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INTRANAV Node RTLS Node IN6000 with WiFi IN6200 User Guide

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User Guide



INTRANAV NODE
Quick start guide for the
INTRANAV RTLS NODE (IN6000)
INTRANAV RTLS NODE with Wi-Fi (IN6200)
V1.1

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Node RTLS Node IN6000 with WiFi IN6200

INTRANAV RTLS NODE (IN6200) – Quick Guide

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Legal notice

Warnings

These instructions contain information that you must observe for your personal safety and to avoid damage to property. The instructions for your personal safety are highlighted by a warning triangle. Information on damage to the property alone is not indicated by a warning triangle.

Depending on the hazard level, the warnings are shown in decreasing order as follows.



DANGER: means that death or serious injury will occur if the appropriate precautions are not taken.



WARNING: this means that death or serious injury may occur if the appropriate precautions are not taken.



CAUTION indicates that minor personal injury may occur if proper precautions are not taken.

CAUTION: this means that property damage may occur if the appropriate precautions are not taken.

If several hazard levels occur, the warning for the highest level is always used. If the warning triangle is used in a warning against personal injury, then a warning against property damage can also be added to the same warning.

Qualified personnel

The product/system associated with this documentation may only be handled by personnel qualified for the respective task and in compliance with the associated documentation for the respective task, in particular, the safety and warning instructions contained therein. Due to their training and experience, qualified personnel is capable of recognizing risks and avoiding possible hazards when handling these products/systems.

Intended use of INTRANAV products

Consider the following:



WARNING: INTRANAV products may only be used for the applications specified in the catalog and in the associated technical documentation. If third-party products and components are used, they must be recommended or approved by INTRANAV. Faultless and safe operation of the products requires proper transport, storage, assembly, installation, commissioning, operation, and maintenance. The permissible ambient conditions must be observed. The instructions in the relevant documentation must be observed.

Brands

All designations marked with ® are registered trademarks of IntraNav

GmbH. The other designations in this document may be trademarks whose use by third parties for their own purposes may infringe the rights of the owner.

Disclaimer

We have checked the contents of this publication for conformity with the hardware and software described. Nevertheless, deviations cannot be ruled out, so we cannot guarantee complete conformity. The information in this publication is checked regularly and any necessary corrections are included in subsequent editions.

Overview

General

The INTRANAV NODE (IN6200) is a fixed antenna system for real-time indoor positioning. The NODE or anchor receives the ultra-wideband (UWB) signals from the TAGs and forwards them to the INTRANAV backend where they are processed into position signals.

Scope of delivery and accessories

1 unit

INTRANAV RTLS NODEModel

: IN6000 or IN6200(with Wi-Fi)

Accessories

1unit

Universal bracket for INTRANAV NODE

Power supply

The device can be operated by means of a Power-Over-Ethernet (PoE).

The device complies with PoE class 802.3af

Areas of application

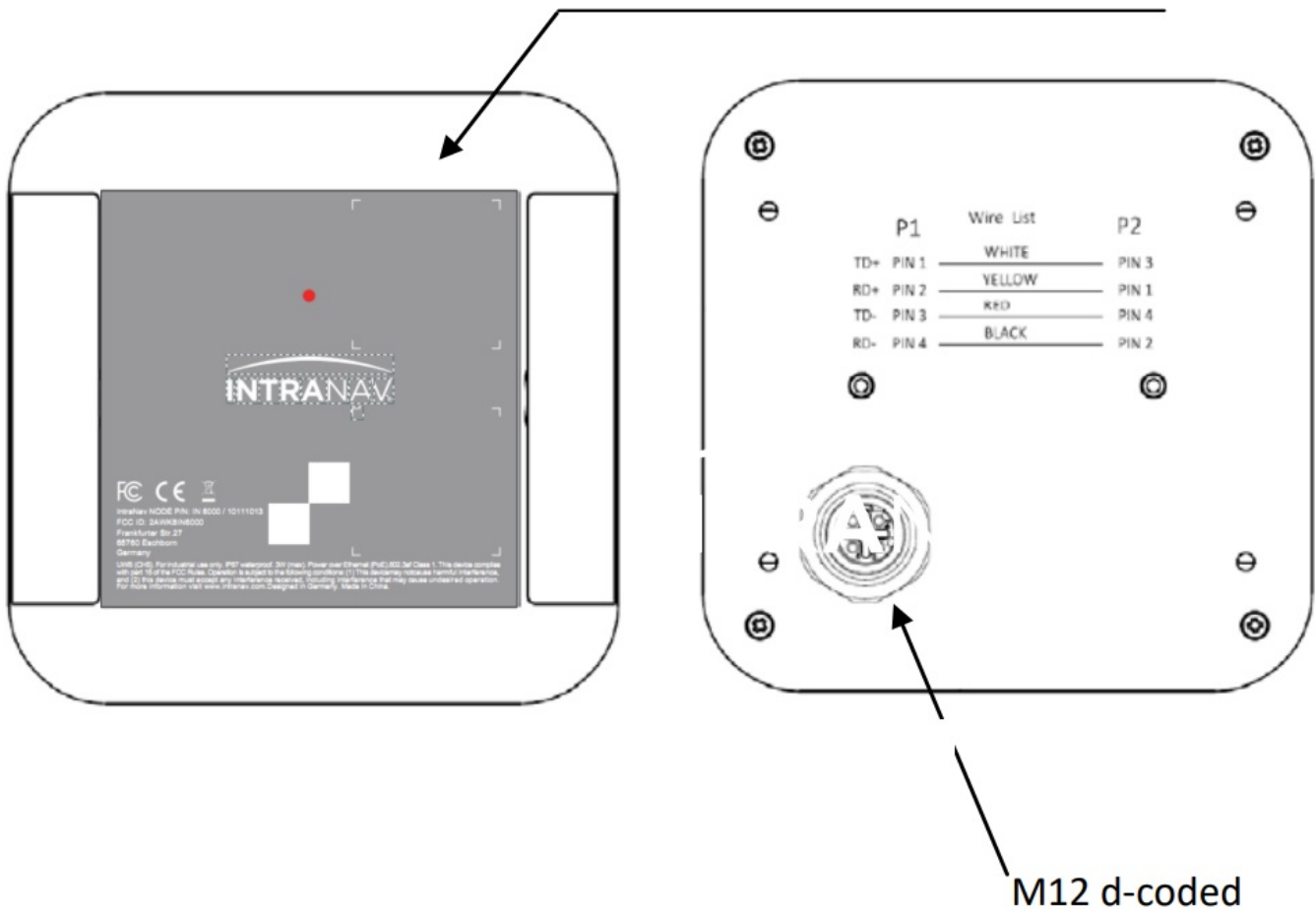
The device is designed to be operated in an environment from 10°C to +50°C. For this reason, it is essential to ensure that the INTRANAV NODE (IN6200) is not used in outdoor operation under any circumstances, as otherwise moisture or water can lead to a short circuit. If you want to use

INTRANAV RTLS NODEs outdoors, there is a special outdoor version available for this purpose.

Product dimension

Dimensions approx. 150 x 150 x 40 (mm) & weight approx. 180 (gr.)

Status LED



Assembly, commissioning, maintenance, and safety

General information

- Before installing the equipment, carefully read all the points listed in “3. Installation, Commissioning, Maintenance and Safety” to ensure proper installation and operation.
- The devices can only be used in conjunction with the INTRANAV RTLS solution.
- The correct setup, installation, and use of the tools and clients of the localization system are described in the corresponding manuals.

Assembly and operation

- In order to achieve optimal indoor positioning, the device must be mounted in such a way that there is a direct line of sight to the mobile positioning sensors (INTRANAV TAGs).
- The device must be installed by appropriately qualified and trained personnel in accordance with the installation instructions.
- Before using the device, make sure that the device is not damaged and cannot be damaged during use.
- The device is intended for fixed mounting on the wall or ceiling.
- Never cover the antenna with metallic or shielding objects.
- The specified ambient temperatures of the devices must be observed.
- Make sure all screws are securely and tightly screwed into the wall or bracket and can support the weight of the unit and wiring.
- Never crush, puncture or otherwise subject the housing of the device to mechanical force.
- The ambient temperature of the device must not exceed 50 °C. Avoid mounting locations with direct sunlight.
- The devices must be installed in accordance with the currently prevailing BG regulations “Electrical installations and equipment” (BGV A3). The devices must be installed in such a way that they are accessible at all times (by opening the housing cover) so that maintenance work can be carried out at a later date.

Connecting the cables and lines

- When connecting the cables, make sure that they are in perfect condition and not damaged.
- Before commissioning the device, check that the cabling has been carried out correctly and that there is a connection to the network.
- Only the wiring described in the manual, enclosed with the device or specified accordingly is to be used. IntraNav GmbH accepts no liability for damage or impairment of functionality resulting from the use of other cables.

Ethernet

- When installing and connecting the Ethernet connection, the applicable general conditions and their legal basis must be observed.
- The Ethernet connection is connected to the Ethernet socket of the device. The cable must be assembled into the RJ45 plug before connecting it to the socket.
- For powering the device with PoE (Power over Ethernet), an appropriate infrastructure such as a PoE injector or PoE switch is required.

Operation of the device

- Due to its design, the device is not intended for use in EX zones.
- The intended operation of the system according to EN 60950-1 is only guaranteed when the housing cover is mounted (cooling, fire protection, radio interference suppression).
- In case of emergency (e.g. damaged housing, ingress of liquid or foreign objects), disconnect the power supply to the device immediately.
- The INTRANAV NODE detects mounting and position changes and goes into fault as soon as a shock or an improper change of the antenna is detected by the integrated acceleration sensor.
- You must configure the INTRANAV NODE accordingly before configuring it on the INTRANAV.IO platform.
- An INTRANAV NODE is ready for operation when the status LED is permanently lit.
- The LED behavior is described as follows:

Display Status LED	Description
Lights green	Supply voltage OK
Flashing green	Connection to network and INTRANAV.IO backend successfully established and available
Flashing red	Error: Accelerometer alarm
Lights red	Error: See error code INTRANAV.IO platform for more information
Flashing yellow	Warning: No network connection
Lights yellow	Warning: See error code INTRANAV.IO platform for more information.
Lights blue	NODE flawless in operation
Flashing blue	
NODE (Here-I-Am) Mode	
The signal behavior of the status LED may vary slightly depending on firmware release and configuration. Please always refer to the INTRANAV.IO platform or current manual for the exact LED code.	

Cleaning and maintenance

- The device may only be installed and opened by appropriately trained personnel.
- Repairs to the device may only be carried out by an authorized service centre or trained key user.
- Unauthorized opening and improper repairs may result in considerable danger to the user.
- Unauthorized opening of the devices will result in the exclusion of warranty and liability of IntraNav GmbH.
- Never use liquids, scouring agents, alkaline cleaning agents, or sharp or abrasive tools to clean the housing.

Technical data

Property	Description
Radio procedure	IEEE 802.15.4-2011 UWB (Ultra-Wideband)
Frequency range	UWB Channel 5 (6489.6MHz)
EIRP	-6.71 dBm(CE)
Antenna	Omnidirectional integrated antenna (max. 70m range)
Sensors	3-axis accelerometer Integrated temperature sensor
Supply voltage	Supply voltage by means of – Power-Over-Ethernet
Ethernet	M12 d-coded Ethernet 100Mbit/s (full duplex) DHCP Yes IEEE 802.3af, Class 0 (<3W)
W-Lan	802.11b/g 2.4GHzWPA & WPA2 Enterprise
Status LED	RGB LED
Protection class	IP 68
Dimensions	Approx. 150 x 150 x 40 mm
Weight	Approx. 180 g
Temperature range	10°C ... +50°C

Admissions

EU Declaration of Conformity

The current EU declaration of conformity for this product is available on request or by e-mail to info@intranav.com.

The products described in this document meet the requirements of the following EU directives:

- RoHS Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment; Official Journal of the EU L174, 01/07/2011, p. 88-110.
- Radio Equipment Directive 2014/53/EU (RED) Directive of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment; Official Journal of the EU L153, 22/05/2014, pp. 62-106.

RoHS

RoHS Directive (Restriction of the use of certain Hazardous Substances)

The products described in these operating instructions comply with the requirements of EU Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Technical documentation for the assessment of electrical and electronic equipment with regard to the restriction of hazardous substances

RED (Radio Equipment Directive)

Protection of health and safety

The products described in this document meet the requirements according to the attracted standards:

Art. 3 (1) a) Protection of health and safety

- EN 62368-1 Equipment for audio/video, information, and communication technology – Part 1: Safety requirements
- EN 62311 Evaluation of electrical and electronic equipment in relation to limitations of exposure of persons to electromagnetic fields (0 Hz to 300 GHz)

The products described in these operating instructions meet the requirements of Art. 3 (1) b) EMC Harmonised Standards:

- ETSI EN 301 489-1 Electromagnetic compatibility and Radio spectrum Matters (ERM) – ElectroMagnetic Compatibility (EMC) standard for radio equipment and services – Part 1: Common technical requirements
- ETSI EN 301 489-17 Electromagnetic compatibility and Radio spectrum Matters (ERM) – ElectroMagnetic Compatibility (EMC) standard for radio equipment and services – Part 17: Specific conditions for wideband data transmission systems
- ETSI EN 301 489-33 Electromagnetic compatibility and Radio spectrum Matters (ERM) – ElectroMagnetic Compatibility (EMC) standard for radio equipment and services – Part 33: Specific conditions for Ultra Wide Band (UWB) equipment
- EN 55011 Industrial, scientific and medical equipment – Radio disturbance characteristics – Limits and methods of measurement
- EN 55032 Class A, Class electromagnetic compatibility of multimedia equipment and devices – Emission requirements
- EN 55035 Electromagnetic compatibility of multimedia equipment – Immunity requirements
- EN 61000-6-1 Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial and light-industrial environments
- EN 61000-6-2 Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments
- EN 61000-6-3 Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission for residential, commercial and light-industrial environments
- EN 61000-6-4 Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission requirements for industrial environments Art. 3 (2) Efficient use of radio spectrum
- ETSI EN 300 328 Broadband transmission systems
– Data transmission equipment using wideband modulation techniques and operating in the 2,4 GHz ISM band – Harmonised EN covering essential requirements under Article 3.2 of the EU Directive 2014/53/EU
- ETSI EN 302 065-2 Short Range Devices (SRD) using Ultra Wideband (UWB) technology – Harmonized EN covering the essential requirements of Article 3.2 of the EU Directive 2014/53/EU; Part 2: Requirements for Ultra Wideband Site Surveillance

Note

The specified approvals are only valid if the corresponding symbol is printed on the device.

Recycling and disposal



■ The products are low in pollutants, recyclable, and meet the requirements of the WEEE Directive 2012/19/EU for the disposal of waste electrical and electronic equipment. Do not dispose of the products at public disposal points. For environmentally sound recycling and disposal of your old device, contact a certified electronic waste disposal company or your IntraNavcontact.

Note different country-specific regulations.

Troubleshooting

When a fault occurs, check the device for the following faults and take appropriate action. If there are other undefined errors, contact IntraNav support. (www.IntraNav.com)

Q: NODE status LED is not lit.

A: Check the power supply

F: NODE status LED lights up red or yellow

A: Take the error code from the manual

Q: NODE is not listed among the network devices in the platform.

A: Check the network connection and settings. Disconnect all cables and cords, wait 3 seconds, and reconnect the cables and cords.

Q: NODE is displayed on the platform in the wrong position.

A: Make sure the NODE ID has not been swapped.

Q: Poor localization performance

: Ensure that the NODEs have all been set up in a square to each other and that no objects are obstructing the line of sight to the TAGs.

FCC Caution:

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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

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.

IMPORTANT NOTE:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to 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 in accordance with 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.

FCC Radiation Exposure Statement:

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

This equipment may only be operated indoors. Operation outdoors is in violation of 47 U.S.C. 301 and could subject the operator to serious legal penalties

This device may not be employed for the operation onboard an aircraft, a ship, or a satellite is prohibited.

Note

The specified approvals are only valid if the corresponding symbol is printed on the device

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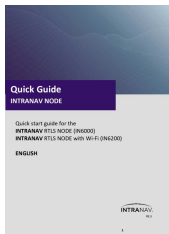
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