IOTGTWY ®

IoT Gateway

User Guide

SAUCON™

User Guide for IOT Gateway

Revision History:

Revision	Date	Description
A	08/14/2020	Initial Release
B	12/02/2020	Changes to support diverse antennas. Removed Nordic from diagnostics menu.
C	03/03/2021	Updated “Connecting power” to specify intended power source.

Trademarks

World Headquarters

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Technical Support

Country	By Email	By Phone
U.S and Canada	support@saucontech.com	(484) 241-2515

Internet Address: http://www.saucontds.com

FCC / ISED Declaration of Conformity

This device contains license-exempt transmitters(s) / receiver(s) that comply with Innovation, Science, and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Caution: Unauthorized modifications or changes not expressly approved by Saucon Technologies, Inc. could void compliance with regulatory rules, and thereby your authority to use this equipment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instructions, may cause interference harmful to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer, or an experienced radio / TV technician for help.

FCC / ISED Déclaration de Conformité

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Attention: des modifications non autorisées ou des changements non expressément approuvés par Saucon Technologies, Inc. peuvent annuler la conformité aux règles réglementaires et, par conséquent, votre autorisation d'utiliser cet équipement.

Cet équipement génère, utilise et peut émettre de l'énergie radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions du fabricant, il peut provoquer des interférences nuisibles aux communications radio.

Cependant, il n'y a aucune garantie que des interférences ne se produiront pas dans une installation particulière. Si cet équipement cause des interférences nuisibles à la réception de la radio ou de la télévision, ce qui peut être déterminé en éteignant et en rallumant l'équipement, l'utilisateur est encouragé à essayer de corriger les interférences par une ou plusieurs des mesures suivantes:

- Réorientez ou déplacez l'antenne de réception.
- Augmenter la distance entre l'équipement et le récepteur.
- Connectez l'équipement à une prise sur un circuit différent de celui sur lequel le récepteur est connecté.
- Consultez le revendeur ou un technicien radio / TV expérimenté pour obtenir de l'aide.

Table of Contents:

Chapter 1: Product Description and Specifications

Product Description

The IoT Gateway is a multi-purpose device intended for use on vehicles, which extends vehicle area networks for wireless devices. It allows for communication with outside devices over various protocols. These communication protocols are both wired (RS-485, RS-232, CAN) and wireless (Bluetooth Low Energy). The device also includes 2 gate drivers, which can be configured as high side or low side. Its wired connections are made through an application-specific wire harness. It includes a green LED indicator, which blinks at a rate predetermined in firmware.

Package Contents
IOTGTWY
Power Harness

Parts to be supplied by End User
Mounting Screws
Wire
Fuse Holder
3 Amp Fuse

Chapter 2: Installation

Mechanical Mounting
First, choose a location to mount the IOTGTWY within a certain distance of the vehicle component to be controlled. It should be secure from tampering, dry, and more than 12 inches (30 centimeters) from any occupant of the vehicle. Choose a location, which provides for easy routing of wiring and access to power.

Obtain mounting screws (two are recommended) that are appropriate for the surface on which you will mount the IOTGTWY Box. For example, one might use 6-32 self-tapping screws 5/8” in length to mount the unit in a truck to the wall of the cab behind the passenger seat.

Preventing Electrostatic Discharge Damage:
Electrostatic discharge (ESD) is a discharge of stored static electricity that can damage equipment and impair electrical circuitry. It occurs when electronic components are improperly handled and can result in complete or intermittent failures.

Following are guidelines for preventing ESD damage:

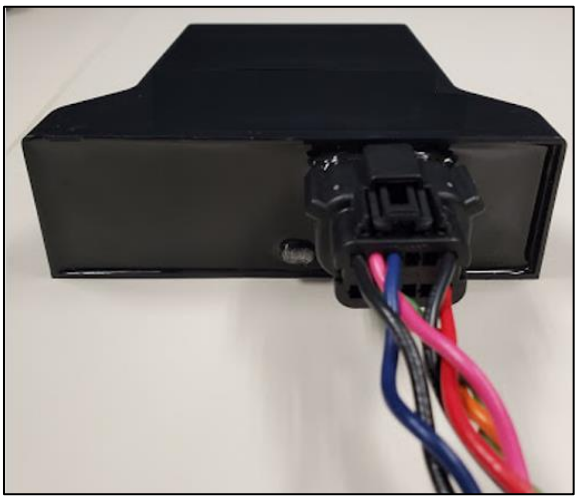
- Always use an ESD-preventive wrist or ankle strap and ensure that it makes good skin contact.
- Connect the equipment end of the strap to an unpainted surface of the chassis frame or another proper grounding point or surface. Attach it to the inside bottom of the chassis or to the rear panel (inside or outside) without making contact with any connectors.
- Avoid contact between equipment and clothing. The wrist or ankle strap only protects the equipment from ESD voltages on the body; ESD voltages on clothing can still cause damage.
- Handle printed circuit board by the edges only; avoid touching the components, traces, or any connector pins.
- Place a removed card component side up on an antistatic surface or in a static shielding bag.
- Do not remove the wrist or ankle strap until the installation is complete.

Connecting power
Saucon strongly recommends using a 3-amp fuse at the power source. Power can be run from the 3-amp fuse to the IOTGTWY box. A good ground is also required and should be run to the box. IOTGTWY has a very low power sleep mode. To obtain maximum reporting Saucon recommends connecting power to a non-switched (always on) power supply. As the device is only intended to be installed in a vehicle, a vehicle battery is the only power source intended to be used.

Chapter 3: Troubleshooting / Configuration

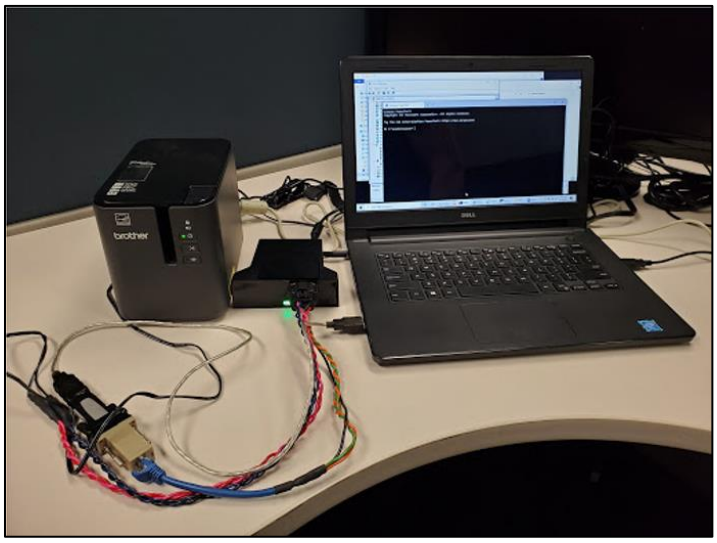
Power Connection

The first step in troubleshooting is to verify power. Make sure that the power is plugged in. Unless specifically enabled, the LED will not illuminate.



Diagnostic Cable

In order to perform advanced diagnostics, Saucon can provide a diagnostics cable. This cable is connected between Serial A on the IOTGTWY device and a serial port on a computer.

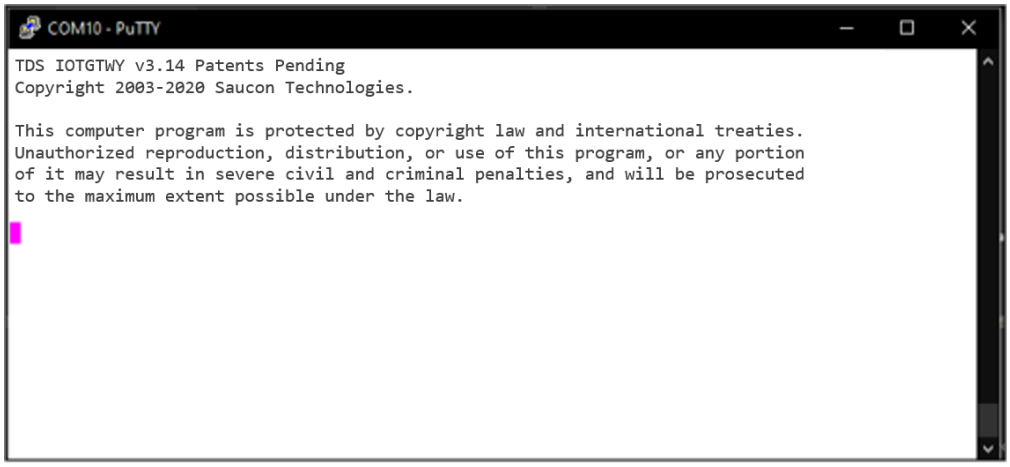


Picture above shows IOTGTWY connected to PC with a diagnostic cable. When connecting to the battery connect the red wire to the red terminal, and the black wire to the black terminal. Plug the USB port into the PC.

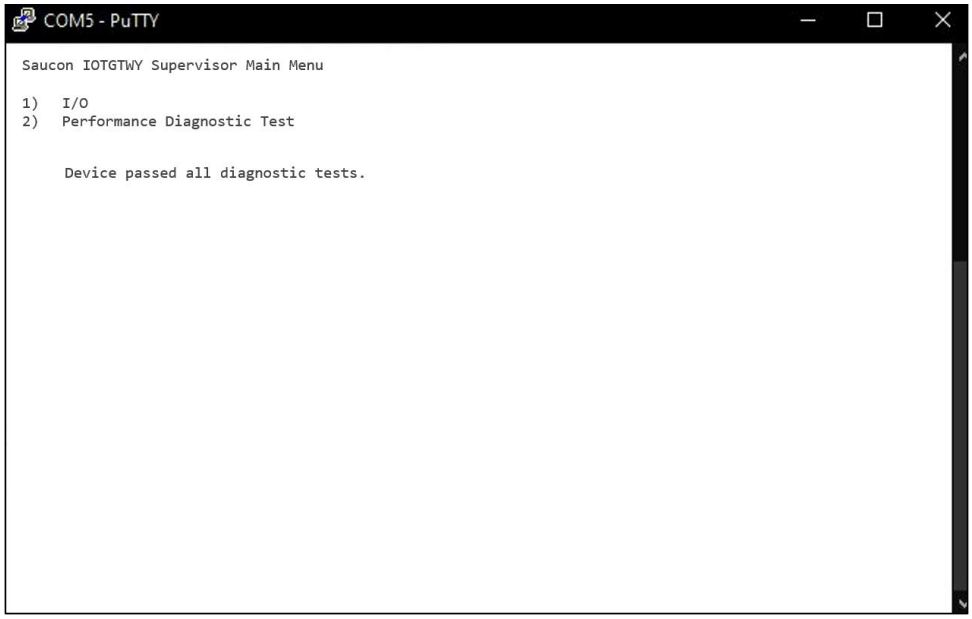
During radio testing, please disconnect the diagnostic cable connector shown above. Remove the PC and USB cable from the lab before performing radio tests.

Open a VT100 emulator (putty, terraterm, etc). Plug the power into the IOTGTWY box. The serial port settings are 115200,N,8,1

The diagnostic cable should be connected before powering the device. When power is applied to the device, you will see the following on the serial console:



Pressing enter will bring up a diagnostic menu.
Press 2 for Diagnostic tests. The system displays diagnostic results.



Chapter 4: Safety

General Safety
Do not operated the Saucon Technologies IOTGTWY in areas near medical equipment, where blasting is in progress, where explosive atmospheres may be present, or near any equipment that may be susceptible to any form of radio interference.

Sécurité Générale
N'utilisez pas le Saucon Technologies IOTGTWY à proximité d'équipements médicaux, où des explosions sont en cours, où des atmosphères explosives peuvent être présentes, ou à proximité de tout équipement susceptible d'être sensible à toute forme d'interférence radio.

Vehicle Safety

- If incorrectly installed in a vehicle, the operation of IOTGTWY could interfere with the correct functioning of vehicle electronics. To avoid such problems, be sure that qualified personnel have performed the installation. Verification of the protection of vehicle electronics should be part of the installation.

Maintenance of IOTGTWY
IOTGTWY is the product of advanced engineering, design, and craftsmanship and should be treated with care. The suggestions below will help you to enjoy this product for many years:

- Do not expose IOTGTWY to any extreme environment where the temperature exceeds the recommended operating conditions.
- Do not attempt to disassemble IOTGTWY. There are no serviceable parts inside. This will void your warranty.
- Do not expose your IOTGTWY to water, rain, or spilled beverages.
- Do not abuse your IOTGTWY device by dropping, knocking, or violently shaking it. Rough handling can damage it.
- The use of accessories not authorized by Saucon Technologies, or not compliant with Saucon's accessory specifications may invalidate your warranty.
- In the unlikely event of a fault in the IOTGTWY device, contact Saucon Tech Support.

Your Responsibility
IOTGTWY is your responsibility. Please treat it with care respecting all local regulations. It is not a toy. Therefore, keep it in a safe place at all times and out of the reach of children.

If a device is stolen, report it to Saucon Technologies support immediately.

Chapter 5: Warranty and Repairs

Saucon Technologies Warranty Statement

Saucon Technologies, Inc., (hereafter “Saucon”) warrants that its products will be free from defects in material or workmanship for a period of two years from date of purchase, or if proof of purchase is not provided, 90 days from date of manufacture.

SAUCON MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

This warranty does not apply to any products which have been damaged by lightning storms, water, power surges, temperature extremes outside the limits or products which have been neglected, altered, abused, used for a purpose other than the one for which they were manufactured, repaired by Customer or any party without Saucon’s written authorization, or used in any manner inconsistent with Saucon’s instructions.

Saucon’s entire obligation under this warranty shall be limited (at Saucon’s option) to repair or replacement of any products which prove to be defective within the warranty period or, at Saucon’s option, issuance of a refund of the purchase price. Defective products must be returned by Customer to Saucon’s service center – transportation prepaid.

SAUCON WILL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES, AND UNDER NO CIRCUMSTANCES WILL ITS LIABILITY EXCEED THE PRICE FOR DEFECTIVE PRODUCTS.

Repair Procedures for U.S. and Canadian Customers

In the event that service is required, products may be shipped, freight prepaid, to our Bethlehem, PA (USA) Service Center:

Saucon Technologies
Production Support
2455 Baglyos Circle
Bethlehem, PA 18020

A Returned Materials Authorization (RMA) is not required. Return shipping charges (surface) will be paid by Saucon Technologies to destinations in the U.S. and Canada.

Please include, inside the shipping box, a description of the problem, a return shipping address (must have street address, no P.O. Box), your telephone number, and if the product is out of warranty, a purchase order for repair charges.

For out of warranty repair charges please contact tech support via email support@saucontech.com.

Extended warranties are available. Please contact support@saucontech.com for more details.

Please direct your questions regarding technical matters, product configuration, verification that the product is defective, repair expediting, shipping or receiving to support@saucontech.com (484) 241-2515

Repairs for damages caused by lightning storms, water, power surges, incorrect installation, physical abuse, or user-caused damages are bill on a time-plus materials basis.

International Customer Repair Procedures (Outside USA and Canada)

Your original point of purchase Reseller may offer the quickest and most economical repair option for your Saucon TDS product.

In the event that factory service is required, products may be shipped freight prepaid to our Bethlehem, PA service center. Recommended international shipment methods are via Federal Express, UPS or DHL courier services. A Returned Materials Authorization (RMA) is required for products shipped from outside the USA and Canada. Please contact us for return authorization and shipping instructions on any International shipments to the USA. Please include inside the shipping box, a description of the problem, return shipping address (must have street address, not a P.O. Box), your telephone number, and if the product is out of warranty, a check drawn on a U.S. bank for repair charges. Repaired units will be shipped freight collect unless other arrangements are made in advance.

Repairs for damages caused by lightning storms, water, power surges, incorrect installation, physical abuse, or user-caused damages are billed on a time-plus materials basis.

International Distributor Repair Procedures

International distributors should contact their Saucon International sales representative for information about repairs for their Saucon product.

Repairs for damages caused by lightning storms, water, power surges, incorrect installation, physical abuse, or user-caused damages are billed on a time-plus materials basis.

Chapter 6: Reference Information

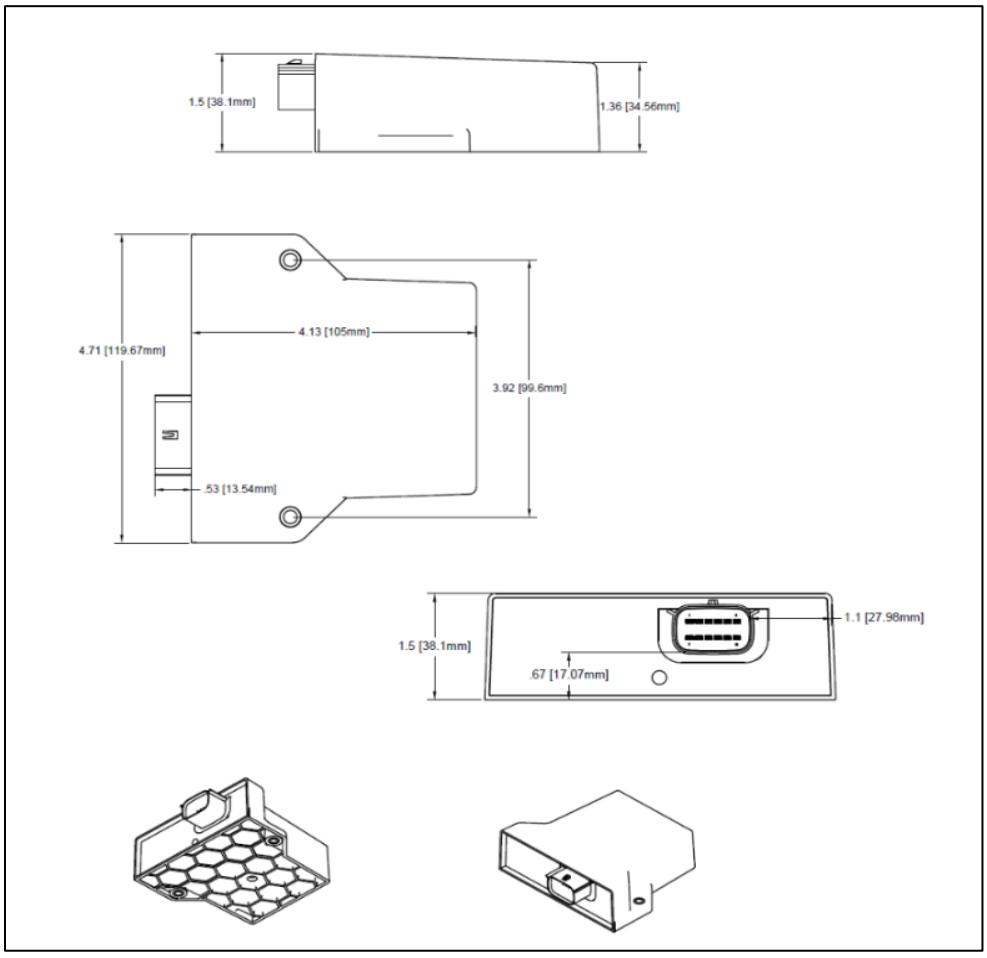
Specifications

Operating Temperature Range	-40C to +85C
Storage Temperature Range	-55C to +105C
Voltage Range	3 – 35 Volts DC
IP Rating	6k7
Vibration/Shock	Test for 2g

Current Draw

Active
12 Volt – 13.4 ma
24 Volt – 10.2 ma

Mechanical Drawings



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