Contents [hide]

TRACTIAN

TRACTIAN 2BCIS Uni Trac

Product Information

- The Uni Trac sensor is a part of the TRACTIAN system that provides solutions for optimizing day-to-day processes and reliability through real-time monitoring of machine conditions.
- The Uni Trac sensor samples analog and digital data through a universal physical interface, processes the data, and sends it to the platform via the Smart Receiver Ultra.
- It is powered by a lithium battery with a 3-year lifespan. To install, attach the sensor to the asset, configure the interface, and start using the system.
- The ideal installation location depends on the interface used.
  Ensure it is not installed inside metal panels to avoid signal interference. The sensor is IP69K rated for harsh environments.
- The Smart Receiver Ultra communicates with sensors within a range of 330 feet in obstacle-filled environments and 3300 feet in open fields.
- Position the receiver centrally for optimal performance. Additional receivers may be required for more sensors or greater distances.
- Data samples and analyses are displayed on the TRACTIAN platform or app, accessible via computer or mobile device.
- The platform offers control of operations, an hour meter, correlation with variables, and fault detection capabilities.
- The TRACTIAN system includes fault detection algorithms that are constantly optimized based on field analyses, providing real-time identification and diagnosis of

operational issues.

Product Usage Instructions

- Attach the Uni Trac sensor to the asset securely.
- Configure the interface settings as required.
- Ensure the installation location is suitable and not within metal panels.
- Position the Smart Receiver Ultra centrally in a high location for optimal communication range.
- Consider additional receivers for extended coverage.
- Access the TRACTIAN platform or app on your computer or mobile device.
- Utilize the platform for data analysis, control of operations, and fault detection.

About your Uni Trac

TRACTIAN System

- Through online and real-time monitoring of machine condition, the TRACTIAN system provides solutions to optimize day-to-day processes and reliability.
- The system integrates analog and digital sensors with mathematical models, generating alerts that prevent unplanned equipment downtime and high costs resulting from inefficiencies.

Uni Trac

- The Uni Trac sensor samples analog and digital data through a universal physical interface, processes the data, and sends it to the platform via the Smart Receiver Ultra.
- The Uni Trac is powered by a lithium battery and has a 3-year lifespan on default settings.
- Simply attach the sensor to the asset, configure the interface, and start using the system.

Installation

- The ideal installation location for the Uni Trac depends on the interface used.

- As the device communicates via radio waves, it mustn’t be installed inside metal panels, which act as signal blockers.
- The sensor is IP69K rated, designed to be used in harsh environments and withstand adverse conditions, such as water jets and dust.

Smart Receiver Ultra

- The Smart Receiver Ultra communicates with sensors within a range of 330 feet in obstacle-filled environments and 3300 feet in open fields, depending on the plant’s topology. To install more sensors or cover greater distances, additional receivers are required.
- It is best to position the receiver in a high and central location relative to the sensors for optimal performance.

Intuitive Platform

- Data samples and analyses are intuitively displayed on the TRACTIAN platform or app, easily accessible via computer or mobile device, enabling integrations with other systems.
- The platform also allows complete control of operations with an hour meter, correlation with different variables, and the creation of specific indicators.

Fault Detection and Diagnosis

- The unique TRACTIAN analysis system allows for the precise detection of process faults.
- The algorithms are constantly trained and optimized based on feedback from field analyses, and supervised by our team of TRACTIAN experts.
- Thousands of data points are sampled daily in a system that identifies and diagnoses the operation in real time.

Precautions

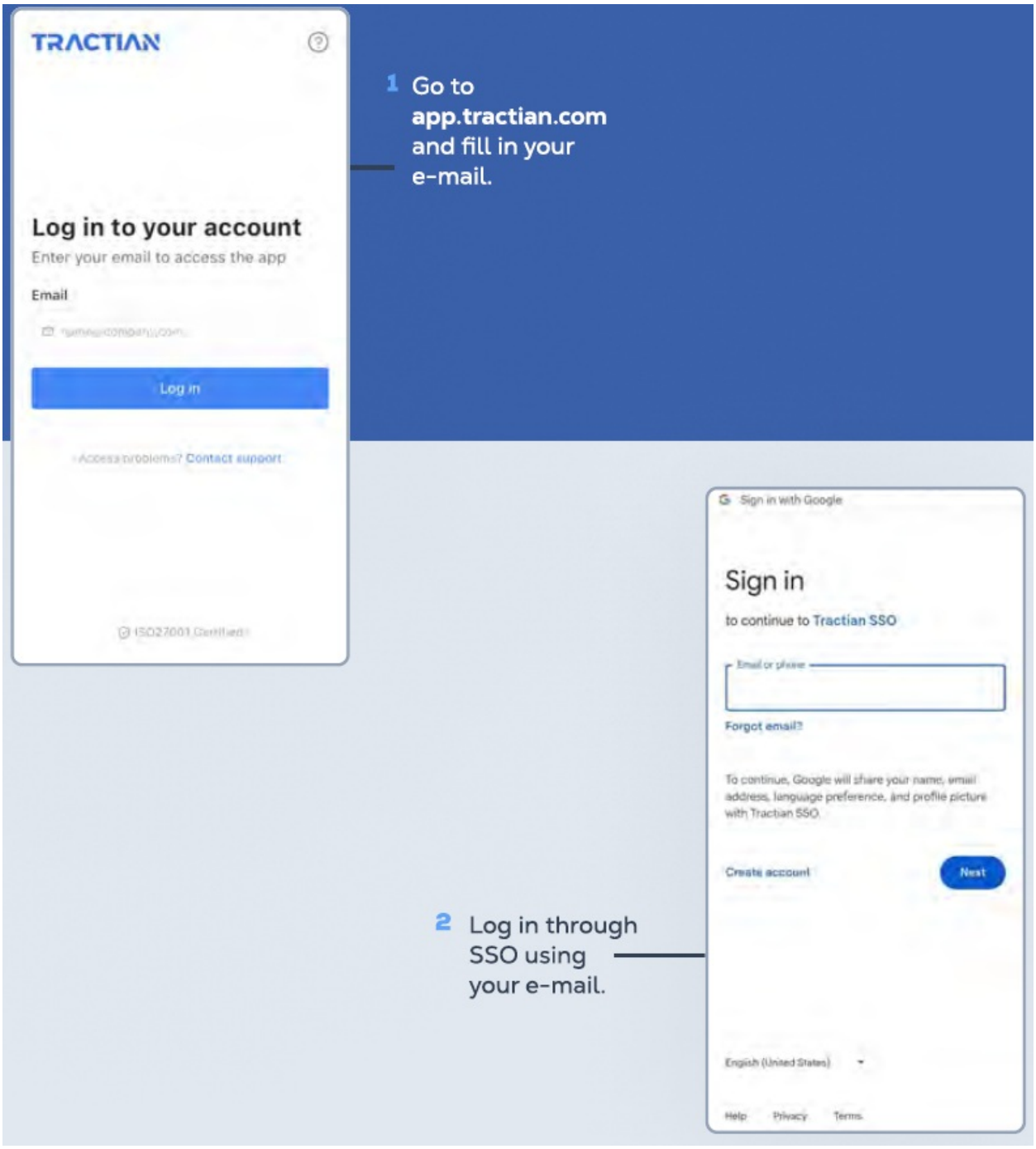
-  DO NOT place the device on surfaces with temperatures exceeding 230°F

(110°C).

-  DO NOT expose the device to solvents such as Acetones, Hydrocarbons, Ethers or Esters.
-  DO NOT subject the device to excessive mechanical impact, dropping, crushing or friction.
-  DO NOT submerge the device.
-  TRACTIAN DOES NOT take responsibility for damages caused by the use of devices outside the standards defined in this manual.

Activation and Safety

- Access our platform by following the steps below:



Sensors

- The Uni Trac is a sensor capable of sampling digital and analog signals from other sensors and systems and sending them to the platform.
- It is crucial to choose the right installation locations and ensure connectivity and data transmission.

Installation Locations

- Choose elevated locations without obstacles between the sensor and the receivers.
- Avoid installing the sensor inside metal enclosures, as they can weaken the signal.

- Take advantage of the IP69K protection rating to ensure the sensor is installed in a suitable location.

Interfaces

- The Uni Trac connects to other devices through the 4-pin external connector, available in screw or lever models, as shown beside.
- For each interface, follow the terminal functions of the connector according to the table below.

Screw connector

Lever connector

Terminal	4 to 20 mA	0 to 10 V	Counter	I2C	RS485
1 - Brown	V+	V+	V+	V+	V+
2 - White	N/A	Signal	NPN/PNP	SCL	B (+)
3 - Blue	GND	GND	GND	GND	GND
4 - Black	Signal	N/A	NPN/PNP	SDA	A (-)

Power Source

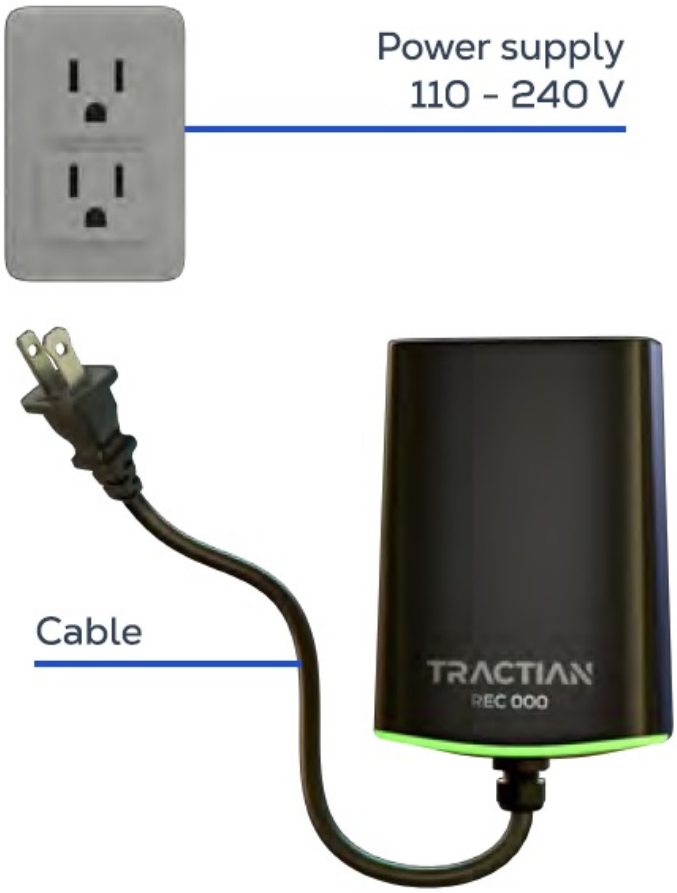
- The Uni Trac allows for two power modes: external or internal.
- External: Both the Uni Trac and the external sensor are powered by an external source.
- This mode is required for serial communications and configurations with reading intervals shorter than the standard.
- Internal: In this mode, the Uni Trac is powered by its internal lithium battery, and the external sensor can be powered either externally or by the Uni Trac itself. In this case, the output voltage is configurable within the limits specified in the table.

Mode	Voltage	Current	Reading Interval
External	5 to 24 V	> 50 mA	N/A
Internal	5 to 15 V	< 100 mA	< 100 ms

WARNING! Check the polarity of the external power supply before connecting the cables and ensure that the voltage and current values are within limits.

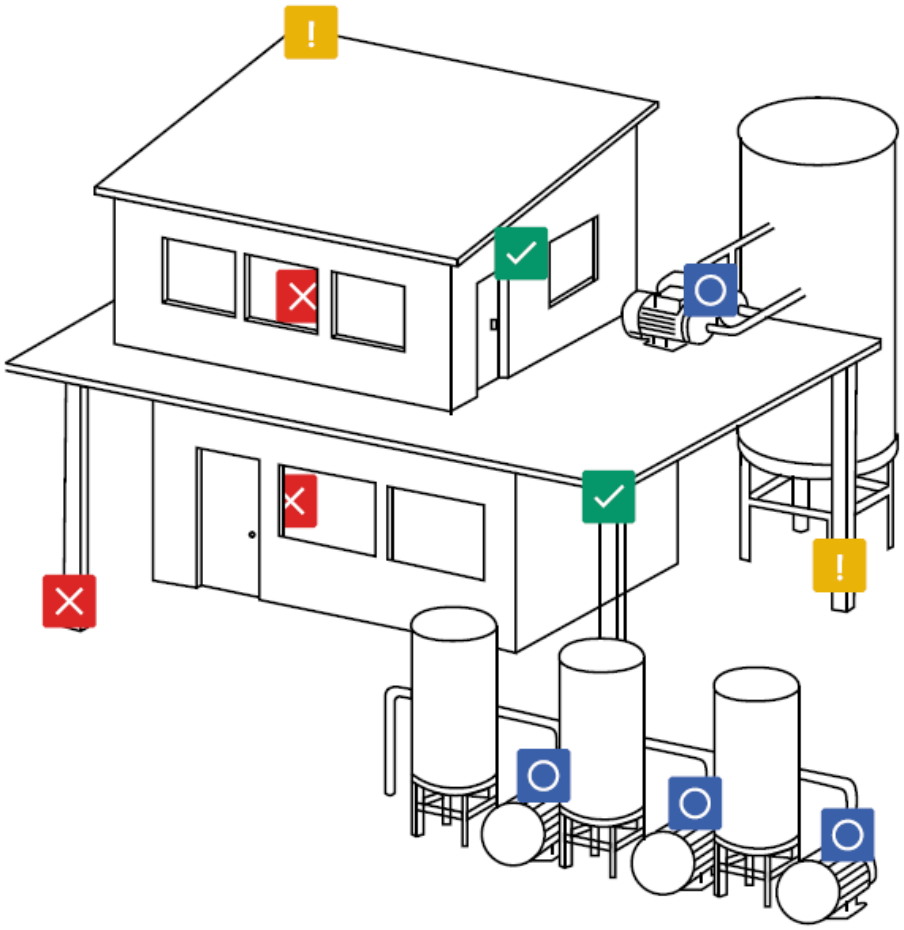
Receivers

- The Smart Receiver Ultra needs mains power. Therefore, make sure that there are electrical connections near the installation locations.
- DO NOT install the Smart Receiver Ultra inside metal electrical panels, because They may block the receiver's signal.
- Other materials, such as plastic, usually do not affect connectivity.
- The ideal amount of receivers needed to cover a certain area will depend on factors like obstacles (walls, machines, metal reservoirs) and other elements that may harm signal quality. It might be necessary to increase the number of receivers in order to ensure satisfactory coverage.
- It is recommended to assess the environment's topography and the layout of assets in the area to establish the quantity and adequate positioning of the receivers.
- Reach out to our experts for more detailed information.



Installation Locations

- It is recommended to install the receiver in high places, facing the sensors.
- Also, look for places with no obstacles between the sensors and the receiver.



- Ideal
- Not ideal, but acceptable
- Inadequate position
- Uni Trac Sensor

Connectivity

Mobile Network

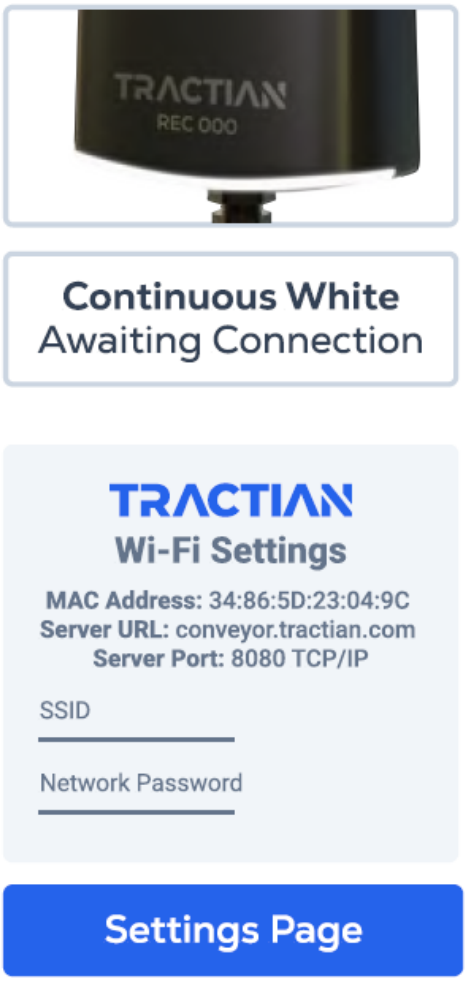
- The Smart Receiver Ultra connects automatically to the best available LTE/4G network in your region.

Wi-Fi

- In case there is no mobile network available or you would rather connect it to a Wi-Fi network, the connection is possible.
- Once plugged into the power outlet, the receiver will turn on a white light and generate

its network that can be found in the Wi-Fi settings of nearby devices (such as smartphones or computers).

- By connecting your device to the receiver's temporary network, you will see a form that must be filled out with your company's Wi-Fi information so the receiver can connect to it.



- The receiver's network will be generated 10 seconds after it is plugged in.
- If no device connects within 1 minute, the receiver will search for the best available mobile network.

Blinking Blue
Searching for connection

Blinking Green
Sending data

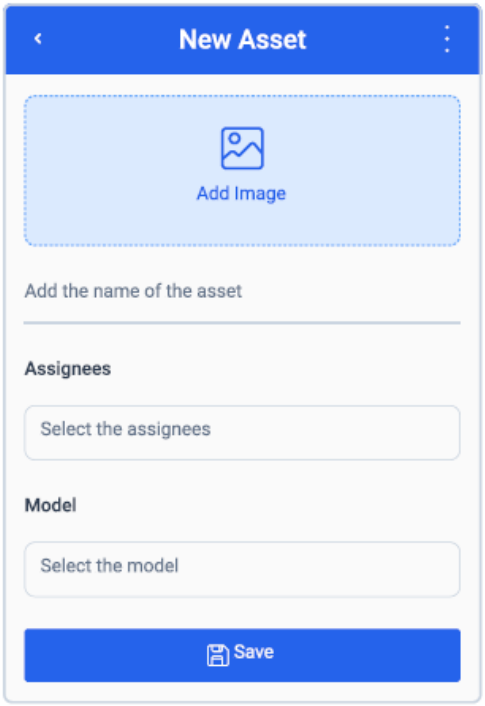
Continuous Green
Connected

Blinking Red
Not connected

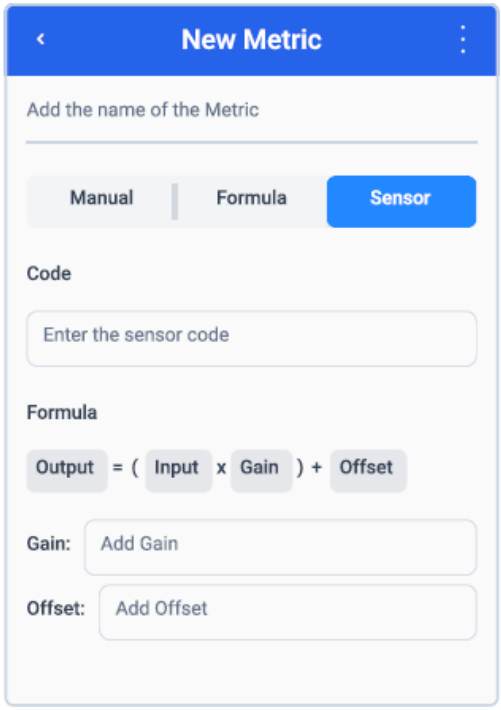
Continuous Red
Damaged device

Metrics Registration

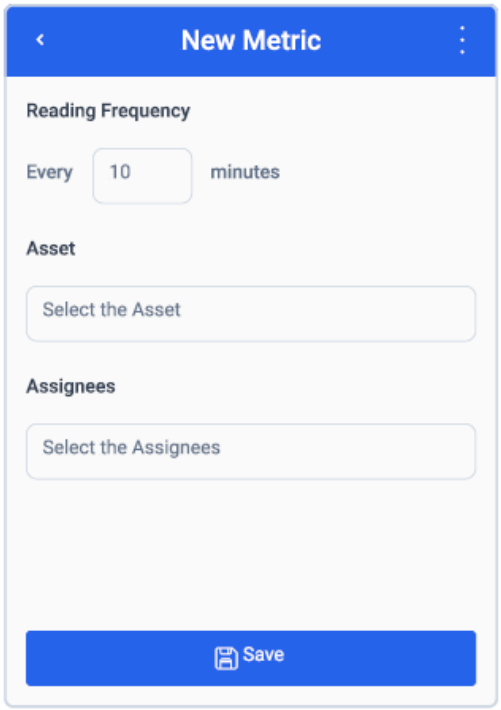
1. If the Asset to which this metric will be linked does not yet exist, click on Add Asset in the “Assets” tab of the platform and register the name and model of the machine.



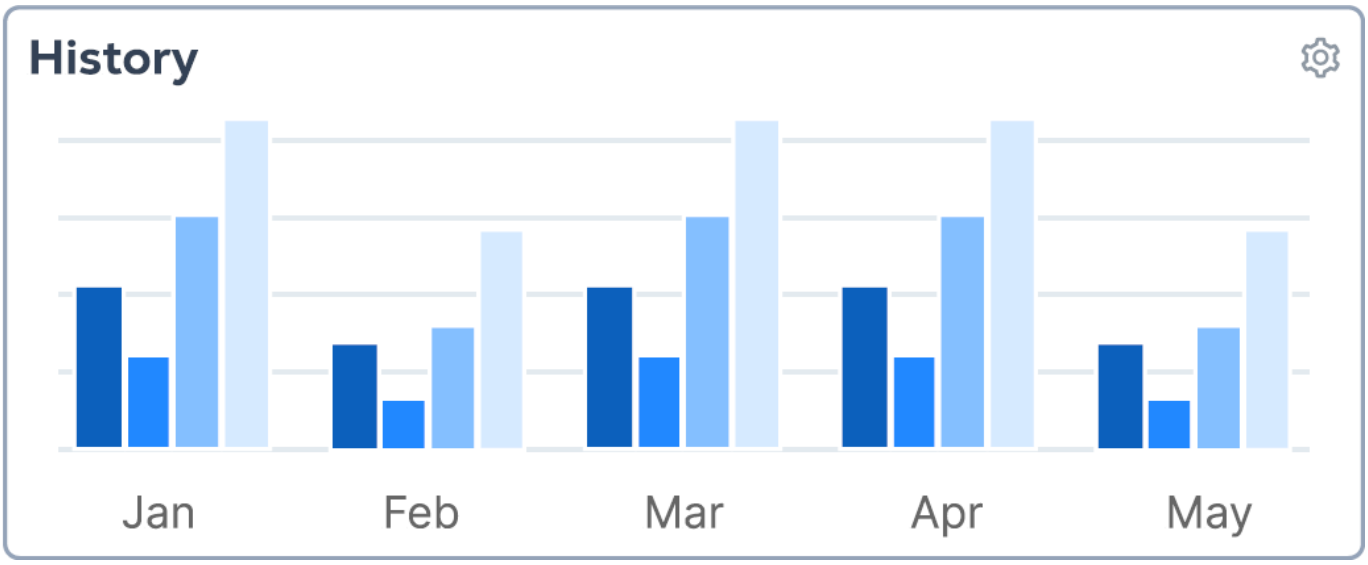
2. Then, click on Add Metric in the “Metrics” tab and register the name of the metric and the sensor code, along with the formula for processing the data, if necessary.



3. Fill in the other intrinsic information for the metric, such as reading frequency, the responsible persons, and the asset to which this metric is associated, and click Save.



4. Now, simply access your asset on the platform to monitor real-time readings.



Battery Replacement

WARNING! Before replacing the battery, disconnect the sensor connector and take the Uni Trac to a suitable and well-lit location.

1. Remove the 4 screws from the battery cover located on the underside of the Uni Trac.

2. With the cover open, remove the used battery and replace it with a new one.
   WARNING: Check the polarity of the new battery before inserting it.

3. Done! Reconnect the external connector and enjoy your real-time data!

IMPORTANT! TRACTIAN recommends only using batteries with identical specifications as described in the Technical Specifications of this manual. Using unauthorized batteries voids the product warranty.

Technical Specifications

Uni Trac Technical Specifications

Wireless Communication

- Frequency: 915MHz ISM
- Protocol: IEEE 802.15.4g
- Line of Sight Range: Up to 1km between sensor and receiver, depending on the industrial plant topology
- Internal Environment Range: Up to 100m between sensor and receiver, depending on the industrial plant topology
- Default Setting: Samples every 5 minutes

Physical Characteristics

- Dimensions: 40(L)x40(A)x36(P)mm, excluding the connector
- Height: 79 mm
- Weight: 120g
- External Material Building: Makrolon 2407
- Fixation: The sensor can be attached to metallic surfaces using magnets or secured with clamps

Installation Location Characteristics

- Rating: IP69K
- Operating Temperature (ambient): From -40°C to 90°C / -40°F to 194°F
- Humidity: Suitable for installation in high-humidity areas
- Hazardous Locations: Not certified

Power Source

- Battery: Replaceable AA Lithium Battery, 3.6V
- Typical Lifetime: 3 to 5 years, depending on the selected settings
- Adverse Factors: Temperature, transmission distance, and data acquisition configuration

Cybersecurity

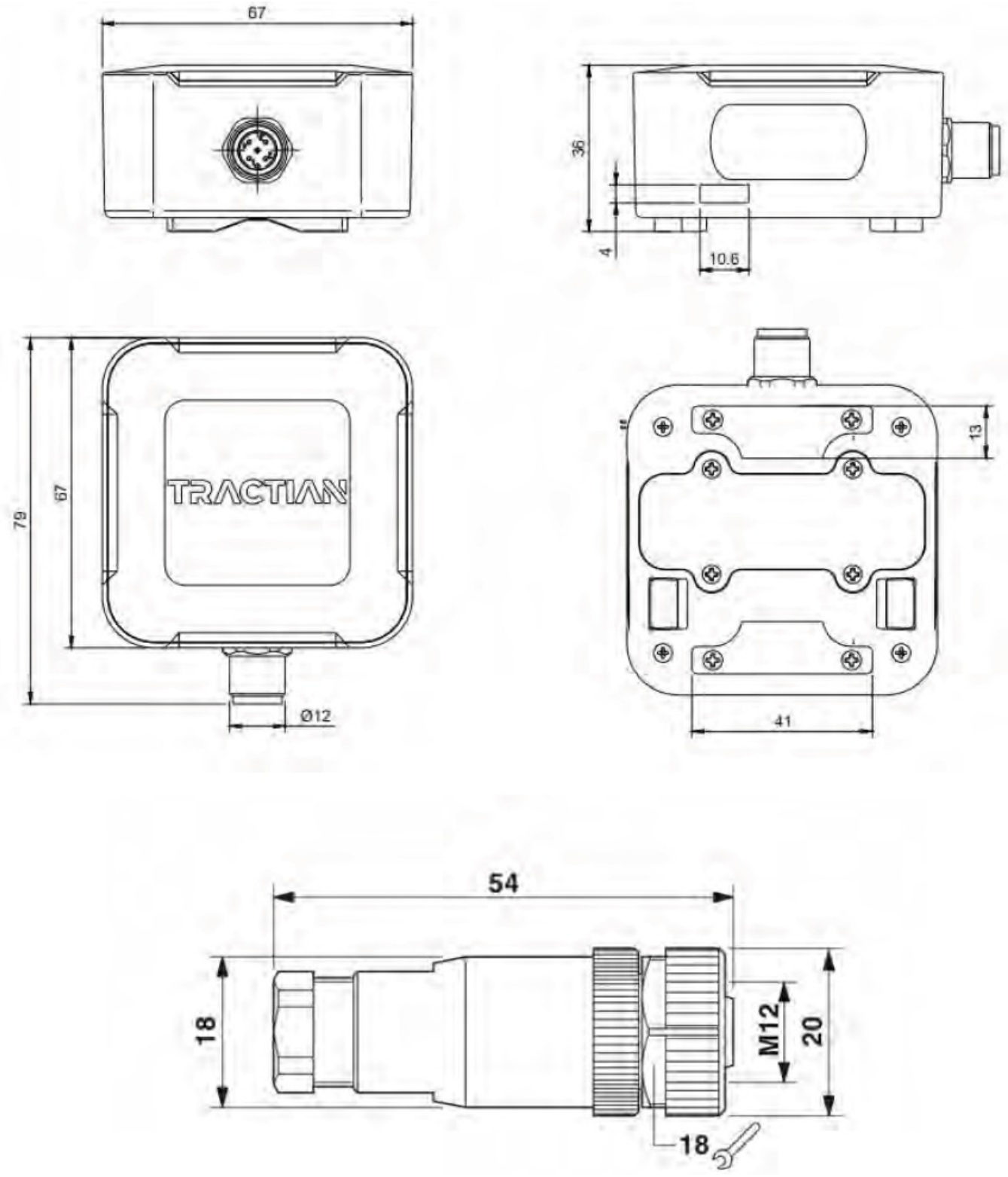
- Sensor to receiver communication: Encrypted AES (128 bits)

Certification

- FCC ID: 2BCIS-UNITRAC
- IC ID: 31644-UNITRAC

Dimension

Uni Trac 2D Drawing



Smart Receiver Ultra Technical Specifications

Connections

- Physical input: Power supply and external antennas (LTE and Wi-Fi)
- Physical output: LED to indicate functioning status

Wireless Communication

- Frequency: 915 MHz ISM and 2.4 GHz ISM
- Protocol: IEEE 802.15.4g and IEEE 802.11 b/g/n
- Bands: 2.4 GHz: 14 frequency channels, dynamically assigned
- Line of Sight Range: Sensors within 100 meters

Network Communication

- Mobile Network: LTE (4G), WCDMA (3 G) and GSM (2G)
- Mobile Frequencies: LTE B1/B2/B3/B4/B5/B7/B8/B28/B66/B40 WCDMA B1/B2/B5/B8 GSM 850/900/1800/1900 MHz
- Wi-Fi Network: 802.11 b/g/n, 2.4 GHz, WPA2-Personal e WPA2- Enterprise

Wi-Fi Configuration

- Wi-Fi network setup: Captive Portal through a smartphone or a computer

Physical Characteristics

- Dimensions: 121 (W) x 170 (H) x 42 (D) mm/4.8 (W) x 6.7 (H) x 1.7 (D) in
- Cable Length: 3m or 9.8ft
- Attachment: Nylon cable ties
- Weight: 425g or 15oz, excluding cable weight
- External Material: Lexan™

Environmental Characteristics

- Operation Temperature: From –10°C to +60°C (14°F to 140°F)
- Humidity: Maximum relative humidity of 95%
- Hazardous Locations: For Hazardous Locations, request the Smart Receiver Ex to a TRACTIAN expert.

Power Source

- Power supply input: 127/220V, 50/60Hz
- Power supply output: 5V DC, 15W

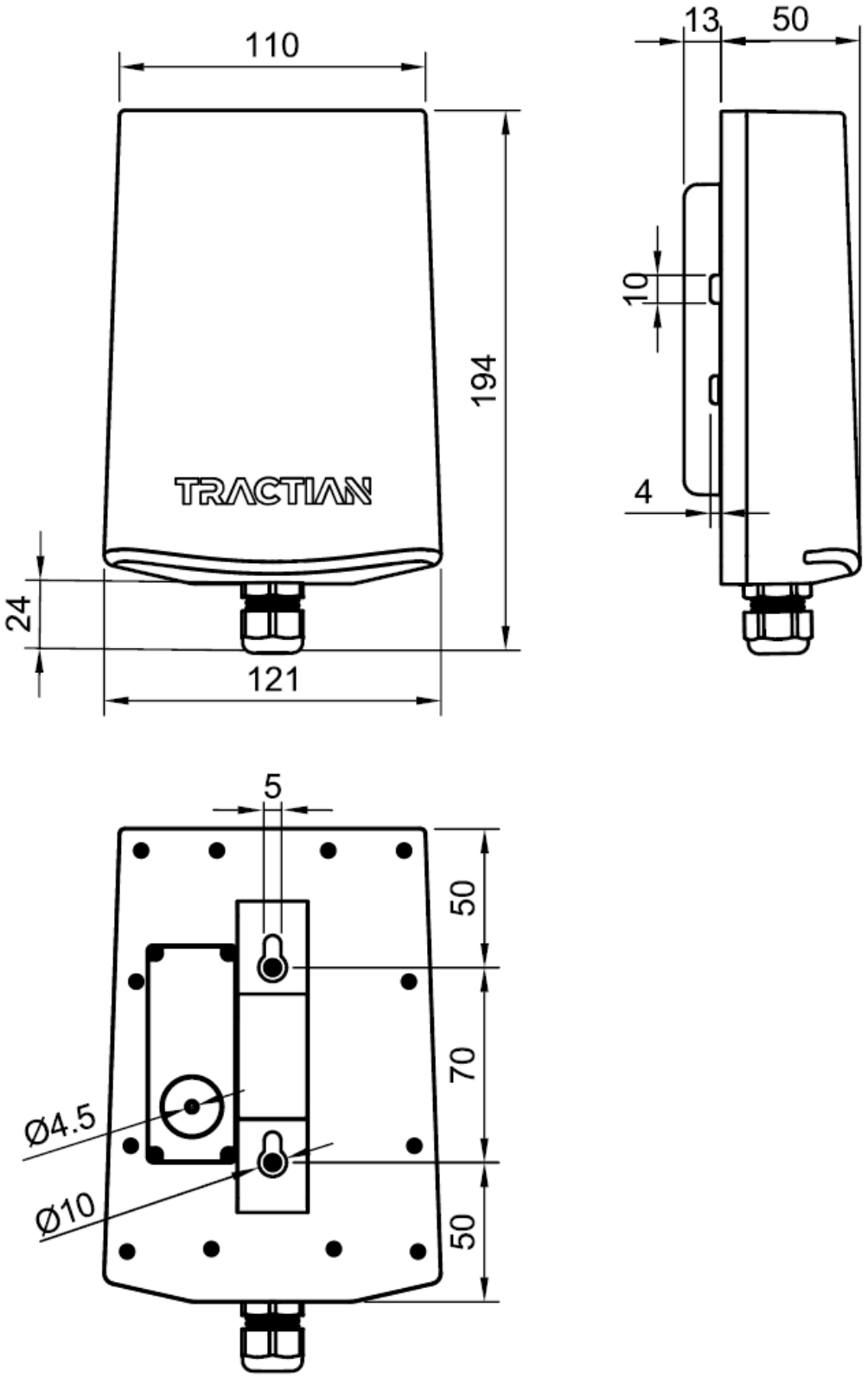
Other Specifications

- RTC (Real Time Clock): Yes
- Receiver Firmware Updates: Yes
- Sensor Firmware Updates: Yes, when associated to a receiver

Certification

- FCC ID: 2BCIS-SR-ULTRA
- IC ID: 31644-SRULTRA

Smart Receiver Ultra 2D Drawing



FCC STATEMENT

Regulatory Compliance

FCC Class A Information

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

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

This equipment has been tested and found to comply with the limits for a Class A digital device, under part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used by the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. The radiated output power of this device meets the limits of FCC radio frequency exposure limits. This device should be operated with a minimum separation distance of 20 cm (8 inches) between the equipment and a person's body

ISED Certification
This device complies with ISED Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

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

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

CONTACT

- tractian.com
- get@tractian.com
- 201 17th Street NW, 2nd Floor, Atlanta, GA, 30363

FAQ

- **Q: How long does the Uni Trac sensor battery last?**
  - **A:** The Uni Trac sensor is powered by a lithium battery with a default lifespan of 3 years.
- **Q: What is the communication range of the Smart Receiver Ultra?**
  - **A:** The Smart Receiver Ultra communicates with sensors within a range of 330 feet in obstacle-filled environments and 3300 feet in open fields.

Documents / Resources

	TRACTIAN 2BCIS Uni Trac [pdf] Instruction Manual 2BCIS-UNITRAC, 2BCISUNITRAC, 2BCIS Uni Trac, Uni Trac, Trac

References

- TRACTIAN
- User Manual

2BCIS Uni Trac, 2BCIS-UNITRAC, 2BCISUNITRAC, Trac, TRACTIAN, Uni Trac

TRACTIAN

—Previous Post
TRACTIAN ST-ULTRA Smart Trac Ultra Sensor Instruction Manual

Leave a comment

Your email address will not be published. Required fields are marked *

Comment *

Name

Email

Website

Save my name, email, and website in this browser for the next time I comment.

Post Comment

Search:

e.g. whirlpool wrf535swhz

Search