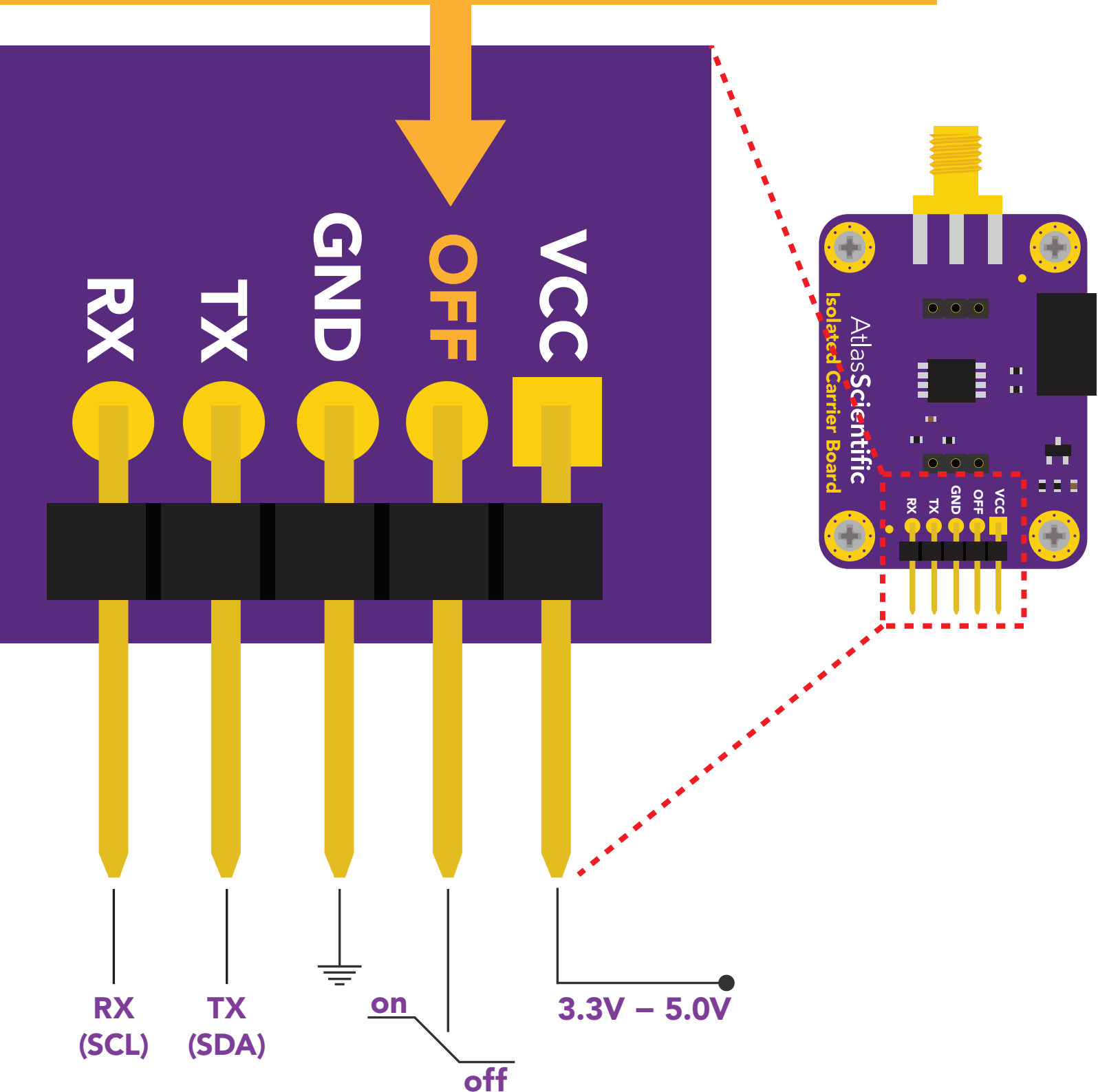VCC PRB PGND

i = XmA

= 28 + XmA

The current consumption for the Electrically Isolated EZO™ Carrier Board is linear. The table below shows how much current will be consumed when an EZO™ circuit is connected to the Electrically Isolated EZO™ Carrier Board.

		5V	3.3V
	No Load	28mA	22mA
	EZO™ pH	44mA	35mA
	EZO™ ORP	44mA	35mA
Electrically Isolated EZO™ Carrier Board	EZO™ Dissolved oxygen	44mA	35mA
	EZO™ Conductivity (no probe)	55mA	43mA
	EZO™ RTD Temperature	44mA	35mA

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Pin out

RX
TX
GND
OFF
VCC

RX
(SCL)

TX
(SDA)

on

off

3.3V – 5.0V

Atlas**Scientific**
Isolated Carrier Board

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Data isolation

This schematic shows exactly how we isolate power and data using the RFM-0505s, SI8600, and a few passive components. The RFM-0505s Isolates the power up to 200mA, 5 volts input = 5 volts output, 3 Volts input = 3 volts output, The SI8600 has two bidirectional data channels, making it ideal for UART and I2C communication. Each channel has a 10kΩ pull up resistor on both the isolated and non-isolated lines.

Isolated ground is different from non-isolated ground, these two lines should not be connected together.

VCC = 3.0v − 5.5v

Non-isolated

Isolated

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