USER GUIDE

Nano SPY©

Ref: 11816K

JRI Société par actions simplifiée au capital de 4 000 000 €
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I. INTRODUCTION

The Nano SPY is a measuring device for 1 or 2 physical parameters (T or TH depending on the model). Data is transmitted through NANO Link or Relay/Alarm modules using wireless 2.4GHz radio signal to the JRI-MySirius monitoring software hosted on the JRI could or the customer's server.

The Nano SPY complies with EN 12830 with temperature probes only, and is compatible with EN 13486 which defines procedures for periodic verification.

a) Product contents

- 1 Nano SPY
- 1 User guide

b) Symbols

	RECYCLING: do not dispose of in a refuse dump or waste disposal bin. Comply with existing legislation for disposal.
	Power source: this device is powered by a 3.6VDC type AA lithium battery (§ ch. V).
	CE LABELING: this device is certified to conform to European regulations for electrical safety, flammability, disruptive electromagnetic emissions, and immunity to environmental electrical disturbances.
	*FCC ID : W45 12525* *This device complies with part 15 of the FCC rules. Operation is subject to the following two condition:* *1. This device may not harmful interference,* *2. This device must accept any interference received, including interference that may cause undesired operation.* *The grantee is not responsible for any changes or modification not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.* *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.*

Do not use the device under conditions other than those described in the technical specifications (Risk of fire or explosion).

For any other use than the one mentioned, please get in touch with JRI.

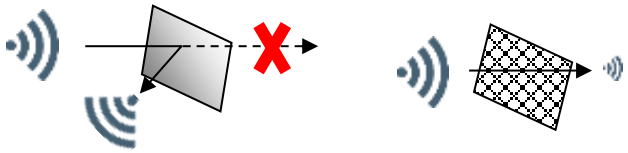
II. INSTALLATION RECOMMANDATIONS

To ensure optimal radio transmission, a certain number of recommendations must be respected, as any wireless transmission is subject to disturbances.

a) Sources of disturbances or attenuation

- The presence of obstacles in the wave path between the Nano SPY and the Nano SPY Link (wall, furniture, people…) or near the antenna.
- The thickness of an obstacle in the wave path. The attenuation is greater diagonally than perpendicularly.

- A solid metal wall will not allow transmission by radio. A perforated metal wall will allow waves to pass while attenuating them.



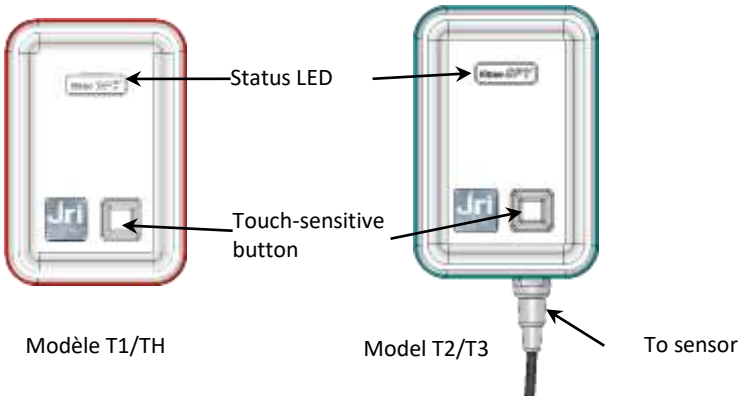
b) Positioning

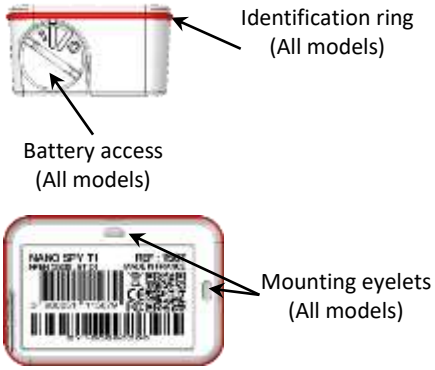
- The Nano SPY units can be placed either inside or outside the enclosures.
- For installations outside the enclosure, mount the units sufficiently high on the walls to avoid interference with obstacles and foot traffic.
- Insofar as is possible, place the Nano SPY LINK in a central position relative to the measurement points.
- Try to place them in locations where they are visible
- Never place the Nano SPY unit horizontally.
- If difficulties persist it is possible to use Nano SPY ALARMs (repeaters) or connect to another Nano SPY LINK on the Ethernet network.

To ensure your safety during installation or an intervention on a device placed in a high position, use proper equipment which is in good condition and provides adequate stability, wear appropriate, non-slip shoes and install warning signs around the work area if the intervention takes place in an area of foot traffic.

III. PRODUCT DESCRIPTION

a) Control unit





b) Mounting

The Nano SPY can be mounted in 2 different ways

- Using a tie wrap to attach it to the monitored product

- Magnetically
  The Nano SPY has 2 internal magnets for easy mounting on metallic surfaces. A protective shell is available as an option (Ref: 12715)

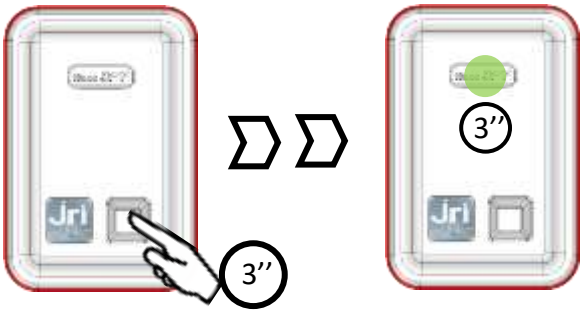
IV. OPERATION

The Nano SPY can only be used with the My Sirius software hosted on a Web platform and with a Nano SPY Link. See MySirius online help for Nano Spy configuration.

a) Off state

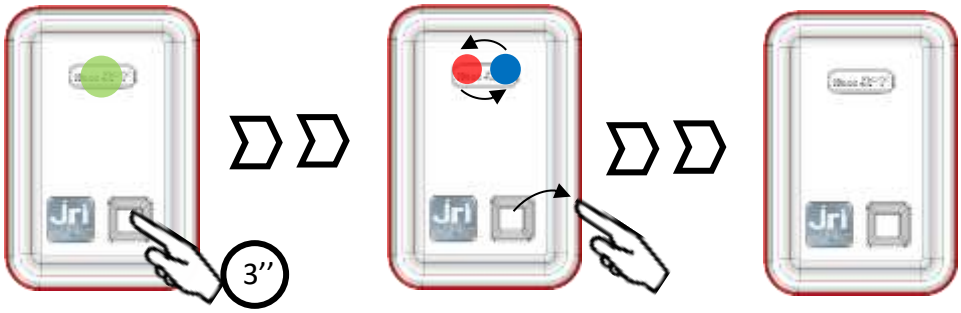
As delivered, the Nano SPY is turned off. It can neither emit nor receive signals.

b) Activation



Once activated, the le Nano SPY automatically declares itself in MySirius if it is contact with a Link. It starts to measure and transmit its measurements to My Sirius, at the frequency defined in MySirius, then flashes regularly as a function of its status.

c) Turning Off



d) Actions on the touch button

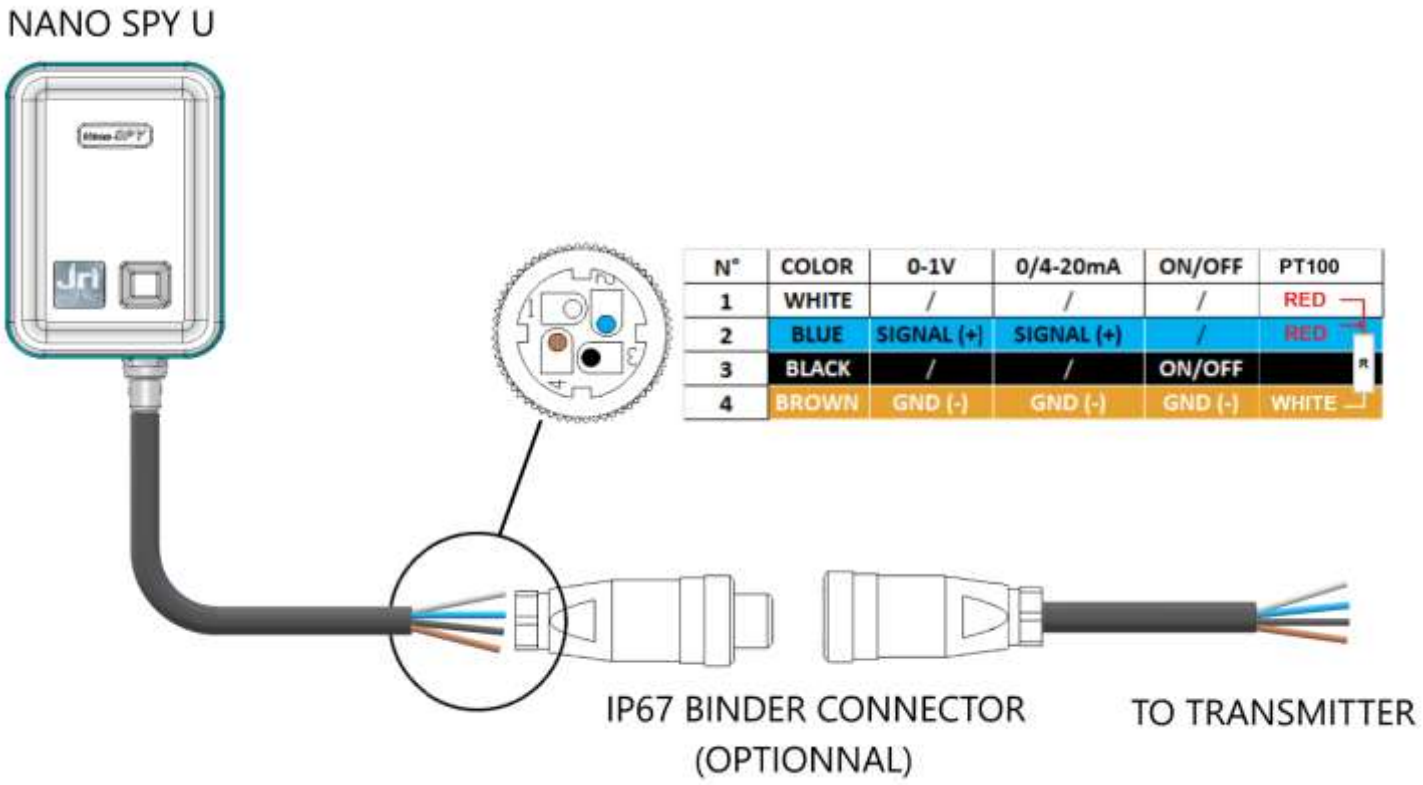
Mode \ Press sensitive bouton	< 3"	> 3''	>8''
Activation	-	● during 3''	
Mesurement	● 1'' = OK ● 1'' = Technical alarm 3x1'' = OK but paused ● 1'' = In alarm state	Off	● during 3'' The Nano SPY remains activated
Off (If authorized by program)	-	● ●	

If the authorization of turning off the device is not programmed via MySirius then it will be not possible to turn off the Nano Spy.

Using active, corrosive or flammable products or solutions (e.g. acid or petroleum) on JRI equipment is prohibited.
The JRI equipment is designed for mapping and monitoring the temperature and humidity of thermal or climatic enclosures within limits described in their technical data sheet.
For the maintenance of these devices, please refer to the dedicated section.
For any other use than the one mentioned, please get in touch with JRI.

V. NANO SPY U CONNECTION

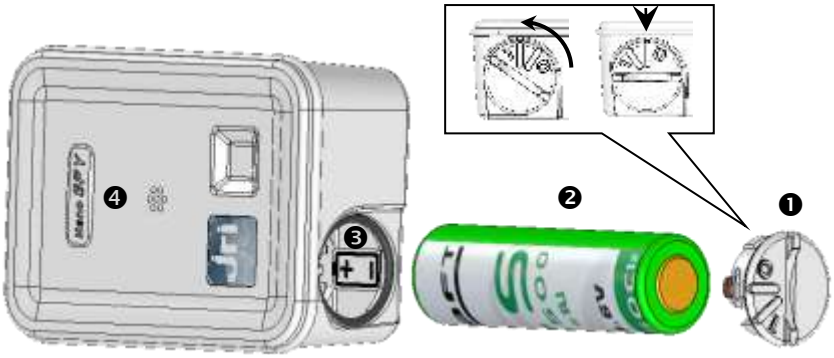
The Nano SPY Universal is equipped with a 4-wires cable facilitating connection to terminal blocks of sensors with analog outputs. These sensors can, if necessary, be disconnected from the logger for replacement or for the exchange of the logger itself.
An IP67 Binder connector (optional) can be used to facilitate the connection of the sensors.



N°	COLOR	0-1V	0/4-20mA	ON/OFF	PT100
1	WHITE	/	/	/	RED
2	BLUE	SIGNAL (+)	SIGNAL (+)	/	RED
3	BLACK	/	/	ON/OFF	R
4	BROWN	GND (-)	GND (-)	GND (-)	WHITE

Connect only sensors compatible with the technical characteristics of the devices
For sensors with 0-1V and 0-20mA outputs, there's no probe failure detection → the NANO SPY U doesn't trigger sensor default alerts.

VI. BATTERY REPLACEMENT



Removing the battery

Open the battery cover ❶ with a suitable object (coin) to align the marks (/!\0 = Open ; 1= Closed)

Remove the battery ❷ from its lodging

Replacing the battery

Put the new battery ❷ in place respecting the polarity ❸.

Battery detection is confirmed by the activation of the red LED ❹ for few seconds. The device can be activated after the extinction of the red LED.

KEEP THE BATTERY AWAY FROM FIRE, DO NOT ATTEMPT TO RECHARGE IT OR SHORT-CIRCUIT IT
THE BATTERY MUST BE A LITHIUM 3.6V TYPE AA BATTERY.
USE PREFERABLY THE BATTERIES* SUPPLIED BY JRI (PART NBR: 11596)

*Recommended batteries: Saft LS14500 type AA 3.6V 2250mAh

VII. MAINTENANCE

Clean the device with a soft cloth, either dry or slightly moistened with water. To remove stubborn dust, use a cloth soaked in a diluted, non-abrasive detergent. Then wipe carefully with a soft dry cloth.
Never use benzene, thinner, alcohol or any type of solvent, which can cause discoloration or deformation of the surfaces.

VIII. TECHNICAL FEATURES

a) Common features:

HMI	: 1 RGB LED + 1 sensitive bouton
Frequency band	: 2.4GHz (from 2400 to 2483.5 MHz)
Maximum Radio Power	: 10 dBm
Memory	: 10 000 timestamped measures
Resolution	: 0.01
Dimensions	: 63 mm x 42 mm x 25 mm
Case	: Polycarbonate – Food Contact
Power source	: 3,6v Lithium battery up to 6 years life time battery, depending on usage
Weight	: ~ 60g

b) Specific features:

Nano SPY T1 Temperature (internal probe)

Sensor	: PT100 sensitive element inside unit
Operating range	: from -40°C to +85°C
Measurement range	: from -40°C to +85°C
Accuracy, standard version	: ±0.4°C from -20°C to +40°C / ± 0.5°C outside this range
IP rating	: IP 68
Frequency of measurement and transmission	: adjustable from 1 min to 12h
Frequency of recording	: adjustable from 1 min to 24h
Response time	: ~ 10 min. to 90% of the variation
Standard calibration points	: -25°C/+5°C/+25°C

Nano SPY TH (Thermo-Hygro)

Sensor	: inside unit
Operating range	: from -30°C to +70°C
Measurement range	: from -30°C to +70°C and 0-100%HR
Accuracy, standard version	
Temperature	: ± 0.4°C from -20 C° to +40°C / ± 0.5°C outside this range
Humidity at T° from 15 to 25°C	±4% HR from 20% to 80%
From 20% to 80% HR	±5% HR outside of the range
IP rating	: IP 40
Frequency of measurement and transmission	: adjustable from 1 min to 12h
Frequency of recording	: adjustable from 1 min to 24h
Response time	: ~ 5 min. to 90% of the variation
Standard calibration points	: +2°C/+25°C/+38°C and 20%/50%/80% at 23°C

Nano SPY T2 Remote temperature

Sensor	: PT100 external probe, non-withdrawable Ø5x20mm
Operating range	: from -30°C to +70°C
Measurement range, standard version	: from -50°C to +105°C
Measurement range, incubator version	: from +30°C to +50°C
Accuracy, standard version	: ±0.3°C from -20°C to +30°C / ±0.5°C outside this range
Accuracy, incubator version	: ±0.2°C from +30°C to +50°C/±0.5°C outside this range
IP rating	: IP 65
Cable length	: Flat cable Sentroprene 30 cm, 3 m and 8 m
Frequency of measurement and transmission	: adjustable from 1 min to 12h
Frequency of recording	: adjustable from 1 min to 24h
Response time	: ~ 2 min. to 90% of the variation
Standard calibration points, standard version	: -30°C/+5°C/+40°C
Standard calibration points, incubator version	: +36°C/+38°C/+45°C

Nano SPY Reference

Sensor	: External Class A PT 100 - stainless steel Ø2,9x25mm
Operating range	: from -20°C to +50°C
Measurement range	: from -196°C to +150°C
Accuracy	: ±0.15°C from 0°C to +40°C : ±0.2°C from -30°C to 0°C and from +40°C to +150°C : ±0.5°C out of this range : ±0.6°C to -196°C
IP rating	: IP 65
Cable length	: 3 m
Frequency of measurement and transmission	: 1 min
Frequency of recording	: Adjustable from 1 min to 24h
Response time	: ~ 2 min
Standard calibration points	: +15°C/+45°C

Nano SPY T3 Extreme temperature data logger

Sensor	: PT100 external probe, non-withdrawable
Operating range	: from -20°C to 50°C
Measurement range	: from -200°C to +200°C
Accuracy, Low temperature version	: ±0.2°C from -20°C to 0°C and ±0.5°C outside this range
Accuracy, High temperature version	: ±0.3°C from 0°C to +100°C and ±0.5°C outside this range
IP rating	: IP 65
Cable length	: 50 cm and 3 m
Frequency of measurement and transmission	: adjustable from 1 min to 12h
Frequency of recording	: adjustable from 1 min to 24h
Response time	: ~ 2 min. to 90% of the variation
Standard calibration points, Low temperature version	: -80°C/-10°C
Standard calibration points, High temperature version	: +20°C/+100°C

Nano SPY TH High Accuracy

Sensor	: Sensitive element PT 1 000, 1/3 B class, HYGROMER HT-1 cable length : 2m
Operating range	: from -40°C to +85°C
Measurement range	: from -40°C to +85°C and 0-100 %HR
Accuracy	: Refer to the technical data sheet
IP rating	: IP 65
Cable length	: 2 m
Frequency of measurement and transmission	: adjustable from 1 min to 12h
Frequency of recording	: adjustable from 1 min to 24h
Response time	: ~ 15 seconds without filter to 90% of the variation

Nano SPY Door contact

Sensor	: Magnetic door contact
Operating range	: from -40°C to +85°C
Accuracy	: Refer to the technical data sheet
IP rating	: IP 65
Cable length	: 20 cm
Frequency of measurement and transmission	: 1 min
Frequency of recording	: adjustable from 1 min to 24h
Response time	: ~ 1,7 milliseconds

Nano SPY Digital

Sensor	: External to control unit
Operating range	: from -25°C to +70°C
Measurement range	: According to the type of JRI digital probe
Accuracy	: Accuracy of the JRI digital probes
IP rating	: IP 65
Cable length	: N/A
Frequency of measurement and transmission	: adjustable from 1 min to 12h
Frequency of recording	: adjustable from 1 min to 24h
Response time	: ~ 2 min. to 90% of the variation
Standard calibration points	: +20°C/+100°C

Nano SPY TWIN, 2 Channels: Internal PT100 probe + External PT100 probe – non-withdrawable Ø5x20mm

Sensor	: Internal PT100 probe External PT100 probe - non-withdrawable Ø5x20mm
Operating range	: from -30°C to +70°C
Measurement range, Ambient probe - Internal	: from -30°C to +70°C
Measurement range, PT100 Probe - External	: from -50°C to +105°C
Accuracy, Ambient probe - Internal	: ±0.4°C from -20°C to +40°C and ±0.5°C out of this range
Accuracy, PT100 Probe - External	: ±0.3°C from -20°C to +30°C and ±0.5°C out of this range
IP rating	: IP 65
Cable length	: 3m
Frequency of measurement and transmission	: adjustable from 1 min to 12h
Frequency of recording	: adjustable from 1 min to 24h
Response time	: ~ 2 min. to 90% of the variation
Standard calibration points	: -30°C / 0°C / +40°C

Nano SPY Universal

Input type	:
PT100 input	An adjustment of the measurement chain is mandatory
measurement range:	From -200°C to +300°C
resolution:	0,01°C
accuracy (not including probe) :	± 0,2°C from -20°C to +50°C ±0,3°C from -80°C to -20°C and from +50°C to +140°C ± 0,5°C beyond these ranges
Current input	(No detection of probe failure for 0-20mA input)
measurement range:	From 0 to 20 mA or 4-20mA
resolution:	0,001 mA
accuracy (control unit only):	± 0,01 mA
Voltage input	(No detection of probe failure for 0-1 V input)
measurement range:	0 à 1V
resolution:	0,1 mV
accuracy (control unit only)	±0.5 mV
On/Off or Counting input	
Type of input	Dry contact or 0-3,3V max
measurement range:	0 à 65535 – signal from 0 to 200Hz
resolution:	1
accuracy	±1
Operating range	: from -20°C to 50°C
IP rating	: IP 65
Cable length	: 2 m
Frequency of measurement and transmission	: adjustable from 5 sec to 12h
Frequency of recording	: adjustable from 1min to 24h
Response time	: according to sensor
Connection	: Using a Binder IP67 connector (ref : 12617) or directly on the analog output

c) Compliance

JRI declares that all our radioelectric devices from the NANO SPY range (T1,T2,T3,TH) are in compliance with the following standards:

EN 12830	These devices must be verified regularly according to EN13486 (recommended once per year)
FCC	FCC ID : W45 12525 This device complies with part 15 of the FCC rules. Operation is subject to the following two condition: 1.This device may not harmful interference, 2.This device must accept any interference received, including interference that may cause undesired operation. The grantee is not responsible for any changes or modification not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment. **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.
CE ERM	EN 301489-1 & -17/EN 61010-1/EN 62479/EN 300328(T1, T2, T3, TH, U, TH High Accuracy) / ETS 300-328 (TH, T3, T2, T1, Reference, Door contact)
2014/53/UE	A copy of the full EU compliance statement can be requested by email: info@group-mms.com
IC CANADA	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 should be installed and operated such that a minimum separation distance of 20 cm is maintained between the radiator (antenna) and user's/nearby person's body at all times.

IX. OPERATION CAPACITY

FICHE D'APTITIDE A L'EMPLOI SELON LA NORME 12830

Capacity of operation compliant to EN12830

Modèle / *model*: **Nano SPY T1**
Type de matériel / *equipment type* : **enregistreur de température** / *temperature recorder*
Utilisation / *application*: **Stockage** / *storage*
Environnement / *environment*: **C**
Classe de précision / *accuracy class*: **1**

Tableaux des essais / *Test table*

Essais	§ norme	Exigences	Caract.	Documents ou rapports d'essais
Détermination de l'erreur de la mesure de la température.	5.3	±1°C	±0,5°C	Rapport de qualification métrologique RQCC16001
Détermination du temps de réponse.	5.4	<60'	10'	Procès-verbal d'essais JRI RECC16003
Détermination de l'erreur relative de l'enregistrement du temps.	5.5	0.1%	0.002%	Procès-verbal d'essais JRI RECC16005
Variation de la tension d'alimentation. (Enregistreur soumis aux températures assignées)	5.6.2	3,2V à 3,6V -30°C à +30°C	2,7 V à 3,6V -40°C à +85°C	Procès-verbal d'essais JRI RECC16005
Influence de la température ambiante. (Enregistreur soumis aux températures limites)	5.6.3.3	-40°C à +50°C	-40°C à +85°C	Procès-verbal d'essais JRI RECC16003
Essai de température avec l'enregistreur en condition de stockage et de transport.	5.6.4	-40°C à +60°C	-40°C à +85°C	Procès-verbal d'essais JRI RECC16003
Résistance aux chocs.	5.6.5	EN 60068-2-27	N/A	Non requis pour stockage
Vibrations mécaniques.	5.6.6	EN 60068-2-27	N/A	Non requis pour stockage
Degrés de protection procurés par l'enveloppe.	5.6.7	IP55 selon EN 60529		Procès-verbal d'essais JRI RECC16005
Sécurité électrique	5.6.8	EN61010-1 : 2010		Rapport d'essai EMITECH RS-031-PNC-16-103276-2-A.pdf
Rigidité diélectrique.	5.6.9	N.A.	N.A.	
Compatibilité électromagnétique.	-	EN 301489-17 V2.2.1 : 2012 EN 301489-1 V1.9.2 : 2011 EN 55024 : 2010 / A1 2015		Rapport d'essai EMITECH TC-032-PTC-15-16147-1-1.pdf

Pour JRI
Le Directeur Technique et Qualité :
Technical and quality manager

Date : 23/01/2017
date

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FICHE D'APTITIDE A L'EMPLOI SELON LA NORME 12830

Capacity of operation compliant to EN12830

Modèle / *model*: **Nano SPY T2**
Type de matériel / *equipment type* : **enregistreur de température** / *temperature recorder*
Utilisation / *application*: **Stockage** / *storage*
Environnement / *environment*: **A**
Classe de précision / *accuracy class*: **1**

Tableaux des essais / *Test table*

Essais	§ norme	Exigences	Caract.	Documents ou rapports d'essais
Détermination de l'erreur de la mesure de la température.	5.3	±1°C	±0,5°C	Rapport de qualification métrologique RQCC16001
Détermination du temps de réponse.	5.4	<60'	2'	Procès-verbal d'essais JRI RECC16004
Détermination de l'erreur relative de l'enregistrement du temps.	5.5	0.1%	0.002%	Procès-verbal d'essais JRI RECC16005
Variation de la tension d'alimentation. (Enregistreur soumis aux températures assignées)	5.6.2	3,2V à 3,6V -30°C à +30°C	2,7 V à 3,6V -40°C à +85°C	Procès-verbal d'essais JRI RECC16005
Influence de la température ambiante. (Enregistreur soumis aux températures limites)	5.6.3.3	-40°C à +50°C	-40°C à +85°C	Procès-verbal d'essais JRI RECC16004
Essai de température avec l'enregistreur en condition de stockage et de transport.	5.6.4	-40°C à +60°C	-40°C à +85°C	Procès-verbal d'essais JRI RECC16004
Résistance aux chocs.	5.6.5	EN 60068-2-27	N/A	Non requis pour stockage
Vibrations mécaniques.	5.6.6	EN 60068-2-27	N/A	Non requis pour stockage
Degrés de protection procurés par l'enveloppe.	5.6.7	IP55 EN 60529	IP68 EN 60529	Procès-verbal d'essais JRI RECC16005
Sécurité électrique	5.6.8	EN61010-1 : 2010		Rapport d'essai EMITECH RS-031-PNC-16-103276-2-A.pdf
Rigidité diélectrique.	5.6.9	N.A.	N.A.	
Compatibilité électromagnétique.	-	EN 301489-17 V2.2.1 : 2012 EN 301489-1 V1.9.2 : 2011 EN 55024 : 2010 / A1 2015		Rapport d'essai EMITECH TC-032-PTC-15-16147-1-1.pdf

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X. WARANTY

Our material is guaranteed for one year, parts and labor, against any manufacturing defect, functional failure or abnormal wear. This guarantee covers only the replacement of parts recognized to be defective as well as the repair of the material in question returned shipping paid to our workshops, and excludes all damages and interest or incidental expenses.
The starting point of the guarantee is the date of invoice of the concerned product. The invoice must be provided for any request for application of the guarantee. Repairs under guarantee in no way extend the guarantee period accorded to the product at the time of sale. Deterioration due to any abnormal usage or to storage under adverse environmental conditions is excluded from our guarantee.

XI. MAINTENANCE CONTRACT

How best to optimize your radiofrequency installation?

Radiofrequency measurement systems communicate through Hertzian waves. Many factors (change in installation, moving, supplemental wall, interference with another radio system…) can nonetheless modify the radio pathway previously defined. The use of radiofrequency thus requires periodic monitoring by recognized specialists.

It is for this reason that JRI has developed for you the maintenance contract. We simplify your procedures by offering you a fully-integrated solution. This global service offer includes both maintenance and a metrological service, ensuring the optimum functioning of your devices or of your installation.

You'll no longer have to worry about the maintenance of your devices!

This maintenance contract allows you to benefit, for a minimum period of 2 years, from a variety of services such as:

- annual or biannual verification of the material
- an extension of the guarantee
- tele maintenance
- technical support **+33 (0) 892 680 933** **(0,282 € HT/min)**
- replacement of the material onsite or by a return to the factory
- verification of measurement accuracy (metrological certificate)
- battery replacement
- access to new software versions
- intervention within 48 working hours following identification of the fault by our experts

XII. ENVIRONMENTAL PROTECTION

JRI recommends to its customers the disposal of their unusable and/or irreparable measurement and recording materials in a manner compatible with the protection of the environment. As the production of waste materials cannot be avoided, these should be reused through the recycling process best adapted to the considered materials and to the protection of the environment.

RoHS Directive

The RoHS European directive regulates and limits the presence of dangerous substances in electronic and electric equipment (EEE).
All new electronic equipment designed, developed and manufactured by JRI are compliant with the aforementioned Directive 2002/95/CE.