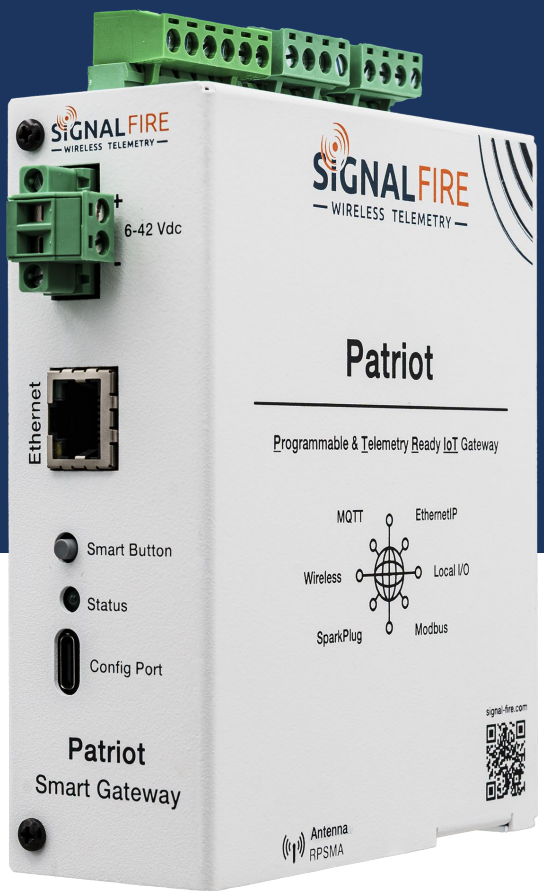
PATRIoT Gateway Safety Manual



Specifications

Physical Specifications	
Dimensions	5.6" (142mm) Tall x 1.6" (41mm) Wide x 5.2" (132mm) Deep
Weight	2 lbs (0.9kg)
Housing Material	Powder Coated Steel
Mechanical installation	DIN Rail Mount
Electrical Specifications	
Input Power	6 to 42 Vdc
Power Consumption @ 6Vdc	200mA Max
Power Consumption @ 12Vdc	No Ethernet: 65mA Average, 75mA Max With Ethernet: 85mA Average, 95mA Max
Power Consumption @ 24Vdc	No Ethernet: 35mA Average, 43mA Max With Ethernet: 45mA Average, 53mA Max
Wire Termination	Screw Terminals, 18AWG–22AWG
Clock	Clock and RSD Control Registers Maintained For 30 Days Without Power
Environmental	
Ambient Operating Temperature	-40 to +185°F (-40°C to 85°C)
Humidity	0% – 95% Non-Condensing
Pollution Degree	Pollution Degree 1
Elevation	Up to 5000m
Ingress	IP2X
Wired Communication Interfaces	
2x RS485/RS232	2 Serial Ports. Individually software Configurable For RS485 or RS232. Server Mode
1x RJ45	10/100 Ethernet Port with TCP/IP, Modbus TCP, Ethernet/IP
1x USB-C	USB-C High Speed Interface For Local Configuration With SignalFire Toolkit
Antenna	
Antenna	RP-SMA Antenna connector
Approvals	
Hazardous Locations	Class 1 Division 2 Certified, Groups C, D, Temperature Code T4 Certified to CSA C22.2 No. 213, Conforms to UL 121201 and 61010
ISM Band	Compliant with FCC Part 15, IC (Industry Canada) Contains FCC ID: W8V-SFTS500, IC: 8373A-SFTS500

Table of Contents

Product Description

The PATRIoT Gateway is a versatile hub that connects wireless and wired devices into SCADA, cloud, and monitoring systems with ease. Supporting Modbus TCP, EtherNet/IP, and MQTT/SparkPlug, it seamlessly integrates data from SignalFire's 900 MHz wireless nodes, Modbus devices, and field I/O modules for a flexible, cost-effective solution. With ultra-low power consumption, large-scale tag support, and secure cloud-ready connectivity, the PATRIoT delivers reliable performance in even the most remote applications. Whether you need to shorten cable runs, enable local automation, or scale to thousands of devices, the PATRIoT Gateway provides a powerful platform to modernize and simplify industrial monitoring.

FEATURES

- Integrates wireless + wired signals into SCADA, cloud, or remote systems
- Publishes to MQTT/SparkPlug with no licensing required
- Supports SignalFire Cloud for turnkey monitoring and control
- Ultra-low power consumption (<50mA) for solar-friendly installations
- Large-scale deployment capabilities with up to 30,000 Modbus tags
- Remote shutdown logic with 128 configurable rules for automation
- Optional expansion modules for analog, relay and digital outputs
- Modbus-RTU Client mode for polling wired Modbus devices and IO Modules

Connections and Components

PATRIoT Gateway Connections

The PATRIoT Gateway has 4 pluggable terminal blocks. They provide power, serial communication and I/O. The connections are as follows:

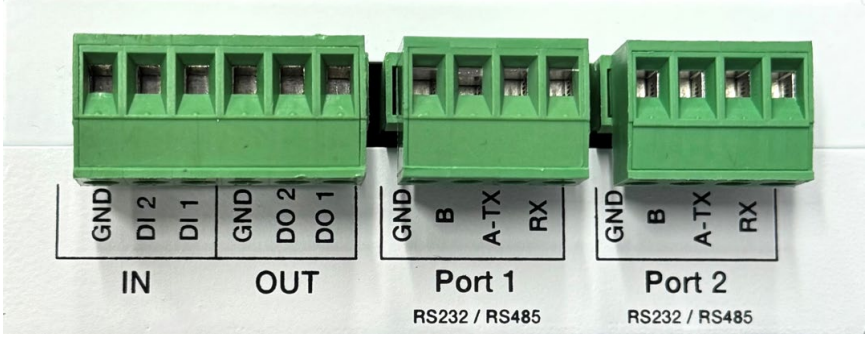
Terminal Name	Connection
6-42VDC +	Positive Power (6 to 42 VDC)
6-42VDC -	Power Ground

The PATRIoT Gateway has local I/O connections on the 6-position pluggable terminal block. The connections are as follows, left to right:

Terminal Name	Connection
GND	Digital Input Ground
DI2	Digital Input 2
DI1	Digital Input 1
GND	Digital Output Ground
DO2	Digital Output 2
DO1	Digital Output 2

Two Serial ports are available on 4-position pluggable terminal block for each port. The connections are as follows, left to right:

Terminal Name	Connection
GND	Ground
B -	RS485 B Terminal
A + / TX	RS485 A Terminal / RS232 TX
RX	RS232 RX



A USB-C port is available for local connection to the SignalFire Toolkit for configuration and diagnostics.

An ethernet port is available for access from a remote terminal for Toolkit configuration and Modbus-TCP commands.

The PATRIoT Gateway has an RP-SMA connection for use with an external 900MHz antenna, purchased from SignalFire or separately. Contact your local SignalFire sales rep for antenna options.

Operation

Status LED

The PATRIoT Gateway has a Status LED that blinks as follows:

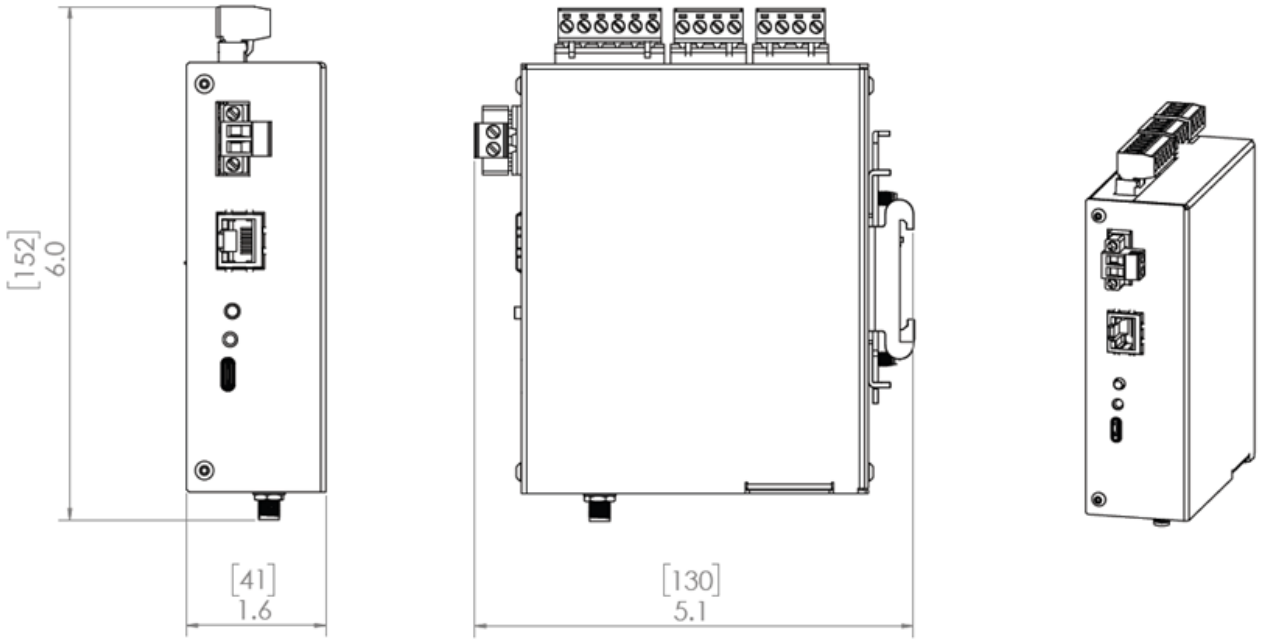
STATUS LED	Description
Slow Flash (3 second pause)	System is running and has one or more nodes on network
Fast Flash (0.5 second pause)	System is running but no nodes found on network
Solid On	System Fault needs service or rescue bootloader

Smart Button

The button on the front of the PATRIoT Gateway supports the following functions.

Reboot – While running, press and hold the button for 10 seconds to reboot the Gateway
Force Bootloader – With power removed from the Gateway, press and hold while applying power. Release button after Gateway powers on. The bootloader allows for firmware update recovery.
Reset to factory defaults - With power removed from the Gateway, press and hold while applying power, continue to hold the button for 30-seconds.

Dimensions



Mounting

Device shall be attached to a horizontal DIN rail using integrated mounting clip.
The DIN rail should be well secured and not subject to vibration
For indoor use, or protected in an appropriate enclosure.

Warnings

WARNING: EXPLOSION HAZARD – Do not remove or connect components unless power has been switched off or the area is known to be non-hazardous.

AVERTISSEMENT: RISQUE D'EXPLOSION – Ne retirez ni ne branchez aucun composant sauf si l'alimentation électrique est coupée ou si la zone est considérée comme non dangereuse.

WARNING: EXPLOSION HAZARD – Substitution of components may impair suitability for Class I, Division 2

AVERTISSEMENT: RISQUE D'EXPLOSION – La substitution de composantes peut rendre ce materiel inacceptable pour les emplacements de classe I, division 2

WARNING: EXPLOSION HAZARD – Do not connect or disconnect while circuit is energized unless area is known to be non-hazardous

AVERTISSEMENT: RISQUE D'EXPLOSION – Ne pas brancher ni débrancher lorsque le circuit est sous tension, sauf si la zone est reconnue comme non dangereuse.

WARNING: The PATRIoT Gateway must be installed in a suitable enclosure for intended environment

AVERTISSEMENT: Le PATRIoT Gateway doit être installé dans une enceinte appropriée pour l'environnement prévu

WARNING: All wiring methods must be in accordance with the NEC

AVERTISSEMENT: Toutes les méthodes de filage doivent être en conformité avec la NEC

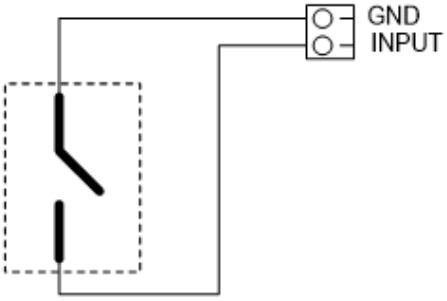
The protection provided by the equipment may be impaired if the equipment is used in a manner not specified.

La protection assurée par l'équipement peut être compromise si celui-ci est utilisé d'une manière non conforme aux spécifications.

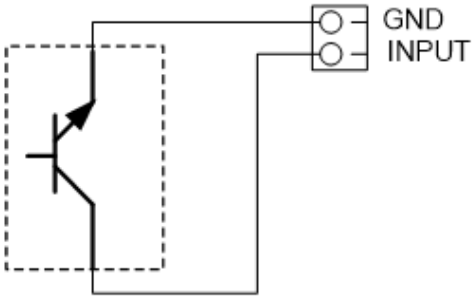
I/O Wiring

Digital Inputs

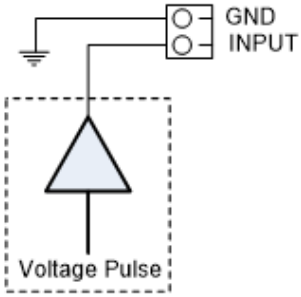
The digital outputs may be connected to the PATRIoT's DIN1 and DIN2 terminals as shown in the following diagrams:



Dry Contact Connection



Open Collector Connection

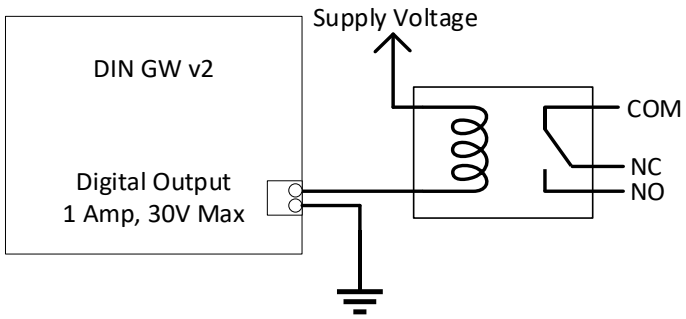


Voltage Pulse Connection

Digital Outputs

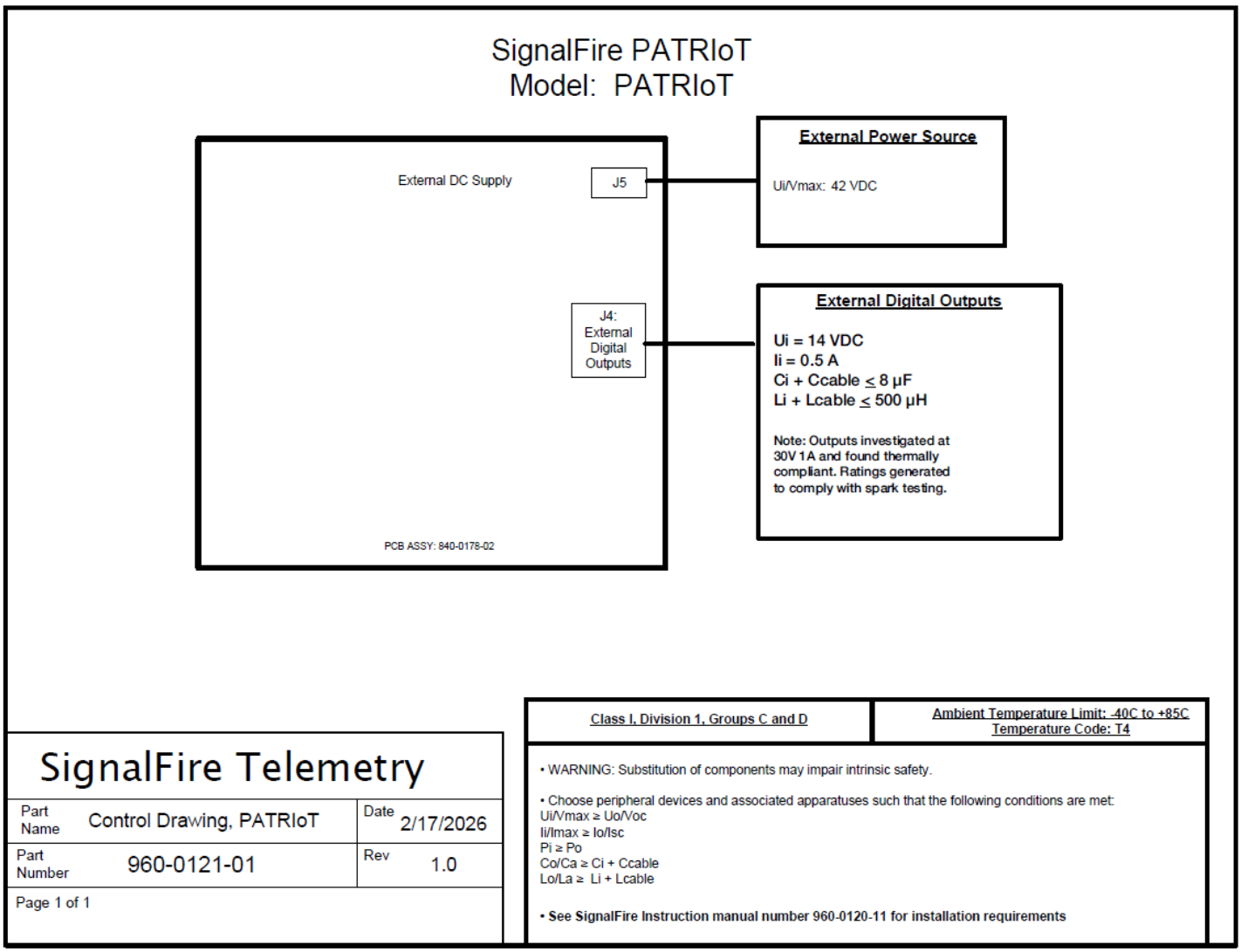
The PATRIoT Gateway has two local open collector outputs. These can be controlled like any other digital output using the RSD logic table or writing to registers on the Gateway (see register table). They can also be toggled manually using the I/O Tab.

The open collector outputs can control a relay when wired as shown below.



Note: The digital outputs on the gateway have built in protection and can drive relays and inductive loads directly.

Control Drawing



Revision	Date	Changes/Updates
1.0	2/17/26	Initial release
1.1	2/18/26	Reformat, remove irrelevant information

Technical Support And Contact Information

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