

### PRODUCT SAFETY

When using electrical equipment, basic safety precautions should always be followed, including the following:



**READ THESE INSTRUCTIONS BEFORE USING THIS PRODUCT.**



The Wireless Input/Output Module (SWN-WIO) hardware must be installed in accordance with the applicable installation code by a person familiar with the construction and operation of the product and the hazards involved.



To avoid risk of electrical shock, disconnect power before installing, wiring, or servicing SWN-WIO hardware.



Mis-wiring or misconfiguration could cause permanent damage to the SWN-WIO, the equipment to which it is connected, or both.



Ensure all wires are appropriately stripped and secured in their correct wiring joints.



Do not apply paint, lubricants, or other coatings to the SWN-WIO housing.

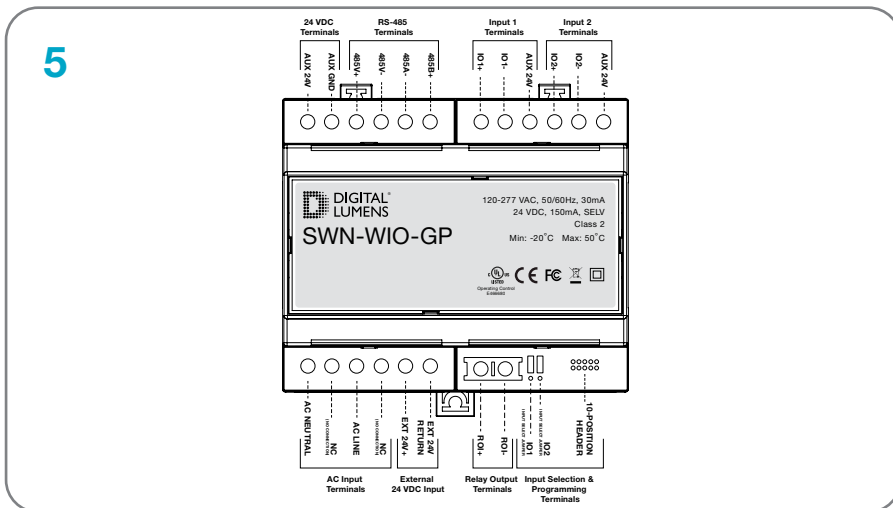
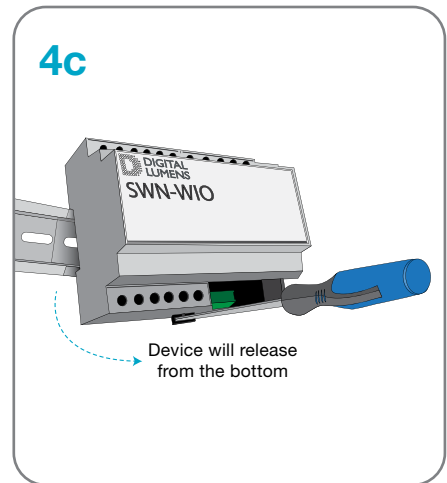
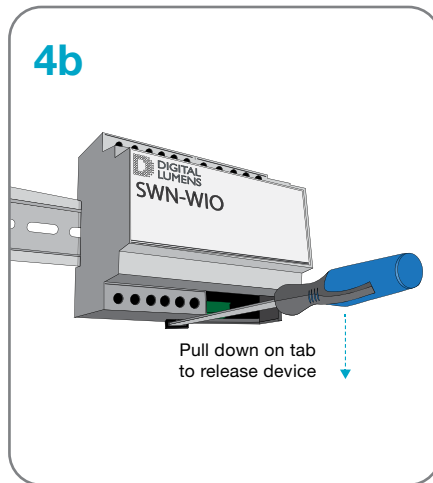
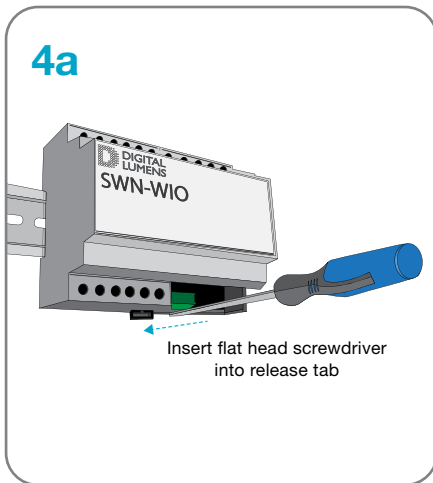
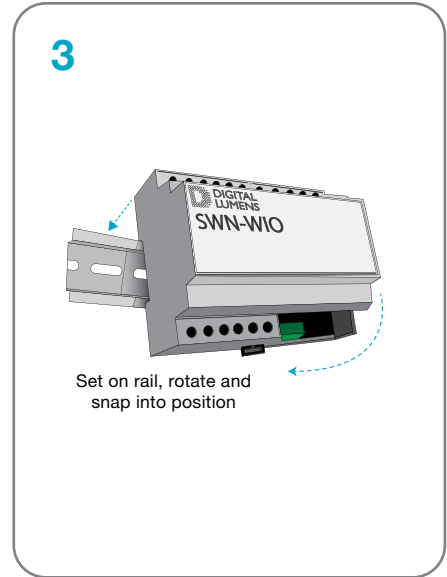
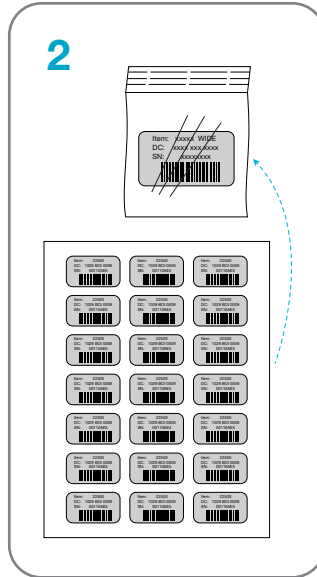
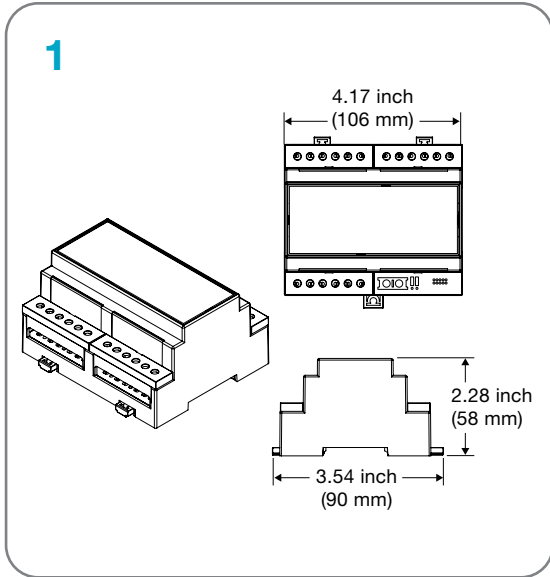


**SAVE THESE INSTRUCTIONS.**

---

# SWN-WIO

## INSTALLATION INSTRUCTIONS



### GETTING STARTED

#### Helpful Hints

The SWN-WIO is a flexible I/O system that brings third-party industrial sensor and device integration to the SiteWorx platform.

There SWN-WIO supports four interface options:

- Analog 4-20mA or 0-10 VDC
- Isolated RS-485 serial port (WattNode MODBUS®)
- Switched relay up to 60V, 0.5 A

Each SWN-WIO can simultaneously support (2x) Analog devices, (2x) RS485 MODBUS Devices, and (1x) Relay output.

Possible applications for the SWN-WIO include but are not limited to the following:

---

#### Example Applications

---

Gas Monitoring

---

Gas Flow Pressure

---

Liquid Flow/Pressure

---

Process Temperature

---

Legacy Lighting Control

---

Power Metering

---

#### Install SWN-WIO Hardware

- 1 Review the SWN-WIO dimension drawings (**Illustration 1**).
- 2 Attach the SWN-WIO to the DIN-Rail by hooking the two top clips on the back of the enclosure to the DIN-Rail and then snap the single bottom clip into place (**Illustration 3**).

**Note:** To remove the SWN-WIO from the DIN-Rail, insert a flat head screwdriver into the notch in the release tab and then pry against the enclosure to release the bottom clip (**Illustration 4a, 4b, 4c**).

- 3 Wire power to the SWN-WIO (**Illustration 5**).
  - a. Using 120-277 VAC to the AC LINE and AC NEUTRAL connection points.  
  
or
  - b. Using 24 VDC to the EXT 24V+ and EXT 24V RETURN connection points

#### Example of Wiring Diagrams

The SWN-WIO has standard industrial interfaces used to add external devices to the SiteWorx platform. On the following pages, this installation guide covers several common implementations. Please refer to the Digital Lumens Application Notes for supported sensors.

- 4-20mA
- 0-10 VDC
- 4-20mA loop powered
- RS-485 MODBUS
- Relay Output

### WIRING DIAGRAMS

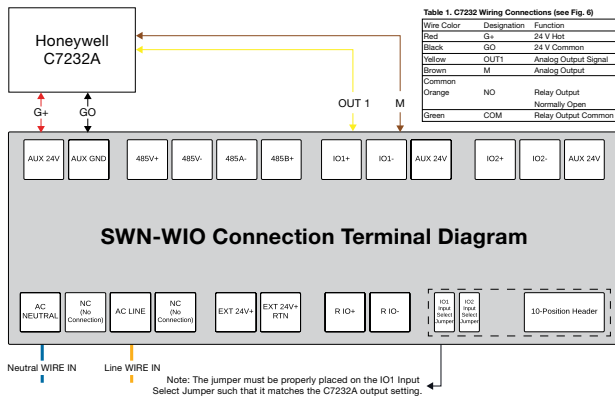
#### 4-20mA or 0-10 VDC

- 1 Review the SWN-WIO terminal guide below.
- 2 Set the IO1 or IO2 jumper (depending on which input is being used) such that it is consistent with 4-20mA or 0-10 VDC.

**Note:** The text on the PCB identifies jumper placement.

#### Make the Data and Power Connections

- 1 Connect the “Analog Output Signal” to IO1+ or IO2+ depending on the input being used.
- 2 Connect the “Analog Output Common” to IO1- or IO2- depending on the input being used.
- 3 Connect the VDC+ wire to the AUX24V terminal
- 4 Connect the VDC- wire to the AUX GND terminal



**Notes:** Each sensor/device is unique. This document provides a general outline of how to wire devices to the SWN-WIO. For additional guidance, please contact Digital Lumens Application Engineering.

There are multiple methods for providing power to an auxiliary sensor, either through the AUX 24V terminal or through the terminal adjacent to the IO inputs. The AUX GND and IO- terminals are connected internally.

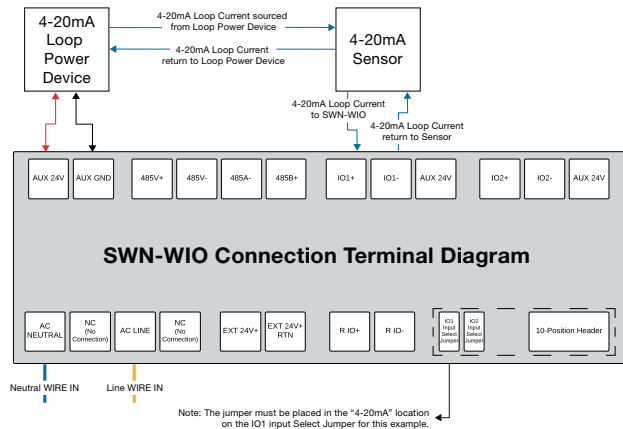
#### 4-20mA Loop Power

- 1 Review the SWN-WIO terminal guide below.
- 2 Set the IO1 or IO2 jumper (depending on which input is being used) such that it is consistent with 4-20mA.

**Note:** The text on the PCB identifies jumper placement.

#### Make the Data and Power Connections

- 1 Connect the “4-20mA Loop Current” to IO1+ or IO2+ depending on the input being used.
- 2 Connect the “4-20mA Loop Current Return” to IO1- or IO2- depending on the input being used.
- 3 Connect the “4-20mA Loop Current Source” to the 4-20mA Sensor.
- 4 Connect the “4-20mA Loop Current Source Return” to the 4-20mA Sensor.
- 5 Connect the VDC+ wire of the “Loop Power Device” to the AUX 24V terminal.
- 6 Connect the VDC- wire of the “Loop Power Device” to the AUX GND terminal.



**Notes:** Each sensor/device is unique. This document provides a general outline of how to wire devices to the SWN-WIO. For additional guidance, please contact Digital Lumens Application Engineering.

There are multiple methods for providing power to an auxiliary sensor, either through the AUX 24V terminal or through the terminal adjacent to the IO inputs. The AUX GND and IO- terminals are connected internally.

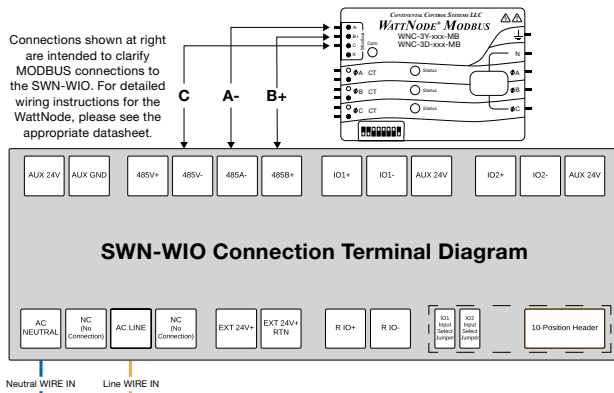
### RS-485 WattNode MODBUS (Power Metering)

- 1 Review the SWN-WIO terminal guide below.
- 2 Connections shown are intended as general guidance for WattNode MODBUS connections to the SWN-WIO. For detailed wiring instructions of the WattNode MODBUS, please refer to the manufacturer datasheet.

### Make the Data and Power Connections

- 1 Connect the A- wire to the 485A- terminal.
- 2 Connect the B+ wire to the 485B+ terminal.
- 3 Connect the C wire to the 485V- terminal.

### Example Connection Diagram using Continental Control Systems WNC-3Y-208-MB (WattNode MODBUS):



**Note:** Each sensor/device is unique. This document provides a general outline of how to wire devices to the SWN-WIO. For additional guidance, please contact Digital Lumens Application Engineering.

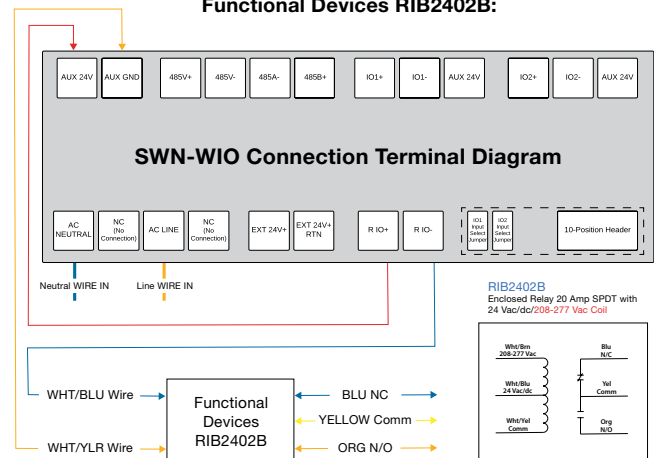
### Relay Output

- 1 Review the SWN-WIO terminal guide below.
- 2 Connections shown are intended to clarify how to use the Relay Output on the SWN-WIO. In this example a Functional Devices RIB2402B 20A relay is used.

### Make the Data and Power Connections

- 1 Connect the AUX 24V terminal to the R IO+ relay input on the SWN-WIO.
- 2 Connect the Relay Common (White/Yellow) to the AUX GND terminal.
- 3 Connect the Relay 24VAC/DC (White/Blue) to the R IO- terminal.

### Example "Pilot Duty" Connection Diagram using Functional Devices RIB2402B:



**Note:** Each sensor/device is unique. This document provides a general outline of how to wire devices to the SWN-WIO. For additional guidance, please contact Digital Lumens Application Engineering.

**Digital Lumens**

374 Congress Street  
Suite 600  
Boston, MA 02210 USA  
Phone +1 617 723 1200  
[www.digitallumens.com](http://www.digitallumens.com)

