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SAFETY, ENVIRONMENTAL, AND REGULATORY INFORMATION

MON-10411

Triaxial Vibration with Temperature, Wireless Vibration Sensor for Hazardous Locations

Read this document before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards. Visit *ni.com/manuals* for more information about your product, including specifications, pinouts, and instructions for connecting, installing, and configuring your system.

Icons

Notice Take precautions to avoid data loss, loss of signal integrity, degradation of performance, or damage to the model.

Caution Take precautions to avoid injury. Consult the model documentation for cautionary statements when you see this icon printed on the model. Cautionary statements are localized into French for compliance with Canadian requirements.

Warning Take precautions to avoid electrical shock or explosion hazards.

Safety Guidelines

Caution Observe all instructions and cautions in the user documentation. Using the model in a manner not specified can damage the model and compromise the built-in safety protection. Return damaged models to NI for repair.

Attention Suivez toutes les instructions et respectez toutes les mises en garde de la documentation utilisateur. L'utilisation d'un modèle de toute autre façon que celle spécifiée risque de l'endommager et de compromettre la protection de sécurité intégrée. Renvoyez les modèles endommagés à NI pour réparation.

Caution The protection provided by the model can be impaired if it is used in a manner not described in the user documentation.

Attention La protection apportée par le modèle risque d'être endommagée s'il est utilisé d'une autre façon que celle décrite dans la documentation utilisateur.

Caution Fire, explosion, and severe burn hazard. This device contains a replaceable primary lithium battery. Do not recharge or disassemble the battery. Do not heat the battery or the MON-10411 above 100 °C. Do not incinerate the battery or the MON-10411. Do not expose the battery contents to water.

Attention Risque d'incendie, d'explosion et de brûlures graves. Cet appareil contient une pile au lithium primaire remplaçable. Ne pas recharger ou démonter la pile. Ne pas chauffer la pile ou le MON-10411 à une température supérieure à 100 °C. Ne pas incinérer la pile ou le MON-10411. Éviter tout contact du contenu de la pile avec de l'eau.

Caution Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Attention Risque d'explosion si la pile est remplacée par un type de pile incorrect. Éliminer les piles usagées conformément aux instructions.

Caution The battery must be replaced by a trained service technician. Refer to the *MON-10411 User Guide* on *ni.com/manuals* for instructions for replacing the battery.

Attention La pile doit être remplacée par un technicien de maintenance qualifié. Reportez-vous au *Guide de l'utilisateur du MON-10411* sous *ni.com/manuals* pour obtenir les instructions pour changer la pile.

Safety Guidelines for Hazardous Locations

This device is rated for installation in the following hazardous locations (explosive atmospheres):

- Class I, Division 2, Groups A-D, T6
- Class I, Zone 2, Group IIC, T6
- Class II, Division 2, Groups F-G, T6
- Class III, Division I and II, T6
- Zone 22, Groups IIIA and IIIB, T6

Warning EXPLOSION HAZARD – BATTERIES MUST ONLY BE CHANGED IN AN AREA FREE OF IGNITIBLE CONCENTRATIONS.

Mise en garde RISQUE D'EXPLOSION – LES BATTERIES NE DOIVENT ÊTRE REMPLACÉES QUE DANS UN EMPLACEMENT EXEMPT DE CONCENTRATIONS INFLAMMABLES.

Safety Compliance Standards

This product is designed to meet the requirements of the following electrical equipment safety standards for measurement, control, and laboratory use:

- Conforms To UL Standard 121201 and UL Standard 61010-1
- Certified To CSA Standard C22.2 # 213 and CSA Standard C22.2 # 61010-1-12



Note For safety certifications, refer to the product label or the *Product Certifications and Declarations* section.

Electromagnetic and Radio Equipment Compatibility Guidelines

This product was designed to support an efficient use of the radio spectrum to avoid harmful interference. This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) as stated in the product specifications. These requirements and limits are designed to provide reasonable protection against harmful interference when the product is operated in its intended operational electromagnetic environment.

This product is intended for use in commercial and industrial locations. However, harmful interference may occur in some installations, when the product is connected to a peripheral device or test object, or if the product is used in residential areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Furthermore, any changes or modifications to the product not expressly approved by NI could void your authority to operate it under your local regulatory rules.

EMC Notices

Refer to the following notices for prevention measures necessary to ensure the specified EMC performance.

Notice For EMC declarations and certifications, and additional information, refer to the *Product Certifications and Declarations* section.

Notice Changes or modifications to the product not expressly approved by NI could void your authority to operate the product under your local regulatory rules.

Notice The performance of this product can be disrupted if subjected to Electrostatic Discharge (ESD) during operation. To prevent damage, industry-standard ESD prevention measures must be employed during installation, maintenance, and operation.

Electromagnetic Compatibility Standards

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- FCC 47 CFR Part 15B: Class A emissions
- ICES-003: Class A emissions

Note In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations.

Radio Equipment Compatibility Standards

This product meets the requirements of the following Radio Equipment standards:

- FCC 47 CFR Part 15C: Intentional Radiators
- RSS-247: DTSs, FHSs, and LE-LAN

This radio equipment is for use in accordance with the following parameters:

Antenna	2.4 GHz, 2 dBi, Molded SMT Antenna (TE Connectivity part number 1513504-1)
Software	NI InsightCM™ 3.5 or later
Frequency band(s)	2.400 GHz to 2.4835 GHz
Radio frequency power	20 dBm

Environmental Guidelines

Notice This model is intended for use in both indoor and outdoor applications.

Note The MON-10411 may only be used outdoors when installed such that it is shielded from direct exposure to daylight.

Environmental Characteristics

Temperature and Humidity

Temperature	
Operating (Ordinary Locations and Class I, Division 2, and Class I, Zone 2)	-20 °C to 80 °C
Operating (Class II, Division 2, Class III, Division I and II, and Zone 22)	0 °C to 80 °C
Storage	-40 °C to 85 °C
Idle[1]	-40 °C to -20 °C
Humidity	
Operating	Up to 100% RH, condensing or noncondensing
Storage	5% RH to 95% RH, noncondensing
Ingress protection	
Mounted	IP66/IP67
Unmounted	IP67

Notice The MON-10411 is rated for fixed installation use only and must be permanently mounted per the user guide installation instructions during operation.

Pollution Degree	4
Maximum altitude	2,000 m

[1] Communication and data acquisition may be disabled at temperatures within the idle temperature range. When the temperature returns to the operating range, the device may be reset, and normal operation will continue.

Shock and Vibration

Operating vibration	Sinusoidal ±40 g up to 2,000 Hz
Operating shock	1 m drop onto concrete

Environmental Standards

This product meets the requirements of the following environmental standards for electrical equipment.

- IEC 60068-2-1 Cold
- IEC 60068-2-2 Dry heat
- IEC 60068-2-30 Damp heat, cyclic (12 h + 12 h cycle)
- IEC 60068-2-78 Damp heat, steady state
- IEC 60068-2-64 Random operating vibration
- IEC 60068-2-6 Sinusoidal operating vibration
- IEC 60068-2-27 Operating shock
- IEC 60068-2-14 Change of temperature
- IEC 60529 Degrees of protection provided by enclosures (IP Code)

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the *Commitment to the Environment* web page at *ni.com/environment*. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Battery Recycling

The MON-10411 contains a replaceable battery. Products containing lithium must be disposed of or recycled in accordance with all local laws and site regulations. For more information about disposing of or recycling this device's battery, please refer to *tadiran.com*.

If you need to return the MON-10411 to NI, follow the Return Material Authorization (RMA) process. You shall also be responsible for using sufficient protective packaging in accordance with all applicable laws and transportation requirements. Visit *ni.com/contact* or call (866) 275-6964 for more information on the RMA process.

Regulatory Information

United States

FCC Radiation Exposure Statement

Caution The radiated output power of this product is below the FCC radio frequency exposure limits. Nevertheless, this product should be used in such a manner that the potential for human contact during normal operation is minimized. This product has been evaluated for and shown compliant with the FCC RF Exposure limits under mobile exposure conditions (antennas are greater than 20 cm from a person's body). This product has also been evaluated for and shown compliant with the FCC RF exposure limits under portable exposure conditions (antennas are within 20 cm of a person's body) when installed in certain specific configurations. Details of the authorized configurations can be found at *https://fjallfoss.fcc.gov/oetcf/eas/reports/GenericSearch.cfm* by entering the FCC ID number on the product.

Attention La puissance de sortie rayonnée de ce produit est inférieure aux limites d'exposition aux fréquences radio de la FCC. Néanmoins, ce produit doit être utilisé de manière à minimiser la possibilité de contact humain pendant son fonctionnement normal. Après évaluation, ce produit s'avère conforme aux limites d'exposition RF de la FCC dans des conditions d'exposition aux appareils mobiles (antennes à plus de 20 cm du corps humain). Après évaluation, ce produit s'avère également conforme aux limites d'exposition RF de la FCC dans des conditions d'exposition aux appareils portables (antennes à moins de 20 cm du corps humain) lorsqu'il est installé dans certaines configurations spécifiques. Saisissez le numéro d'identification FCC du produit sur *https://fjallfoss.fcc.gov/oetcf/eas/reports/GenericSearch.cfm* pour obtenir des détails sur les configurations autorisées.

Interference Statement

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception. 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.

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.

Note The FCC regulations provide that changes or modifications not expressly approved by NI could void your authority to operate this equipment.

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.

Canada

Innovation, Science and Economic Development Canada (ISED) Notices

Under Innovation, Science and Economic Development Canada regulations, the radio transmitter(s) in this product may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Innovation, Science and Economic Development Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that necessary for successful communication.

Radio Frequency (RF) Exposure Information

The radiated output power of this product is below the Innovation, Science and Economic Development Canada (ISED) radio frequency exposure limits. This product has been evaluated for and shown compliant with the IC Radio Frequency (RF) Exposure limits. The product should be used in such a manner such that the potential for human contact during normal operation is minimized.

This product has been certified for use in Canada. Status of the listing in the Innovation, Science and Economic Development Canada's REL (Radio Equipment List) can be found at the following web address: *https://sms-sgs.ic.gc.ca/equipmentSearch/searchRadioEquipments*

Additional Canadian information on RF exposure also can be found at the following web address: *http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08792.html*

Avis d'Innovation, Sciences et Développement économique Canada (ISDE)

En vertu des réglementations d'Innovation, Sciences et Développement économique Canada, les émetteurs radio dans ce produit ne peuvent fonctionner qu'avec une antenne d'un type et d'un gain maximum (ou inférieur) approuvés pour l'émetteur par Innovation, Sciences et Développement économique Canada. Pour réduire les interférences radio potentielles avec d'autres utilisateurs, le type d'antenne et son gain doivent être choisis de manière à ce que la puissance isotrope rayonnée équivalente (PIRE) ne soit pas supérieure à celle nécessaire pour une communication réussie.

Informations sur l'exposition à la fréquence radio (FR)

La puissance de sortie rayonnée de ce produit est inférieure aux limites d'exposition aux fréquences radio d'Innovation, Sciences et Développement économique Canada (ISDE). Après évaluation, ce produit s'avère conforme aux limites d'exposition aux fréquences radio (RF) d'ISDE. Ce produit doit être utilisé de manière à minimiser la possibilité de contact humain pendant son fonctionnement normal.

Ce produit a été certifié pour une utilisation au Canada. Le statut du référencement dans la Nomenclature du matériel radio (NMR) d'Innovation, Sciences et Développement économique Canada se trouve à l'adresse Web suivante : *https://sms-sgs.ic.gc.ca/equipmentSearch/searchRadioEquipments*

Pour des informations canadiennes supplémentaires sur l'exposition FR, rendez-vous sur : *http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08792.html*

Taiwan R.O.C.

台灣 : 國家通訊傳播委員會

低功率電波輻性電機管理辦法

第十二條經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信規定作業之無線電信。低功率射頻電機須忍受合法通信

或工業、科學及醫療用電波輻射性電機設備之干擾。

含 CCAI20Y10050T7

Power Requirements

Caution Fire, explosion, and severe burn hazard. This device contains a replaceable primary lithium battery. Do not recharge or disassemble the battery. Do not heat the battery or the MON-10411 above 100 °C. Do not incinerate the battery or the MON-10411. Do not expose the battery contents to water.

Attention Risque d'incendie, d'explosion et de brûlures graves. Cet appareil contient une pile au lithium primaire remplaçable. Ne pas recharger ou démonter la pile. Ne pas chauffer la pile ou le MON-10411 à une température supérieure à 100 °C. Ne pas incinérer la pile ou le MON-10411. Éviter tout contact du contenu de la pile avec de l'eau.

Caution Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Attention Risque d'explosion si la pile est remplacée par un type de pile incorrect. Éliminer les piles usagées conformément aux instructions.

Caution The battery must be replaced by a trained service technician. Refer to the *MON-10411 User Guide* on *ni.com/manuals* for instructions for replacing the battery.

Attention La pile doit être remplacée par un technicien de maintenance qualifié. Reportez-vous au *Guide de l'utilisateur du MON-10411* sous *ni.com/manuals* pour obtenir les instructions pour changer la pile.

Notice For detailed instructions about replacement, recycling, disposal, handling and storage of the MON-10411 and its battery, refer to the *MON-10411 User Guide* on *ni.com/manuals*. Safety Data Sheets for the cell can be found at *http://www.tadiran.com*.

The MON-10411 is powered by a primary lithium battery.

Replacement battery manufacturer	Tadiran
Replacement battery model	TL-5935/P
Cell chemistry	Lithium Thionyl Chloride (Li-$SOCl_2$)
Battery health indication	Binary indicator with threshold at 10% of capacity

Table 1. Battery Lifetime, Typical Configuration[2, 3]

Operating Temperature Range	Battery Lifetime
-20 °C to 5 °C	2 years
5 °C to 55 °C	3 years
55 °C to 80 °C	2 years

Physical Characteristics

Dimensions		
	Diameter	40 mm
	Height	40.3 mm
	Width across flats (base and cap)	36 mm
Weight		123 g (4.34 oz)
Impact		The MON-10411 is rated for an impact energy level of IK07 (2J), when tested with a direct vertical impact per UL/CSA 61010-1, 3rd Ed., Table 15 and Clause 8.2, and should be guarded against impacts exceeding 2J.

Export Compliance

This product is subject to control under the U.S. Export Administration Regulations (15 CFR Part 730 et. seq.) administered by the U.S. Department of Commerce's Bureau of Industry and Security (BIS) (*www.bis.doc.gov*) and other applicable U.S. export control

[2] One three-axis measurement transferred per day, up to three vibration-gated retry measurements per day.

[3] Assumes storage time <1 year at storage temperatures <30 °C. Storing the MON-10411 at elevated temperatures for prolonged durations will shorten the battery lifetime.

laws and sanctions regulations. This product may also be subject to additional license requirements of other countries' regulations.

Additionally, this product may also require export licensing before being returned to NI. The issuance of a Return Material Authorization (RMA) by NI does not constitute export authorization. The user must comply with all applicable export laws prior to exporting or re-exporting this product. See *ni.com/legal/export-compliance* for more information and to request relevant import classification codes (e.g. HTS), export classification codes (e.g. ECCN), and other import/export data.

Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit *ni.com/product-certifications*, search by model number, and click the appropriate link.

Additional Resources

Visit *ni.com/manuals* for more information about your product, including specifications, pinouts, and instructions for connecting, installing, and configuring your system.

NI Services

Visit *ni.com/support* to find support resources including documentation, downloads, and troubleshooting and application development self-help such as tutorials and examples.

Visit *ni.com/services* to learn about NI service offerings such as calibration options, repair, and replacement.

Visit *ni.com/register* to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

NI corporate headquarters is located at 11500 N Mopac Expwy, Austin, TX, 78759-3504, USA.

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378069C-01 March 10, 2021

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