

Treon Industrial Node C, Model 2311

Quick Start Guide v0.92

Product Description

<Image 1: Image of the device>

Treon Industrial Node C is a wireless battery-operated sensor device for collecting condition monitoring data of industrial equipment. It is a key part of Treon Connect condition monitoring solution for monitoring industrial equipment.

Treon Industrial Node measures tri-axial vibration and surface temperature of rotating equipment, such as pumps, motors and compressors. Abnormal machine vibrations or high temperatures can be used to detect early signs of equipment failure.

When the device is powered on and provisioned, it starts automatically to measure and transmit data. Treon Industrial Node C uses wireless Bluetooth connectivity to transmit sensor values to a gateway, such as Treon Gateway. The data is sent via the gateway to Treon Connect cloud backend, for analysis or delivery to other systems.

For more information on how to use the Treon Connect condition monitoring solution, see Treon Knowledge Base (<https://knowledge.treon.fi/>).

Taking the Node into use

<Image 2: Smartphone touching the top of the sensor for NFC>

Sensor is powered on and provisioned with Treon Connect application. Treon Connect application installed in an NFC enabled smartphone can communicate with the sensor. Application is available from <TBD>.

1. After installing the application, login to it with your credentials.
2. Bring the smartphone NFC field to the proximity of the sensor.
3. Using the application, pair the sensor with an asset (i.e. monitored equipment) by following the instructions provided by the application.

If the smartphone fails to detect the sensor, please make sure the NFC is enabled, and the smartphone's NFC antenna is close to the top of the sensor. Antenna location varies between different phone models.

Read the node serial number

The node serial number and a QR code including serial number are printed on the side of the sensor. You can also use the Treon Connect application and smartphone to read the identification number by touching the top of the sensor with the smartphone NFC field.

Mounting the Node

Treon Industrial Node C is mounted on monitored equipment by gluing it.

It is important to consider the location of the sensor and the contact between the sensor and the equipment, when mounting it to a monitored equipment. The best location to mount the sensor depends on the monitored equipment and the vibration source. Typically, on rotating equipment sensors are mounted on equipment housing close to bearings avoiding placement on partially or loosely connected parts that can resonate on non-relevant frequencies. See example of a sensor placement on motor (image 4).

<Image 4: Example of placement locations on motor>

For the best measurement quality, the node is glued on a completely flat and smooth surface larger than the base of the node. At minimum, one-third of the sensor base should be fixed to the asset. The mounting surface should be cleaned of all oil, grease or other dirt prior mounting.

<Image 5: Bottom mounting surface>

Industrial adhesives, such as Loctite 454, can be used to mount the sensor on a flat and smooth surface. If the surface is slightly curved or uneven, a slightly thicker layer of adhesive such as Loctite 3090 or 4070 can be used for gluing the sensor. Follow closely the instructions that come with the glues.

<Image 6: Mounting on flat and slightly curved surface>

Aligning the Node

<Image 7: Axis alignment of the node>

For accurate interpretation of the measurement data of all sensor axis, the centerline of the node is typically aligned with the shaft of the rotating machine. When mounting the node, align its axis directly toward drive or non-drive end of monitored machine in line with its shaft.

Product Information

Important

For important info on the safe use of your device, read the Safety Guide.

Operating frequencies: 2402MHz – 2480MHz

Maximum power: +9.9 dBm

Operating temperature range: -20 – +80°C

Battery type: Non-replaceable lithium metal battery

Do not charge, short circuit, crush, disassemble, heat above 100°C (212°F), incinerate or expose the battery contents to water.

The battery is non-removable. When the battery wears out, replace the sensor.

NORWAY. This device is not allowed to be used within a 20 km radius of the centre of Ny-Ålesund at Svalbard, Norway.

CERTIFICATION INFORMATION

Manufacturer

Treon Oy, Visiokatu 3, 33720 Tampere, Finland

SUPPLIER'S DECLARATION OF CONFORMITY

Product Name: Treon Industrial Node C

Model Number: 2311

Manufacturer:

Treon Oy

Visiokatu 3, FI-33720 Tampere, Finland

<https://www.treon.fi>

Responsible Party – U.S. Contact Information:

Treon Inc.

470 Ramona Street, Palo Alto, CA94301, United States

<https://treon.fi/home-usa/>

Tel. +1 213-269-8876

FCC

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, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications made to the device not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

TREON

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference 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 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.

Radiofrequency radiation exposure information:

This device complies with the radiation exposure limits prescribed for an uncontrolled environment for fixed and mobile use conditions. This device should be installed and operated with a minimum distance of 20 cm between device and the body of the user or nearby persons.

ISED

This device complies with Industry Canada license-exempt RSS standard(s). 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.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Cet appareil est conforme à la(aux) norme(s) RSS sans licence d'Industry Canada.

Son utilisation est soumise aux deux conditions suivantes :

- (1) Cet appareil ne doit pas causer d'interférences et
- (2) il doit accepter toutes interférences reçues, y compris celles susceptibles d'avoir des effets indésirables sur son fonctionnement.

Cet équipement respecte les limites d'exposition aux rayonnements IC RSS-102 définies pour un environnement non contrôlé. Il doit être installé et utilisé en maintenant une distance minimum de 20 cm entre le radiateur et votre corps.

EU DECLARATION OF CONFORMITY

Hereby, Treon Oy declares that the radio equipment Treon Industrial Node is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address:

<Image 8: CE mark>

<https://www.treon.fi/documentation>

Safety Guide and Warranty

Introduction

Read these simple guidelines. Not following them may be dangerous or against local laws and regulations. For further information visit www.treon.fi/documentation

Care and maintenance

Handle your device with care. The following suggestions help you keep your device operational.

- Do not open the device.
- Unauthorized modifications may damage the device and violate regulations governing radio devices.
- Do not drop, knock, or shake the device. Rough handling can damage it.
- Only use a soft, clean, dry cloth to clean the surface of the device. Do not clean the device with solvents, toxic chemicals or strong detergents as they may damage your device and void the warranty.
- Do not paint the device. Paint can prevent proper operation.
- The device is dust and waterproof. However, it is not recommended to immerse it in water.
- Sensor is mounted with industrial adhesive. Always follow closely the safety and handling instructions of the adhesive manufacturer.

Safety distance

To comply with RF exposure guidelines, this device must be installed and operated with a minimum distance of 20 cm between the device and any person.

Damage

If the device is damaged discontinue its use immediately and contact support@treon.fi. Only qualified personnel may repair this device.

Small children

Device is not intended to be used in locations where children are likely to be present. It is not a toy. Keep them out of the reach of small children.

Interference with medical devices

The device may emit radio waves, which could affect the operation of nearby electronics, including cardiac pacemakers, hearing aids and defibrillators. If you have a pacemaker or other implanted medical device, do not use the device without first consulting your doctor or the manufacturer of your medical device. Maintain a safe distance between the device and your medical devices and stop using the device if you observe a persistent interference with your medical device.

Storage

Recommended device storage temperature is between +10 – +30°C.

Recycle

Check the local regulations for proper disposal of electronic products and batteries.

The Directive on Waste Electrical and Electronic Equipment (WEEE), which entered into force as European law on 13th February 2003, resulted in a major change in the treatment of electrical equipment at end-of-life. The purpose of this Directive is, as a first priority, the prevention of WEEE, and in addition, to promote the reuse, recycling and other forms of recovery of such wastes so as to reduce disposal.

The crossed-out wheelie-bin symbol on your product, battery, literature, or packaging reminds you that all electrical and electronic products and batteries must be taken to separate collection at the end of their working life.

<Image 9: Wheelie bin symbol>

Do not dispose of these products as unsorted municipal waste: take them for recycling. For info on your nearest recycling point, check with your local waste authority.

WARRANTY

Treon Limited Warranty document is available at the following internet address:
<https://www.treon.fi/documentation>