



# SIRIUS SOLUTIONS



[www.jri-maxant.com](http://www.jri-maxant.com)  
Measurement, monitoring and metrology

JRI has developed a wireless monitoring system which is flexible and user friendly. Its aim is to maximise security and save time. This global monitoring system SPY RF® meets perfectly the requirements of current regulations (HACCP, COFRAC and EU equivalents, ISO, GLP, GMP...) and quality control programs.

Today JRI provides all the components of an efficient monitoring system: on site radio communication survey, metrology, radio communication, hotline, software and maintenance contracts. Easy to use and delivering reliable results, the SPY RF® system also offers automatic surveillance of your laboratory or production plant.

## Some of our users...



### St André Les Lille Central Kitchen

**Application :** monitoring of ambient conditions and temperature in cold rooms freezers.

## Food

### Restaurant/ Catering

- > Charles Perrens Hospital (France)
- > HRC Restaurant "l'Arche" of Elior Group (France)
- > Louvres Hotels: Le Ritz, Ambassador, Hôtel du Louvre, Concorde Montparnasse, Concorde St Lazare, Lutetia, Concorde Lafayette (France)
- > **McDonalds (France)**
- > **St André Les Lille Central kitchen (France)**
- > University Restaurants Crous of Rennes (France)
- > Total service petrol stations (France)
- > Newrest (french Polynesia)
- > Gate Gourmet (Europe)



### McDonald's

**Application :** monitoring of all kind of cold chambers, ambient conditions and energy consumption.

### Supermarkets/dealers

- > Leclerc Supermarkets Industry (France)
- > Locaservice (France)

### Industry

- > CocaCola (Italy)
- > Gelati Royal (Italy)
- > Gialdini & Picchi (Italy)
- > Italiascar (Spain)
- > Nestlé (United Arab Emirates)
- > Socrema (Guadeloupe)

...And hundreds of working SPY RF® systems all over the world. Ask us for local distributor details.



### Museum of Vire

**Application :** temperature and humidity recording for preservation of artwork.

## Museums / Archives

- > Archaeological Museum (Belgium)
- > Archives départementales nationales (France)
- > Carnavalet Museum of Nice (France)
- > Fernand Léger Museum (France)
- > Galleria Degli Uffizi (Italy)
- > Marc Chagall national Museum (France)
- > **Museum of Vire (France)**
- > Paris National School of Beaux-Arts (France)
- > Perfume Museum in Grasse (France)

- > MEASURES
- > RECORDS
- > COMMUNICATES
- > STORES
- > WARNS  
(real time alarm)



## AP-HP

**Application :** chambers surveillance in biology technical platforms.

## Health

### Blood Transfusion Centers and Blood Banks

- > Blood Bank of Aragon (Spain)
- > Blood Bank of Catalonia (Spain)
- > Maribor Transfusion Center (Slovenia)
- > Pula Hospital - Blood Bank (Croatia)
- > Regional Blood Banks (France)
- > Sarajevo Central Blood Bank (Bosnia)

### Public Institutions

- > Abu Dhabi Police-Forensic Laboratory (United Arab Emirates)
- > Food laboratory of Zaragaza (Spain)
- > Institut Pasteur (Senegal & Guadeloupe)
- > IRCCS for Oncology Research (Italy)

### Hospitals

- > Al Mafraq Hospital (United Arab Emirates)
- > **AP-HP in Paris (First group of public hospital in Europe)**
- > Group of Hospitals in Lyon (France)
- > National Hospital in Riyadh (Saudi Arabia)
- > Prince Muhammad Hospital (Saudi Arabia)
- > Public Health Laboratory of Madrid (Spain)
- > Riberão Hospital (Brazil)
- > Trento Hospital (Italy)
- > University Hospital in Lille (France)

### Logistics platforms

- > Cenexi (France)
- > Cerp - Pharmaceutical distribution (France)
- > **OCP (France)**
- > Pharmalog (France)
- > Stef - Cold logistics (France)

### Industry

- > ABBOTT (Spain)
- > Aventis Pharma (Germany)
- > Avon (Brazil)
- > Diatec Monoclonals (Norway)
- > DMS Farmaceutici Spa (Italy)
- > Julphar (United Arab Emirates)
- > Novartis (Switzerland)
- > Pfizer (Senegal)
- > Sanofi (Argentina)



## OCP

**Application :** Temperature mappings (summer and winter) of storage warehouses.

## Industry

- > EDF (France)
- > Siemens Automotive (France)
- > Virbac (France)
- > Procter & Gamble (Romania and France)
- > Microsoft (Romania)
- > Frezenius (Portugal and Germany)

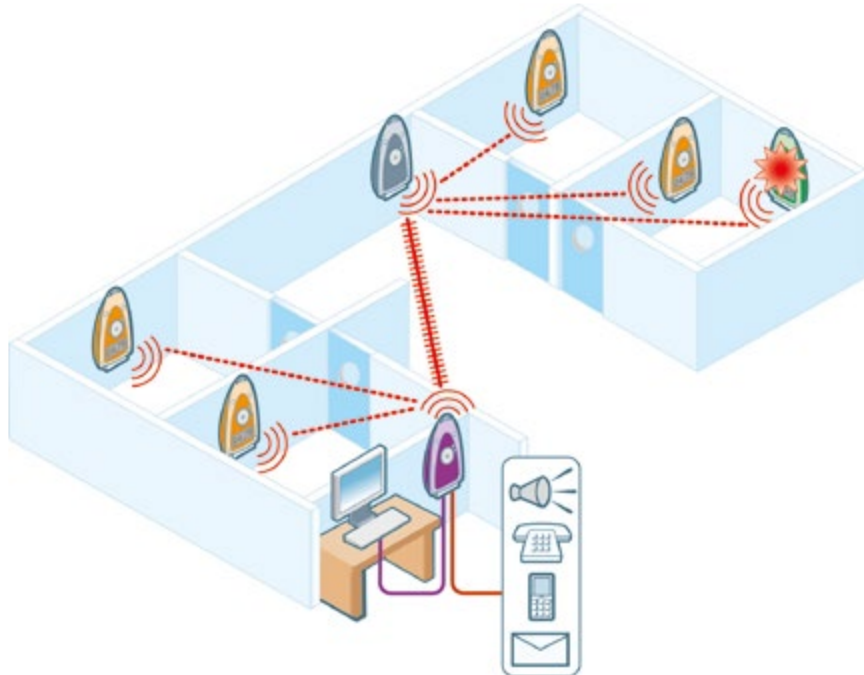


**Transports Antoine Group**  
**Application :** cold chain monitoring during transport.

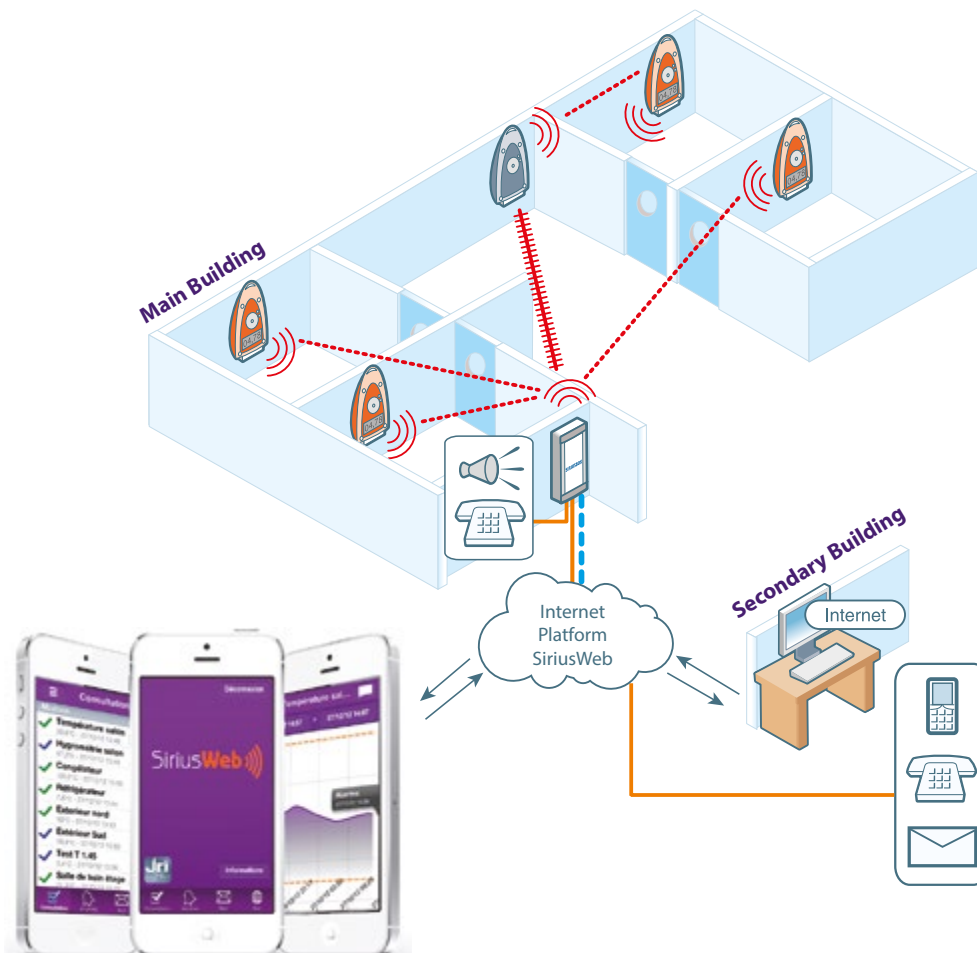
## Transport under monitored temperature

- > **Transports Antoine Group (France)**
- > Logidis (France)
- > Geodis Logistics Ile de France (France)
- > Flash Europe (France)
- > TSE Express Medical (France)
- > Agility Logistic (United Arab Emirates)
- > World Courier (Germany)

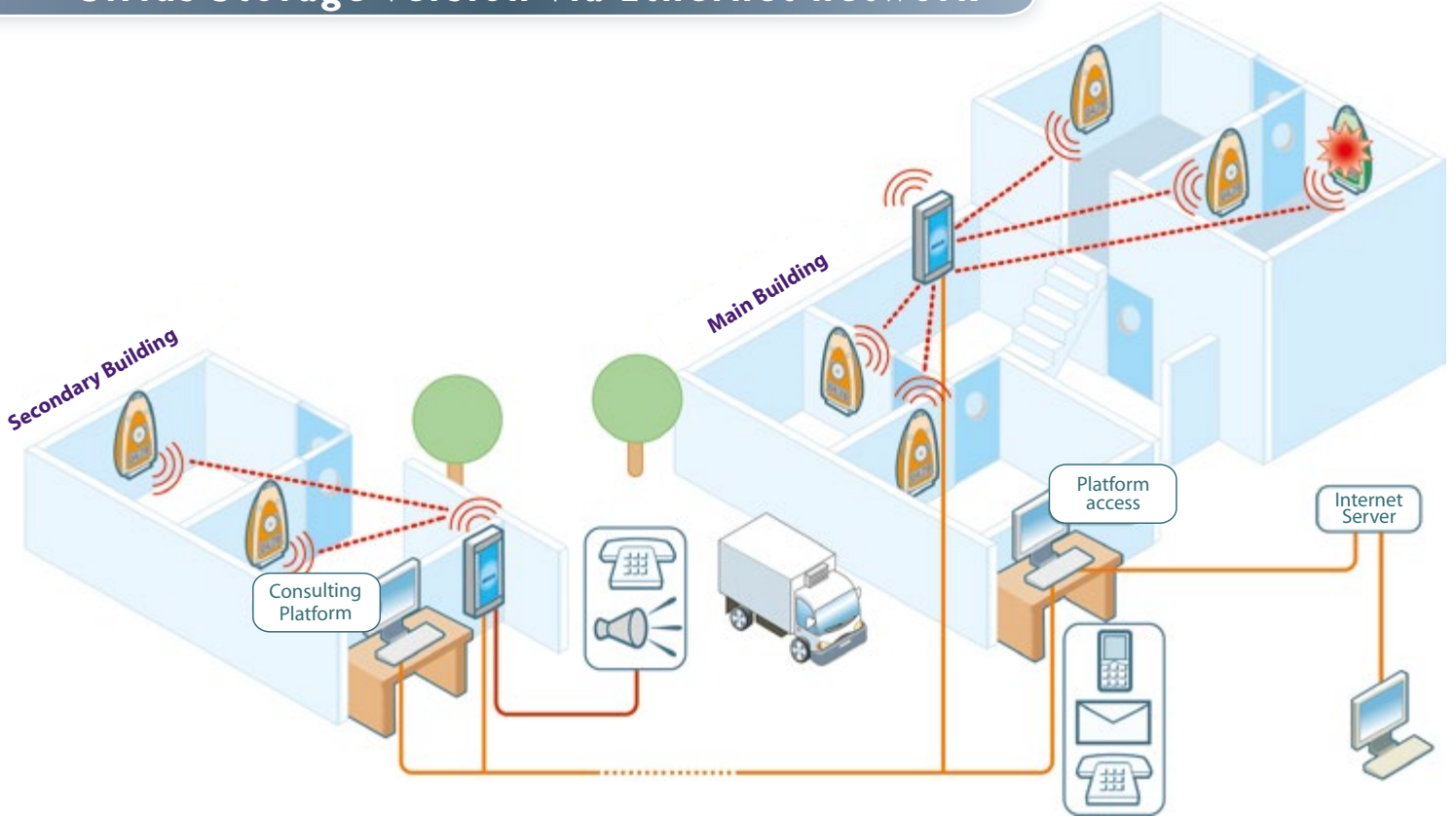
## Sirius Lite Version



## SiriusWeb Version

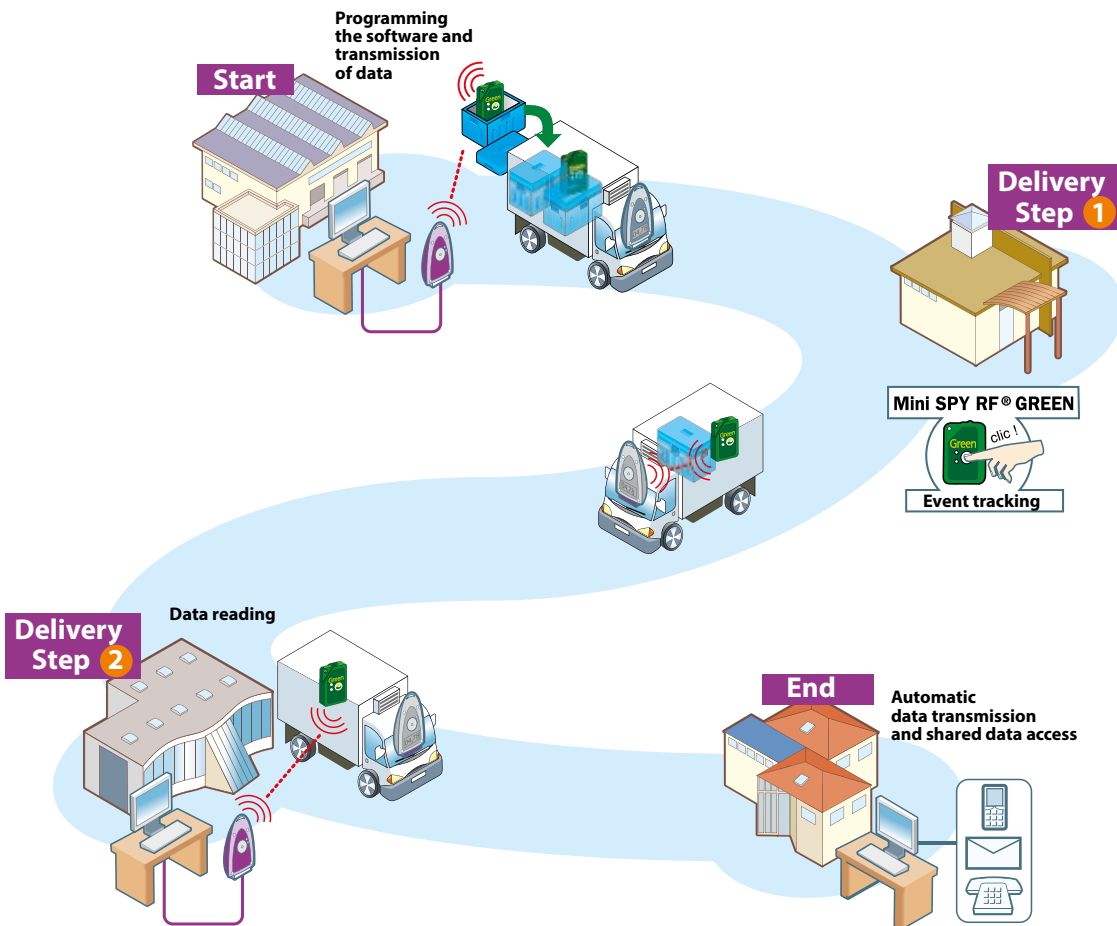


## Sirius Storage version via Ethernet network



## Sirius Transport version with Mini SPY RF®

Version available with all recorders included in the SPY RF® range



### Legend

- SPY RF®
- SPY RF® Relay
- SPY RF® Visu
- SPY RF® ModeM
- SPY RF® AlarM
- SPY IP
- SPY RF® ModeM Ethernet
- Mini SPY RF® GREEN
- SiriusBox
- Ethernet Network
- USB Cable
- Radio Communication (200 - 300 m)
- GPRS communication
- Radio Communication (800 - 1000 m)
- Alarm TXT /msg
- E-mail alert
- Visual and audible alert
- Telephone alert

# FOCUS SPY RF® RECORDERS



LCD Screen

Record mode

Pause mode

Internal memory

Threshold warning indicator

Channel number

Radio signal level

Measurement value and unit

Rec ▶ Halt ■■■ Mem ■■■ Y

▲ +

▼ 1

▲ +

▼ 2

20.0 °C

90.0 %

SPY RF® Range is also available in °F

# ONE SOLUTION FOR EACH APPLICATION



## Coolers, refrigerators and freezers

### Recommended Solutions

- > SPY RF® T+
- > Mini SPY RF® Green
- > SPY RF® N with flat cable probe

### The expert's point of view

- > Easy to install.
- > Cost saving temperature monitoring solution.



## CO2 and temperature incubators

### Recommended Solutions

- > SPY RF® U2 with Pt100, (A grade) probe paired and CO2 high accuracy sensor.
- > SPY RF® N with digital probe for incubator.

### The expert's point of view

- > Ask for a ISO 17025 calibration certificate at 36, 38 and 45°C for a maximal accuracy of  $\pm 0,2^{\circ}\text{C}$ .
- > SPY RF® N: to easily perform maintenance operations, thanks to digital probes replacement.



## Refrigerators, freezers and incubators from -50 to +125°C

### Recommended Solutions

- > SPY RF® U with Pt100 probe (flat cable) and door contact sensor.
- > SPY RF® ReferencE with Pt100 probe (flat cable).
- > SPY RF® N with digital probe (short + extension) and door contact sensor..
- > SPY RF® N with digital probe for incubator.

### The expert's point of view

- > SPY RF® U : The flat cable probe can be placed between door seals when cabinets are not equipped with access port.
- > SPY RF® ReferencE : To get high accuracy measurements for specific cabinets.
- > SPY RF® N : To easily perform maintenance operations, thanks to digital probes replacement.



## Ultra low freezers (80°C) or LN2 tanks (-196°C)

### Recommended Solutions

- > SPY RF® U with cryogenic Pt100 probe.
- > SPY RF® N with low temperature digital probe.

### The expert's point of view

- > In some tanks, it is also possible to measure liquid nitrogen level.
- > SPY RF® N: to easily perform maintenance operations, thanks to digital probes replacement.



## Climatic chambers (temperature and humidity)

### Recommended Solutions

- > SPY RF® N with TH digital probe.

### The expert's point of view

- > Maintenance and installation operations are easier as no power supply is needed and TH digital sensors are interchangeable.



## Cold chambers

### Recommended Solutions

- > SPY RF® U with a 15m Pt100 probe and door contact sensor.
- > SPY RF® N with a 12m cable and its digital replaceable probe (IP67).

### The expert's point of view

- > Thanks to the cable length, you can place the probe in the most accurate area of the cold chamber and avoid alarms when the door is opened.
- > Thanks to a door contact sensor, an alarm is launched before temperature is rising.

> Metrology services can be provided, in option.

# SPY RF® RECORDERS



## SPY RF® T+

Ambient temperature recorder with protruding probe.

### Key features

- > Has a temperature protruding probe for a faster response time.
- > High color for easy location.
- > Splashproof and contaminationproof.



## SPY RF® U

Universal recorder.

### Key features

- > Compatible with most probes and sensors : Pt 100, Pt 1000, 4-20mA, 0-1 V, contact.
- > Monitors all types of temperature-controlled equipment (-200°C to +400°C) and many others parameters like ΔP, CO<sub>2</sub>, O<sub>2</sub>,...
- > Allows recording to start when specific events occur.
- > Possibility to have different types of input in 2-channel model (analog or electrical).

For a better accuracy, the recorder can be paired with a probe.



## SPY RF® AIR

Ambient temperature and relative humidity recorder.

### Key features

- > Fast response time during measurement variations.
- > Replaceable battery.
- > Sober design.



## Mini SPY RF® Green

Eco-friendly temperature recorder.

### Key features

- > 100% recyclable.
- > Washable and robust.
- > Remote configuration and data reading.
- > Visual alarms : Leds.



### Did you know ?

Mini SPY RF® Green is the first eco-friendly recorder made of 100% recyclable components.

Did you know ?  
JRI can provide COFRAC calibration certificates for its whole range of recorders.



	TECHNICAL FEATURES			
	1 SPY RF® T+	2 SPY RF® U	3 SPY RF® Air	4 MINI SPY RF® Green
Measurement range	From -30°C to +70°C	From -200°C to +400°C* 4-20mA/0-1V/TOR	From -30°C to +70°C and from 0 to 100% RH not condensing	From -40°C to +85°C
Channel number	1 internal	1 or 2	2	1
Resolution	0,1°C	0,1°C	0,1°C	0,1°C
Operating conditions	From -30°C to +70°C	From -30°C to +70°C	From -30°C to +70°C	From -40°C to +85°C
Power supply	Lithium battery	Lithium battery	Lithium battery	Lithium battery
Battery lifetime**	4 years - Not replaceable	2 years - Replaceable	2 years - Replaceable	2 years - Replaceable
Type of input	Protruding (temperature PTC)	External (Pt100/Pt 1000/4-20mA/0-20mA/0-1V/TOR)	Internal (temperature and relative humidity)	Internal (temperature) or external (Ø 4x50 mm cabled 1m)
Recording interval	30 seconds to 90 minutes	1 second to 90 minutes	1 second to 90 minutes	1 second to 90 minutes
Internal memory	10 000 measurements	10 000 measurements per channel	20 000 measurements	10 000 measurements
Radio range	300 m	300 m	300 m	58 m
Radio band	ISM 868 Mhz or 902 Mhz	ISM 868 Mhz or 902 Mhz	ISM 868 Mhz or 902 Mhz	ISM 868 Mhz or 902 Mhz
Power	25 mW	25 mW	25 mW	25 mW
Digital display	Yes	Yes	No	No
Dimensions (HxWxD)	123x69x30 mm	123x69x35 mm	222x65x30 mm	80x55x18mm
Protection index	IP68	IP65	IP34	IP67
Compliance	EN 12830, ROHS, CE, FCC, ETS 300-220	ROHS, CE, FCC, ETS 300-220	ROHS, CE, FCC, ETS 300-220	EN 12830, ROHS, CE, FCC, ETS 300-220
Delivered with	User manual	User manual, wall-mounting bracket and cable input protection	User manual, wall-mounting bracket	User manual
Part numbers	868 Mhz : 06166 902 Mhz : 09571	868 Mhz : U1 without probe : 06168 U2 without probe : 06169 U1 + Pt100 probe : 09815 U2 + Pt100 probes : 09816  902 Mhz : U1 without probe : 09573 U2 without probe : 09574 U1 + Pt100 probe : 09817 U2 + Pt100 probes : 09818	868 Mhz : 10075 902 Mhz : 10271	868 Mhz : 09980 (x1) 09985 (x10) 902 Mhz : 10255 (x1) 10258 (x10)

\* Depending on type of probe.

\*\* Depending on conditions of use.



# SPY RF® RECORDERS

**5** **SPY RF® N**  
**Digital recorder (T° / RH / contact).**

**Key features**

- > Probes are interchangeable for easy maintenance.
- > Suitable for dry contact inputs.
- > Allows recording to start when a specific event occurs.
- > Possibility to have different types of input on the 2-channel model (digital or electrical).

**7** **SPY RF® TC**  
**Temperature recorder for Thermocouple K probes.**

**Key features**

- > Compatible with all types of thermocouple K probes.
- > Compatible with Hygitherm probe, specially designed for pipes.

**8** **SPY RF® C**  
**Recorder for countable events.**

**Key features**

- > Compatible with most pulse sensors.

**6** **SPY RF® Santé**  
**Dedicated range for pharmacy and medical biology developed in collaboration with the experts of Paris Hospitals Trust ("AP-HP", 28 sites) based on SPY RF® U or N.**

**Key features**

- > Can monitor the hottest and coldest spots of your chamber (using the 2-channel SPY RF® Santé recorder)
- > High accuracy in the range +2 to +8°C.
- > Supplied with COFRAC\* calibration certificates (\*equivalent to ISO 17025 standard).



**9** **SPY RF® ReferenceE**  
**High accuracy.**

**Key features**

- > Resolution of 0,01°C.
- > Available in 1 or 2 channel(s).
- > Available with or without probe.
- > With an accuracy of ±0.09°C this is the tool for metrology operations or incubators surveillance.

## ES OF SPY RF® RECORDERS

5	6	7	8	9	
SPY RF® N	SPY RF® Santé	SPY RF® TC	SPY RF® C	SPY RF® ReferenceE	
T : -200°C to +80°C* and TH : -30°C to +70°C from 0 to 100% RH not condensing	SPY RF® Santé N T : from -40°C to +80°C	SPY RF® Santé U T : from -50°C to +180°C	Depending on the probe from -100°C to +1300° C	From 0 to 200 Hz	From -50 to +125°C or -200 to +270°C
1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	
0,1°C	0,1°C	0,1°C	1	0,01°C	
From -30°C to +70°C	From -30°C to +70°C	From -30°C to +70°C	From -30°C to +70°C	From -30°C to +70°C	
Lithium battery	Lithium battery	Lithium battery	Lithium battery	Lithium battery	
2 years - Replaceable	2 years - Replaceable	2 years - Replaceable	2 years - Replaceable	2 years - Replaceable	
External (temperature, relative humidity and Dry contact)	External (temperature)	External (thermocouple K)	External (pulses)	External (Pt100)	
1 second to 90 minutes	1 second to 90 minutes	1 second to 90 minutes	1 second to 90 minutes	1 second to 90 minutes	
10 000 meas. per channel	10 000 measurements per channel	10 000 meas. per channel	10 000 meas. per channel	10 000 meas. per channel	
300 m	300 m	300 m	300 m	300 m	
ISM 868 Mhz or 902 Mhz	ISM 868 Mhz	ISM 868 Mhz or 902 Mhz	ISM 868 Mhz	ISM 868 Mhz or 902 Mhz	
25 mW	25 mW	25 mW	25 mW	25 mW	
Yes	Yes	Yes	Yes	Yes	
123x69x35 mm	123x69x35 mm	123x69x35 mm	123x69x35 mm	123x69x35 mm	
IP65	IP65	IP65	IP65	IP65	
EN 12830, ROHS, CE, FCC, ETS 300-220	EN 12830, ROHS, CE, ETS 300-220	ROHS, CE, FCC, ETS 300-220	ROHS, CE, ETS 300-220	ROHS, CE, FCC, ETS 300-220	
User manual, wall-mounting bracket and cable input protection	User manual, wall-mounting bracket, cable input protection, 3 points COFRAC calibration certificate (-18, +2, +8°C), temperature probe supplied with 3m cable	User manual, wall-mounting bracket and cable input protection	User manual, wall-mounting bracket and cable input protection	User manual, wall-mounting bracket and cable input protection	
868 Mhz : 1 channel : 06428 2 ch. : 06429 902 Mhz : 1 channel : 09578 2 ch. : 09579	868 Mhz : U1 : 08634 U2 : 08635 N1 : 08636 N2 : 08637	868 Mhz : 1 channel : 06170 2 channels : 06171 902 Mhz : 1 channel : 09575 2 channels : 09576	868 Mhz : C1 : 06426 C2 : 06427	868 Mhz : 1 channel : 09883 1 ch. + Pt100 probe : 09509 2 channels : 09887 2 ch. + Pt100 probes : 09889 902 Mhz : 1 channel : 09884 1 ch. + Pt100 probe : 09582 2 channels : 09888 2 ch. + Pt100 probes : 09890	

# SPY RECORDERS



## SPY IP

**Ethernet recorder with 1 or 4 sensor(s) input**

### Key features

- > Monitors simultaneously and independently, up to four different parameters: Temperature (PT100 and digital), temperature / humidity, 4-20mA, dry contact...
- > Measurement display and alarm detection in real time
- > Multicolour and backlighted touch sensitive screen
- > Compliant with Sirius Storage software when used with a SPY RF system

## TECHNICAL FEATURES

	SPY IP 1	SPY IP 4
Number of channel	1	4
Operating range	0 to +40°C and 0-90% RH non condensing	
Measurement range	-200 to +85°C depending on the probe / 0 to 100% RH	-200°C to +300°C depending on the probe / 0 to 100% RH
Type of input	digital /dry contact (counting / frequency)	digital and analog (PT 100 / 4-20 mA / 0-1V) dry contact (counting / frequency)
Recording interval	1 second to 90 minutes	
Internal memory	2 x 10 000 measurements	4 x 10 000 measurements
Power supply	Plug (9 VDC 650mA) or via Ethernet (POE)	
Dimensions	153 x 82 x 35mm	
Battery lifetime	from 4 to 6h	
Compliances	EN 61326-1 (july 2006) - EN 61010 (january 2011)	
Protection index	IP 20	
Delivered with	User manual	
Part numbers	SPY IP DIGITAL VDC (EUR) : 11106 SPY IP DIGITAL POE : 11105 SPY IP DIGITAL VDC (INT) : 11107	SPY IP DIGITAL & ANALOG VDC (EUR) : 10481 SPY IP DIGITAL & ANALOG POE : 10484 SPY IP DIGITAL & ANALOG VDC (INT) : 10482

## SPY Touch'®

**1 and 2 channels recorder communicating with a USB Flash drive.**

### Key features :

- > Multicolour and backlighted touch sensitive screen.
- > Programming and checking data directly on the touch sensitive screen.
- > Download of data with USB flash drive.
- > PDF report generated when USB flash drive is connected
- > 40 000 measurements per channel.
- > Compliant with Sirius Lite 2.0 software.

## TECHNICAL FEATURES

Products	SPY Touch' U® without probe	SPY Touch' U® with probe	SPY Touch' N® without probe
Measurement range	From -196 to +184°C	From -50 to +105°C	T : -40 to +80°C TH : -40 to +80°C from 0 to 100% RH
Resolution	0.1°C		
Operating conditions	From +5°C to +40°C		
Type of input	Pt 100 and dry contact	Paired and pre configured Pt 100 (flat cable) and dry contact	2 digital channels (T, RH, Dry contact)
Type of output	1 dry contact		
Power supply	220 - 250 VAC		
Battery lifetime	Standard battery* (50 hours), lithium battery (100 hours)		
Recording interval	10 seconds to 120 minutes		
Internal memory	40 000 measurements per channel		
Alarm	Visual, audible and relay output		
Digital display	Yes (touch sensitive screen and multi colours)		
Dimensions (HxWxD)	161x84x60 mm		
Weight	480 grs		
Protection index	IP20		
Compliances	EN12830, CE, ROHS		
Delivered with	User manual and programming and operating software		
Part numbers	09961	09962	09965

\* Not included



Several screen colours for a clear display of the status (SPY IP and SPY TOUCH')



## Temperature mapping and validation of temperature controlled chambers

Compliant with the NFX 15-140 norm.



## TECHNICAL FEATURES

Kit	9 points <2 m3 (SPY RF® U)	9 points <2 m3 (SPY RF® ReferenceE)
Measurement range	From -200 to +260°C	
Basic Kit	1 case, 1 SPY RF® USB ModeM, Metrolog temperature mapping software	
Kit specifications	- 5 SPY RF® U2. - 9 Pt 100 probes, Ø2.9 x 20 mm with a 6 m cable. - 1 Pt 100 probe, Ø2.9 x 20 mm with a 50 cm cable.	- 5 SPY RF® ReferenceE 2 channels. - 9 Pt 100 probes, Ø2.9 x 20 mm with a 6 m cable. - 1 Pt 100 probe, Ø2.9 x 20 mm with a 50 cm cable.
Measurement Accuracy	±0,2°C from -20°C to +50°C	±0,09°C from -20°C to +50°C
Options	Ultra compact PC "netbook" type, calibration certificate	
Part numbers	09881	09898

> For temperature mappings in 15 points : Please complete the basic kit with the requested number of SPY RF U1 or SPY RF ReferenceE and adequate probes.

## A C C U R A C Y C H A R T

Designation	Part nr 868 Mhz	Part nr 902 Mhz	Operating range	Measuring range	Accuracy*	Temperature values used for a standard calibration certificate	Temperature values used for a gauging certificate
SPY RF® Air	10075	10271	-30 to +70°C	-30 to +70°C 0 to 100% RH	T°C : ±0,4°C from 0 to +50°C HR : ±2% at 23°C from 10 to 90% HR and ±3,5% out of this range**	T°: +2°C, +22°C, +38°C RH : 20%, 50%, 80% at 23°C	
SPY RF® T+	06166	09571	-30 to +70°C	-30 to +70°C	±0,4°C from -20 to +30°C ±0,5°C out of this range	-18°C, +6°C, +22°C	-20°C, 0°C, +40°C
Mini SPY RF® Green	09980 (x1) 09985 (x10)	10255 (x1) 10258 (x10)	-40 to +85°C	-40 to +85°C	±0,4°C from -20 to +30°C ±0,5°C from -40 to -20°C and from +30 to +80°C ±0,7°C above +80°C	-18°C, +6°C, +22°C	-20°C, 0°C, +40°C
SPY RF® U1/U2 with Pt 100 probe	09815 (1v) 09816 (2v)	09817 (1v) 09818 (2v)	-30 to +70°C	-50 to +105°C	±0,2°C from -20 to +50°C ±0,5°C out of this range**	-18°C, +6°C, +45°C	-20°C, 0°C, +20°C, +50°C
SPY RF® U1/U2 without probe	06168 (1v) 06169 (2v)	09573 (1v) 09574 (2v)	-30 to +70°C	-200 to +400°C	±0,3°C over the whole range (+probe's MPE)	NC	-42°C, +69°C, +118°C
SPY RF® ReferenceE with Pt 100 probe	09509 (1v) 09889 (2v)	09582 (1v) 09890 (2v)	-30 to +70°C	-80 to +140°C	±0,2°C from -50 to -20°C and +105°C to +140°C ±0,09°C from -20 to +50°C ±0,12°C from +50 to +105°C	-18°C, +6°C, +45°C	-20°C, 0°C, +10°C, +20°C, +40°C, +60°C
SPY RF® ReferenceE without Pt 100 probe	09883 (1v) 09887 (2v)	09884 (1v) 09888 (2v)	-30 to +70°C	-200 to +270°C	±0,05°C from -50 to +50°C (+probe's MPE) ±0,1°C en dehors (+probe's MPE)	NC	7 points (over the whole range)
SPY RF® TC	06170 (1v) 06171 (2v)	09575 (1v) 09576 (2v)	-30 to +70°C	-100 to +1300°C	±1°C (+probe's MPE) or 0.5% of measured value	NC	8 points (over the whole range)
Designation	Part number		Operating range	Measuring range	Accuracy	Temperature values used for a standard calibration certificate	Temperature values used for a gauging certificate
SPY IP							
SPY IP without probe	11106 / 11105 / 11107 10481 / 10484 / 10482		0 to +40°C 0 to 90% RH	-200°C to +300°C depending of the probe 0 to 100% RH	PT100 input (without probe): ±0,1°C from -20°C to +60°C, ±0,2°C from -100°C to -20°C and from +60°C to +200°C and ±0,5°C above Digital input : probe's MPE	NC	NC
SPY Touch'							
SPY Touch' U without probe	09961		+5°C to 40°C	-196 to +184°C	±0,2°C on the whole range (+probe's MPE)	NC	-42°C, +69°C, +117°C
SPY Touch' U with probe	09962		+5°C to 40°C	-50 to +105°C	±0,3°C from -20 to +50°C ±0,5°C out of this range	-18°C, +6°C, +45°C	-20°C, 0°C, +20°C, +50°C
DIGITAL PROBES							
Digital T probe SPY RF® N, SPY Touch' N and SPY IP	06556 / 08872 10560 / 10559		-40 to +80°C	-40 to +80°C	±0,3°C from -20 to +30°C ±0,5°C out of this range	-18°C, +6°C, +22°C	-20°C, +75°C
Digital T probe SPY RF® N and SPY Touch' N for incubator	06556-i 08872-i 10560-i		+30°C to +55°C	+30°C to +55°C	±0,2°C from +30 to +50°C	+36°C, +38°C, +45°C	+30°C, +50°C
Digital TH probe	09471 09501 10948		-30 to +70°C	-30 to +70°C and 0 to 100%RH	TEMPERATURE ±0,2°C from -20 to +50°C and ±0,4°C out HUMIDITY (RH % MPE) ±2% RH from -20 to 80% RH and ±4% out	+2°C, +22°C, +38°C 20%, +50%, 80% RH	-30°C, +20°C, +50°C +30%, +60% RH

\* Accuracy is set in laboratories conditions and valid in these using conditions.

\*\* Factory gauging uncertainty.

NC : Not Communicated.

## Radio Communication Modules



### SPY RF® Modem USB

Connected to your PC, it enables communication with SPY RF® recorders.

> Communicates with an unlimited number of recorders.

#### Part numbers :

868 Mhz USB : European power supply : 06337  
 British power supply : 10051  
 868 Mhz RS232 : European power supply : 06214  
 British power supply : 10047  
 902 Mhz USB : South American power supply : 09584  
 North American power supply : 10056



### Modem Ethernet POE / VDC\*

Enables Ethernet connection to enhance radio range between recorders and PC server.

> Can be powered by the LAN network

#### Part numbers :

868 Mhz VDC : European power supply : 08913  
 British power supply : 10053  
 902 Mhz VDC : South American power supply : 09586  
 North American power supply : 10058  
 868 Mhz POE : British and European power supply : 08917  
 902 Mhz POE : North and South American power supply : 09587

\* POE : Power Over Ethernet

\* VDC : Main power supply required 9VDC



### SPY RF® Modem Wifi

Uses Wifi access points to communicate with the server PC and radio frequency to communicate with the recorders.

#### Part numbers :

868 Mhz : European power supply : 10390  
 British power supply : 10391  
 902 Mhz : South American power supply : 10405  
 North American power supply : 10406



### SPY RF® Modem Bluetooth

Uses Bluetooth communication with the server PC or (range 15m) and radio communication with SPY RF recorders.

#### Part numbers :

868 Mhz : European power supply : 10096  
 British power supply : 10097  
 902 Mhz : South American power supply : 10098  
 North American power supply : 10099

### Key features :

- > Remote alarm driven by integrated dry contact output (autodialer, buzzer, flashing light).
- > Software, PC or power supply failure alarm.
- > Short distance (25mW) and long distance (500mW via a SPY RF Relay) communication.
- > External power supply.



#### Did you know ?

JRI has developed a device to enable on-site radio communication survey, the SPY RF® Test



### SPY RF® Relay

Enables direct RF communication to enhance radio range between recorders and PC server.

#### Key features

- > External power supply and backup rechargeable battery.
- > Two power ranges : 25 mW to communicate with recorders and 500 mW to communicate with Modem.

#### Part numbers :

868 Mhz : European power supply : 06215  
 British power supply : 10049  
 902 Mhz : South American power supply : 09583  
 North American power supply : 10055



### SiriusBox

Data transfer box to the Internet SiriusWeb platform.

#### Key features

- > Manages up to 20 measuring channels.
- > Buzzer.
- > Relay output to install an additional alarm system (autodialer, sound and visual alarm device)
- > Available in 2 models :
  - GPRS** : It communicates by radiofrequency with the SPY RF recorders, sends data to the SiriusWeb Internet platform through GPRS communication (cell phone technology).
  - Ethernet** : Connected on your Ethernet network, it communicates by radiofrequency with the SPY RF recorders and sends data to the SiriusWeb Internet Platform through your Internet connection.

#### Part numbers :

868 Mhz : GPRS European power supply : 08870  
 GPRS British power supply : 10026  
 Ethernet European power supply : 11140  
 Ethernet British power supply : 11142  
 Ethernet POE : 11143  
 902 Mhz : GPRS North & South American power supply : 10620  
 Ethernet North & South American power supply : 11144

# SPY RF® ACCESSORIES AND PERIPHERALS

## Accessories



### Rubber protector

Part number : 06220



### Wall mounting bracket

Part number : 06222



### Spacer bracket

To remove the device from the wall and enhance communication.

Part number : 08708



### Replacement battery pack

- > SPY RF battery replacing pack (batteries + seals x 10)  
Part number : 06569
- > Mini SPY RF green battery replacing pack (batteries + seals x 10) Part number : 10102
- > Plate of 180 batteries for SPY RF Part number : 10911
- > Plate of 180 batteries for SPY RF Green Part number : 10912



### Outdoor shelter for SPY RF® TH

Part number : 09643



### IP66 hinge box for SPY RF® (can be opened)

- > For SPY RF®, with hinges  
Part number : 09937
- > For SPY Touch<sup>1</sup>  
Part number : 10303



## Alarm devices



### SPY RF® AlarM

Real time warning if a problem occurs.

#### Key features

- > Local warning.
- > Integrated sound and visual alarm.
- > External power supply and backup battery.
- > Push button for local alarm acknowledgement.
- > Relay output to trigger remote alarm (autodialer ...)
- > Warns SIRIUS software when the battery is low.

#### Part numbers :

868 Mhz : European power supply : 06216  
British power supply : 10050  
902 Mhz : South American power supply : 09577  
North American power supply : 10054



### SPY RF® Visu

Visualization of measurements and alarms, (can only be used with Sirius Storage)

#### Key features

- > Real time warning if a problem occurs.
- > External power supply and backup battery.
- > Sound and visual alarm.
- > Rolling measurement display.
- > Can manage up to 20 measuring channels.

#### Part numbers :

868 Mhz : 08856  
902 Mhz : 09581



### Audible and visual alarm device

#### Key features

- > Warns if a problem occurs.
- > External power supply.
- > Connects directly to SPY RF® Modem or to SPY RF® AlarM.
- > Audible and visual Alarm (92dB).

Part number : 06570



### Autodialer

The autodialer is an ideal component for any monitoring. In case of alarm, it will dial 5 phone numbers from an analogic phone line.

#### Key features

- > Customization of identification, alarms and acknowledgements.
- > Ergonomic

Part number : 11218



### Modem GSM/GPRS

Allows to send SMS text message and MMS.

Part number : 00998

## Technological features of probes

JRI Metrology department recommends the use of two types of probes in order to ensure accurate measurements. The Pt 100 probe is approved as the industrial standard and is available in a large range of accuracy grades (B, A, 1/3 Din, 1/10 Din).

Gauging coefficients are stored into the probe memory. This enables to replace it without any on-site gauging or calibration constraint. Indeed digital probes are gauged in optimal conditions in our laboratory. All our probes are equipped with binder connector to be connected to the SPY RF® Recorders.



**NEW GENERATION**

\* Incubator version available.

### Digital probes

#### Temperature (long term drift 4<sup>th</sup> generation probe)

- Part nr : 10981** > ø3x20 mm, (-200 to 0°C) 3 m ø2,9mm cable with IP40 connector.
- Part nr : 06556\*** > ø7x36 mm, (-40 to +80°C) 3 m flat cable with IP40 connector.
- Part nr : 11445 04\*** > ø7x36 mm, (-40 to +80°C) 0,7 m flat cable with IP67 connector.
- Part nr : 10559** > ø7x36 mm, (-40 to +80°C) ø4x40 cm with IP40 connector.

#### Temperature and hygrometry

- Part nr : 10948** > From -30 to +70°C / from 0 to 100% RH non condensing.

### Pt 100 Probes

#### Moulded flat cable

- Part nr : 09520** > A grade ( $\pm 0,15^\circ\text{C}$  at  $0^\circ\text{C}$ ), 3 m cable, 3 wires, ø5x20 mm (-40 to +105°C). 8 m cable available.

#### Standard

- Part nr : 08513** > Stainless steel B grade ( $\pm 0,30^\circ\text{C}$  at  $0^\circ\text{C}$ ), 3 wires, ø5x40 mm, 5 cm silicon cable (-50 to +180°C).
- Part nr : 08512** > Stainless steel B grade ( $\pm 0,30^\circ\text{C}$  at  $0^\circ\text{C}$ ), 3 wires, ø5x40 mm, 15 m silicon cable (-50 to +180°C).

#### Immersion

- Part nr : 00966** > B grade ø5x45mm with 3m silicon cable (-50 +180°C).

#### Penetration

- Part nr : 00967** > B grade ( $\pm 0,30^\circ\text{C}$  at  $0^\circ\text{C}$ ), 3 wires, 5 m silicon cable, case ø5x150 mm, Moulded handle ø9x100 mm (-50°C to +250°C) food application.

#### Cryogenic

- Part nr : 10352** > For container : B grade ( $\pm 0,15^\circ\text{C}$  at  $0^\circ\text{C}$ ), 3 wires, ø3x25 mm, 50 cm fluoropolymere cable (-200 to +260°C).
- Part nr : 00968** > For fixed tanks : B grade ( $\pm 0,15^\circ\text{C}$  at  $0^\circ\text{C}$ ), stainless steel ø3x25 mm, 3 wires, 6 m fluoropolymere cable (-200°C to +260°C).

#### High temperature

- Part nr : 08891** > B grade stainless steel ø6x50 mm, 3 m cable, 3 wires, interwoven stainless steel ( $0^\circ\text{C}$  to +400°C).

#### 1/3 din high accuracy

- Part nr : 08511** > ( $\pm 0,1^\circ\text{C}$  at  $0^\circ\text{C}$ ), 3 wires, ø6x50mm, 3 m cable (-90 +250°C).

#### Screw-in

- Part nr : 09928** > B grade 3 m cable, 3 wires.



### Door contact sensors

- Part nr : 10422** > To detect door openings of an appliance (50 cm cable).
- Part nr : 10401** > To detect door openings of a cold chamber with a sliding door (universal adaptor to be ordered separately).



Part nr. : 10422 Part nr. : 10401

For SPY RF® N and SPY IP

For SPY RF® U and SPY IP 4 channels

For SPY RF® U or N and SPY IP

## Probes and sensors

### Power supply failure detector



**Part nr :** 08784

> To detect power failure supply. This sensor has to be connected to the power supply and plugged directly on the SPY RF® recorder. When a power failure occurs, the detector generates an alarm. That information is stored in Sirius software audit trail.

For SPY RF® U  
or N and SPY IP

### Transmitters

#### TH for ambient conditions

**Part nr :** > -50 to +100°C / 0 to 100% RH

#### Industrial TH

**Part nr :** > -100 to +200°C / 0 to 100% RH

#### CO<sub>2</sub> for incubator

**Part nr :** 08991 > 0 to 20%, supplied with a plug and a 3m cable for SPY RF® U.

**Part nr :** 08337 > Mounting bracket for CO<sub>2</sub> transmitter.

**Part nr :** 11339 > 1m flat cable for CO<sub>2</sub> transmitter.

**Part nr :** 11297 > Bracket for CO<sub>2</sub> transmitter.

#### O<sub>2</sub> for ambient conditions

**Part nr :** 09491 > 4-20 mA output (0-25%). Universal adaptor and power supply to be ordered separately.

#### ΔP for clean rooms

**Part nr :** 11185 > From -100 to +100 Pa, ABS shell, IP65, 24 VDC power supply, 4-20 mA output. Universal adaptor and power supply to be ordered separately.

#### Capcoel for electricity consumption

**Part nr :** 10341 > Light impulse output (0 to 50°C/10 to 90%RH). Mounted by double sided adhesive tape, powered by the SPY RF C.



For SPY RF® U and SPY IP 4-channels

### TCK Probes

#### Standard for high temperatures

**Part nr :** 08537 > ø6x400 mm (-200 to +1100°C), inconel duct, insulated soldering. TCK extension to be ordered separately.

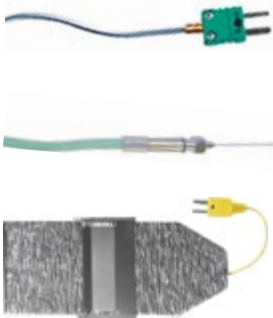
**Part nr :** 00735 > 2m TCK extension cable.

#### Stainless steel Hypodermic

**Part nr :** 10152 > (-50 to +250°C) ø1x60 mm, 1m fluoropolymere cable.

#### Hygitherm sensor for pipes

**Part nr :** 06499 > (-20 to +80°C) Easy to install, it delivers an accurate measurement without piercing pipes. This sensor is the best solution to prevent legionella.



For SPY RF® TC

## Probes accessories

#### 3 m extension lead

**Part nr :** 08873 > For T digital probe with IP67 connector for SPY RF® N.

**Part nr :** 10922 > For digital & analog probe with IP40 connector for SPY RF® N and SPY IP

#### 12 m extension lead

**Part nr :** 08874 > For T digital probe with IP67 connector for SPY RF® N.

**Part nr :** 10923 > For digital & analog probe with IP40 connector for SPY RF® N and SPY IP

#### Universal adaptor

**Part nr :** 00949 > (5 m) with connector for SPY RF® N or U and SPY Touch'N and SPY IP

#### 12 vdc / 500 mA Power supply

**Part nr :** 04729 > For transmitters, up to four 4-20mA transmitters or 1 VTT transmitter.

#### 24 vdc / 400 mA Power supply

**Part nr :** 04732 > For transmitters, up to sixteen 4-20mA transmitters.

# SIRIUS SOFTWARE RANGE

**UNIQUE**

The multi-user Sirius Storage version enables the installation of an unlimited number of Client PCs.










**NEW**

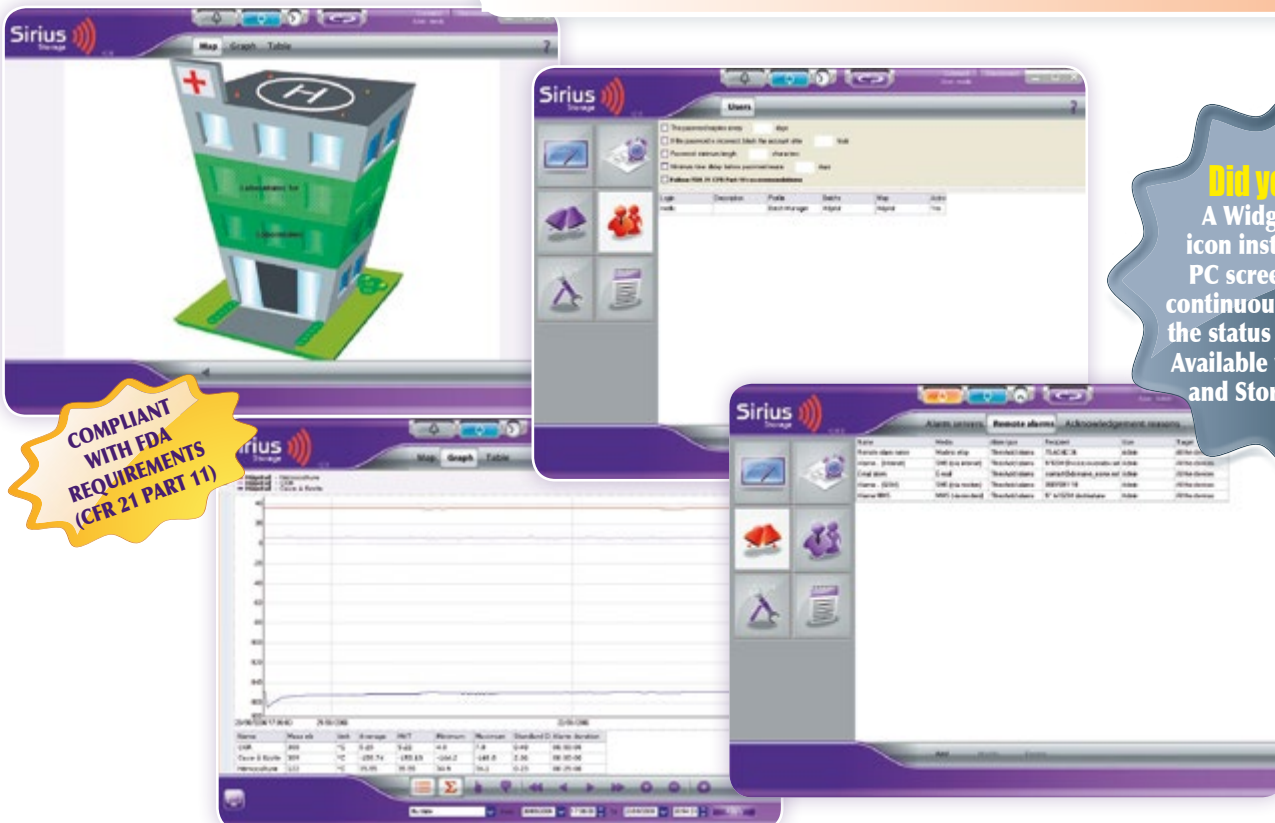
ViewerWeb Sirius allows the display of the status of your system by any PC connected on the network

## Sirius Storage

Software dedicated to site installation.

The 2.2 version allows you to :

- > Manage 4 levels of responsibility: administrator, user, batch manager and metrologist. 
- > Display alarms and graphics on any PC of the network without installing any software. 
- > Automatically update Client PC. 
- > Automatically and regularly search for the best radio path in order to guarantee optimal radio communication during or following transfer of your appliances. 
- > Receive the most relevant information in case of alarm by e-mail or MMS (graphics, values, thresholds, monitored units, etc...) 
- > The maintenance tab makes devices replacement and maintenance operations easier. 
- > Manage your metrology by controlling the measurement quality of recorders, monitoring the calibration periods or other services, judging whether a measurement chain complies or not with your criteria in relation to its use. 
- > Monitor the quality of stored products with the MKT function (Mean Kinetic Temperature), enabling the level of degradation of thermo sensitive products to be determined. 
- > Find quickly requested device by browsing serial number batch or site name. 



**Did you know ?**

A Widget is a small icon installed on your PC screen. It allows a continuous monitoring of the status of your system. Available with Sirius Lite and Storage versions.

COMPLIANT WITH FDA REQUIREMENTS (CFR 21 PART 11)

TIME SAVINGS - COST SAVINGS



# SIRIUS SOFTWARE RANGE

## Did you know ?

Alarm notifications by MMS with display of your graphics, thresholds, values...

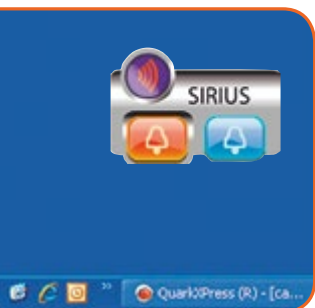
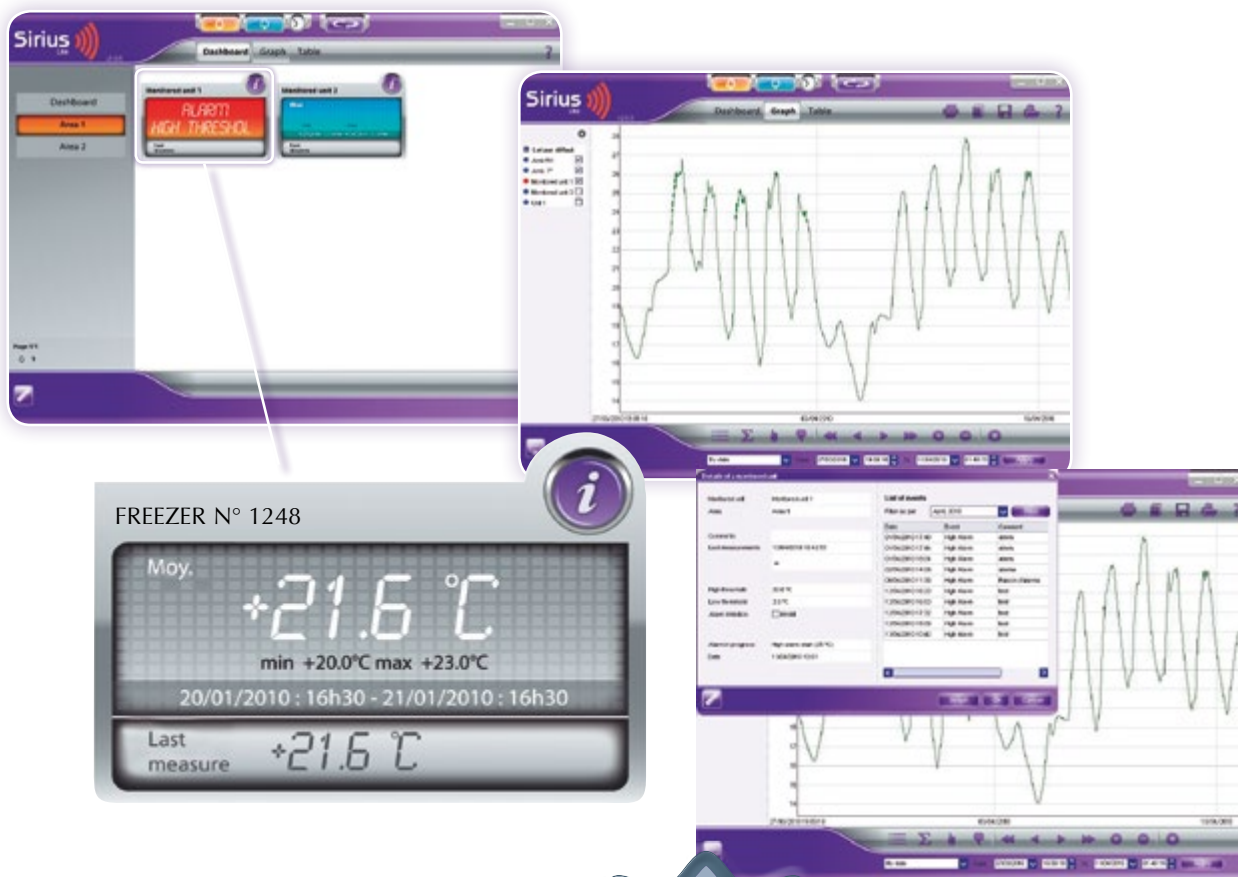


## Sirius Lite

Single user software for a simplified use (one server PC, one SPY RF<sup>®</sup> ModeM and an unlimited number of SPY RF<sup>®</sup> recorders).

The new 2.2 version allows you to :

- > See all the measurement points at once thanks to the dashboard.
- > Receive most relevant information in case of alarm by e-mail or MMS (graphics, values, thresholds, monitored units, etc...).
- > Have new alarm servers available : MMS, SMS/Text Message, e-mail, telephone call, via the internet and without additional equipment.



## Do you know ?

**Microsoft Partner**  
Silver Edition de logiciel

JRI is Silver  
Microsoft partner

REINFORCED SECURITY - EFFICIENCY

# SIRIUSWEB PLATFORM



## SiriusWeb

A hosted and managed solution by JRI

### SIRIUS Web benefits :

- > No software required.
- > On line access for review and data management available from any PC connected to Internet (alarms, graphs and profiles).
- > Automatic alarm alerts\* sent via email, SMS/text message or phone (and/or visual and audible alert). Specific users are notified according to a time schedule.
- > Audit trail.
- > Automatically records and archives all data on a secured platform.
- > A mailbox to communicate with JRI hotline.
- > Metrological documents archiving facility.
- > Available on mobile devices to review data and manage alarms.

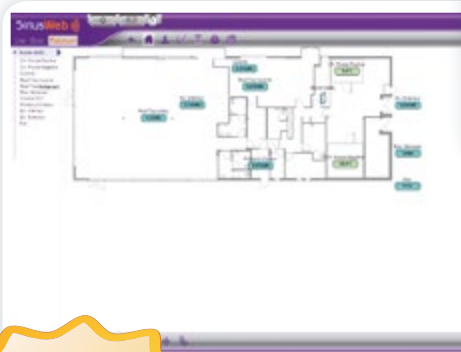


\* Depending on the level of services you have subscribed.

Dashboard



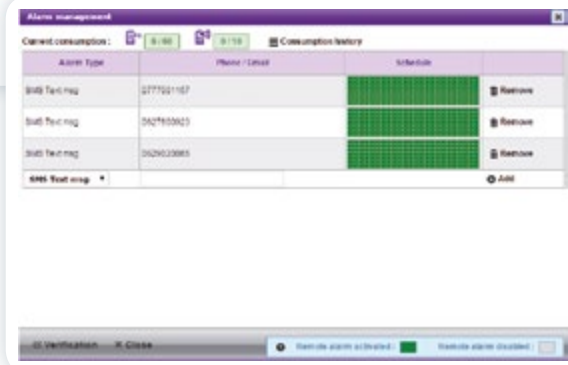
Map



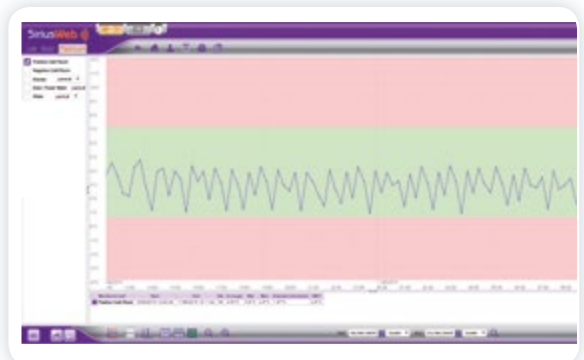
### SiriusWeb levels of service

	LITE	GOLD	PLATINUM
Access level	Site manager	User/Site manager/Supervisor	User/Site manager/Supervisor
Access to data measurements, graphs, history, audit trail	Rolling 30-days period	Rolling 12-month period	Rolling 5-year period
Data storage	Rolling 12-month period	Rolling 5-year period	Rolling 10-year period
Alerts by SiriusBox : Buzzer and/or dry contact device	Not accessible	Configurable	Configurable
Remote alerts : Number of monthly alerts by SiriusBox via SMS / email / voice message	• Limited to 2 email addresses and unlimited number of emails	• Limited to 3 SMS text messages numbers, 1 voice messages number and 4 email addresses with unlimited number of emails • 30 SMS text messages included per month, per SiriusBox in A zone* and 40 SMS text messages included in other zones • 10 voice messages included per month, per SiriusBox in A zone* only	• Limited to 10 SMS text messages numbers, 1 voice messages number, unlimited number of email addresses • 60 SMS text messages included per month, per SiriusBox in A zone* and 70 SMS text messages included in other zones • 10 voice messages included per month, per SiriusBox in A zone* only
Map display	No	No	Yes
Hotline access	No (FAQ only on website)	Yes	Yes
21 CFR Part 11 compliance	No	No	Yes

\* The A zone covers following countries: Andorra, Australia, Austria, Belgium, Bulgaria, Canada, China, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, French Guiana, Germany, Greece, Guadeloupe, Hongria, Ireland, Italia, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Martinique, Mayotte, Monaco, Norway, the Netherlands, Poland, Portugal, Reunion, Romania, UAE, United Kingdom (except Channel Islands), Slovakia, Slovenia, Spain, Sweden, Swiss, Ukraine, USA. Other countries, contact us.



Alert management



Exploitation

TIME SAVINGS - COST SAVINGS

# SIRIUSWEB PLATFORM

## Did you know ?

Siriusweb cloud-based solution allows to monitor the energy consumption of your equipment and to be alerted in case of incident

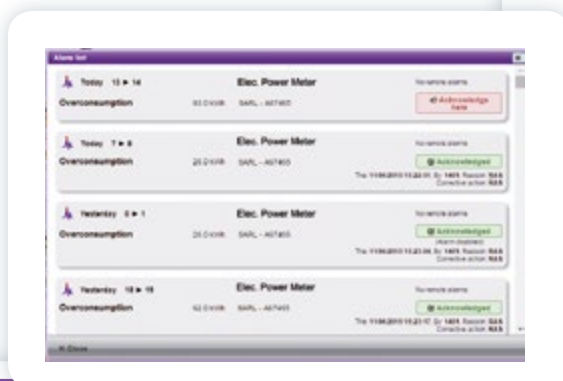
Energy management



Dashboard



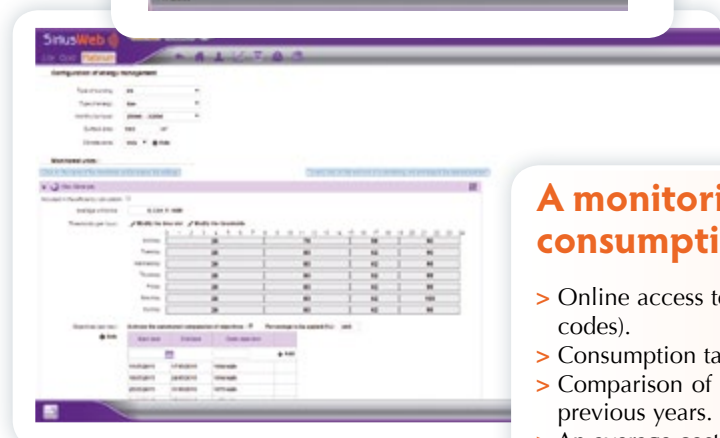
Alarm list



Time	Value	Unit	Location	Status
Today 13:14	93.0 kWh	kWh	SACL - APT402	Overconsumption
Today 7:18	25.0 kWh	kWh	SACL - APT402	Overconsumption
Yesterday 8:11	25.0 kWh	kWh	SACL - APT402	Overconsumption
Yesterday 13:18	93.0 kWh	kWh	SACL - APT402	Overconsumption



Energy management



Energy management configuration

## A monitoring solution for the energy consumption (water, gas and electricity)

- > Online access to follow the energy consumption of your site ( smiley with color codes).
- > Consumption targets can be set. You are alerted when they are overstepped.
- > Comparison of the actual consumption with previous weeks, previous months, previous years.
- > An average cost (price of kWh, water and gas m<sup>3</sup>) can be keyed for estimation of savings or additional costs.











REINFORCED SECURITY - EFFICIENCY

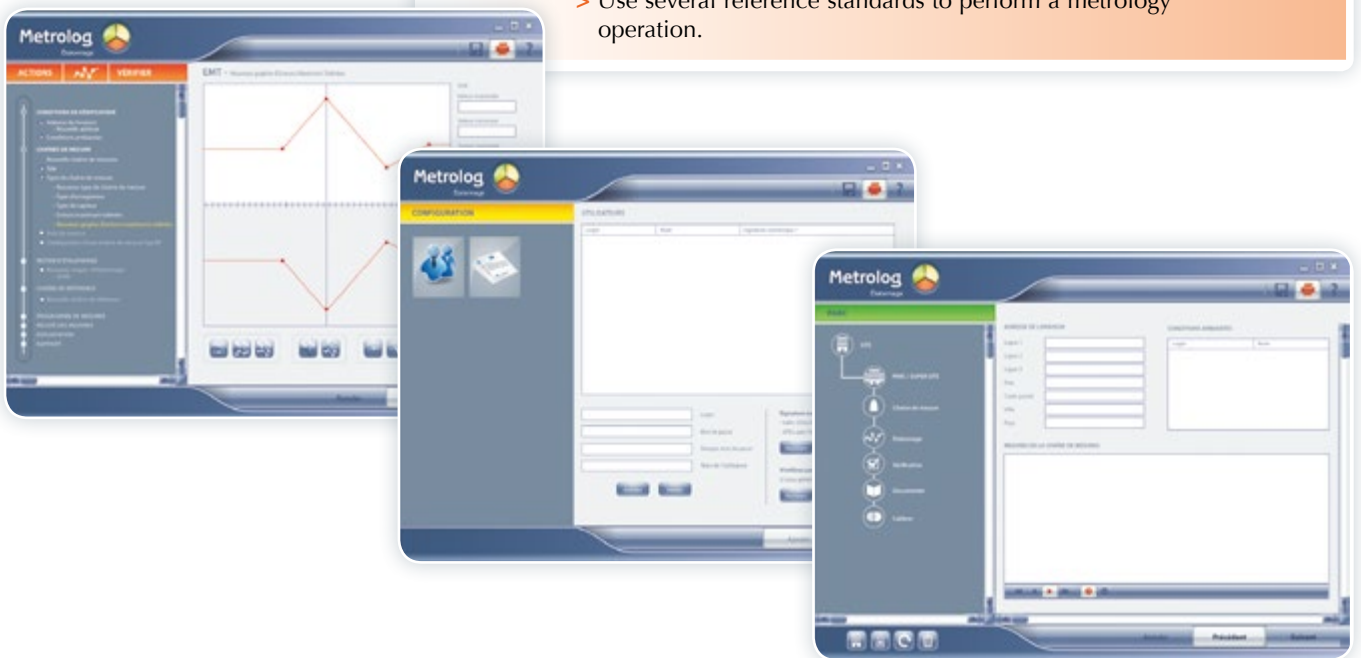
## Metrolog Calibration 2.2

Calibration software to proceed to your own metrology operations.

Part nr. : 06548

The new 2.2 version allows you to :

- > Adjust, gauge, check and calibrate the entire SPY RF® range. 
- > Manage your measuring chains fleet with historical display of metrology operations. 
- > Automate your calibrations through automatic detection of stability step. 
- > Demonstrate the ability to produce calibration services to an auditor. 
- > Use all types of standard chains. 
- > Write metrology information in the recorders so that they can be used automatically in Sirius Storage V2.0. 
- > Comply to standards NFX (Calibration certificate) 07-012 and NFX (checking report) 07-011. 
- > Take the maximum permissible errors into account in your different measuring chains systems as well as correction of calibration uncertainties of the standard reference probe. 
- > Judge the compliance of a measuring chain upon its use conditions. 
- > User friendly software with step by step procedure. 
- > Use several reference standards to perform a metrology operation.



ADJUST - GAUGE - CHECK - CALIBRATE



## Engineering services

Calling on numerous years of experience, our technicians take on assignments as diverse as on-site qualification of radio communication, installation of probes according to good practice, system parameter setting, preventive and corrective maintenance, on-site metrology, training adapted to every level of involvement, and systems qualification (IQ/OQ).

While proceeding to an installation qualification, we offer on-site installation and set up of your equipment in compliance with manufacturer recommendations (IQ). To confirm the installation qualification operation a test report is issued.

For an operational qualification (OQ) we assess the compliance of the equipment regarding the technical specifications. This operation is also validated by the issuing of a test report.

The IQ/OQ enables installation and operational qualification procedures to be established.



## Technical support

A technical support team is at your disposal for :

- Remote maintenance of your SPY RF ® system
- Technical hotline
- Interactive FAQ\* accessible on the site [www.jri-maxant.com](http://www.jri-maxant.com)

\*FAQ : Frequently Asked Questions



## Preventive and corrective maintenance contract

The SPY RF ® system needs to be regularly supervised to optimize its functionalities (measurement accuracy, radio communication quality, software updates, etc...), which is why we offer a global maintenance contract including, in particular :

- Extension of the guarantee on hardware, software and your installation
- Remote maintenance of your application for immediate intervention
- Technical hotline access
- Replacement of failed hardware by standard exchange under certain conditions
- Access to new software versions and additional training
- On-site intervention within 72 working hours if necessary (after dysfunction identification by our experts).

And, optionally:

- Preventive on-site inspection visits
- On-site metrology services (calibration, mapping, adjustment)
- Checking and optimization of radio communications
- Preventive changes of batteries
- Operational qualifications (IQ/OQ)
- Upgrade of your fleet
- Metrology management of your fleet



## Metrology services

### Laboratory metrology services

JRI acquired and improves skills in quality of measurements and owns a ISO 17025 accredited laboratory.

This accredited laboratory performs temperature calibration certificates in a range from -20°C to +140°C with an uncertainty of  $\pm 0,037^\circ\text{C}$  and from -80°C to -40°C ( $0,055^\circ\text{C}$ ) and at -196°C ( $0,09^\circ\text{C}$ ). Other metrology operations can be performed on all brands equipments in temperature, humidity, CO<sub>2</sub>, pressure, etc...

The quality of services provided by these laboratories is audited and confirmed every year by an independent organization, ISO 17025. This accreditation, for our customers, corresponds to a commitment on the quality of calibration and a guaranteed uncertainty value, but it is also an international recognition of the quality system set up within ISO standards.

Thanks to this structure, we can fully satisfy customer demands with ever-increasing requirements in the control of measuring chain uncertainty. Furthermore our customers, themselves ISO 17025 accredited according to ISO 17025 and ISO 15189 standards need to be supported by specialists. Using ISO 17025 accredited laboratories guarantees reliable and objective measurements.



**Did you know ?**  
Each measurement has a degree of uncertainty ; the essential is to be aware of it and to manage it.

Temperatures	Traceable to ISO 17025		ISO 17025*	
	Checking report	Temperature calibration	Checking report	Temperature calibration
-18°C, +2°C, +8°C	Part nr. 09772	Part nr. 09781	Part nr. 09198	Part nr. 10681
-20°C, 0°C, +40°C	-	-	Part nr. 09737	Part nr. 10682
+36°C, +38°C, +45°C	Part nr. 09773	Part nr. 09782	Part nr. 09199	Part nr. 10680
-30°C, -18°C	Part nr. 10411	Part nr. 10412	Part nr. 10410	Part nr. 10677
+2°C, +8°C	Part nr. 10415	Part nr. 10413	Part nr. 10414	Part nr. 10676
-196°C, -80°C	Part nr. 09771	Part nr. 09780	-	-
-196°C	-	-	Part nr. 10334	Part nr. 10679
-80°C	-	-	Part nr. 10333	Part nr. 10678

On request :

ISO 17025 temperature calibration (from 2 to 5 points) between -80°C and +140°C and at the point +196°C.

Calibration (from 2 to 5 points) between -80°C and +250°C.

Relative humidity calibration (3 points : 20%, 50%, 80%RH of the measurement range), relative pressure calibration (3 points between 30 mBar and 1000 mBar).

### On-site measurement services

We provide on-site ISO 17025 accredited metrology services in a range from -90°C to -20°C with an uncertainty of  $\pm 0,20^\circ\text{C}$ , and from -20°C to +140°C ( $\pm 0,08^\circ\text{C}$ ).

We recommend the control of the homogeneity of thermostatically controlled chambers for all thermo sensitive products. In this respect, we employ a team in charge of defining the ISO 17025 characteristics of your chambers on your premises, according to NF X 15-140 and CEI 60068-3 standards. Each characterization survey is recorded in a mapping report highlighting the critical points and the compliance of the chambers in relation to predefined requirements. Calibrations and adjustments are offered on site as well.



On-site Metrology operations offered	Traceable to ISO 17025	ISO 17025*
9 points thermostatic chambers temperatures mapping	Part nr. 08396	Part nr. 09854
15 points thermostatic chambers temperatures mapping	Part nr. 08741	Part nr. 09855
15 pts thermostatic cabinets mapping in 6 hours	Part nr. 10818	Part nr. 10975
15 pts thermostatic cabinets mapping in 24 hours	Part nr. 10819	Part nr. 10976
Temperature calibration certificate on 1 point (use point)	Part nr. 09921	Part nr. 11309
Temperature calibration certificate on 3 points	Part nr. 09922	Part nr. 11311
Relative humidity calibration certificate on 1 point (use point)	Part nr. 09923	-
CO <sub>2</sub> calibration certificate on 1 point (5%)	Part nr. 09238	-
Adjustment + adjustment certificate per channel on 1 point at the use point	Part nr. 09917	-

On request :

Temperature mappings of chambers for temperature and humidity.

\* Between -80°C and +140°C.

### CARTOWER (part nr. 10004)

- 1 Remote temperature mapping via the Internet
- 2 JRI delivers the materials needed to make your T°C mapping
- 3 The user installs the hardware following our recommendations
- 4 Our metrological department initiates the T°C mapping during the night
- 5 Once the materials returned to JRI, you receive your mapping report



## Training

We offer you different training schemes such as technical maintenance, installation and set up of systems, wireless system use and administration, and metrology.

JRI delivers metrology training presenting the principles of metrology and training in different calibration and mapping techniques for standard laboratory equipment (incubators, autoclaves, refrigerators, freezers, cold rooms, etc...).

<b>Duration</b>	2 days - 2 to 5 people session
<b>Location</b>	Feschés le Châtel or Bezons (France)
<b>Programme</b>	<ul style="list-style-type: none"> <li>&gt; <b>Metrology in the laboratory</b> <ul style="list-style-type: none"> <li>Definitions</li> <li>Standards</li> <li>Meeting requirements</li> </ul> </li> <li>&gt; <b>Characteristics of measurement means</b> <ul style="list-style-type: none"> <li>Management of a fleet of devices</li> <li>The calibration chain</li> <li>Procedures and documents</li> </ul> </li> <li>&gt; <b>Calibration and measurement uncertainty</b> <ul style="list-style-type: none"> <li>Definitions</li> <li>Method</li> </ul> </li> <li>&gt; <b>Integration of metrology in the qualification process (IQ/OQ/PQ)</b> <ul style="list-style-type: none"> <li>Difference between metrology and qualification</li> <li>The role of metrology in qualification</li> </ul> </li> <li>&gt; <b>Characteristics of a thermostatic chambers</b> <ul style="list-style-type: none"> <li>Principles</li> <li>Standards</li> <li>Quality follow up</li> <li>Practical aspects</li> </ul> </li> </ul>

We provide customized training. Depending on your needs, we can adapt the training program.

**Metrolog Mapping training** (1 day) : Part nr. 11095

**Metrolog Calibration training** (1 day) : Part nr. 11093



**JRI is ISO 9001 version 2008 accredited**



**JRI is a member of CFM (Collège Français de Métrologie)**



Association Française du Froid

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# Measurement, monitoring and metrology



**JRI / 2 Rue de la Voivre / PA Technoland / BP 21 / 25490 FESCHES LE CHÂTEL / France**  
**Ph. : +33 (0)3 81 30 68 04 / Fax : +33 (0)3 81 30 60 99 / [info@jri.fr](mailto:info@jri.fr)**

**Head office / 16 rue Louis Rameau / CS 90050 / 95872 Bezons Cedex / France**

**JRI, Société par actions simplifiée au capital de 4 000 000 €**

**RCS Pontoise 380 332 858**

**[www.jri-maxant.com](http://www.jri-maxant.com)**