

Monitoring works of art on the move

Artmon

Keep daily track of the climatic conditions of the works of art that are on loan to other exhibitions around the world



The idea:

Valuable paintings and other works of art are often lent to other museums around the world. The climatic conditions during transport and storage at the different exhibition halls vary considerably. Several museums/exhibitions halls do not to keep the strict but necessary requirements on temperature and relative humidity. Over time, this fluctuation of the climatic conditions, may damage the fragile works of art.



Artmon is a system designed to continuously track and report the real-time climatic conditions of the works of art that are on loan to other museums around the world.



Temperature



Humidity



Shock



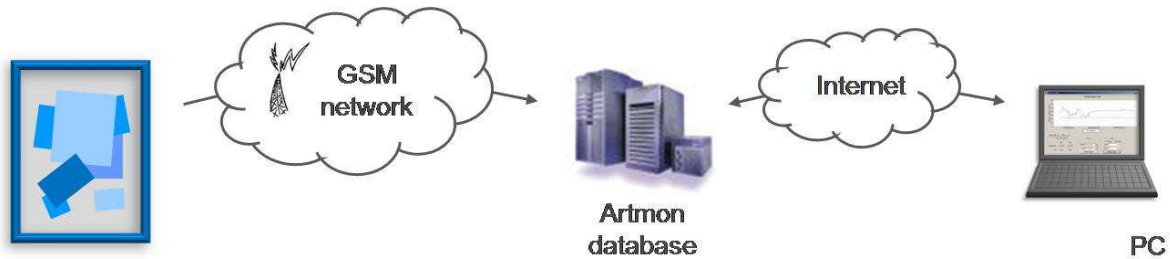
Light

Through daily reports with tables and graphs, the owner can be assured that the painting is kept in a proper environment. In case of dangerous fluctuations or exceeding climatic limits, the system generates alarms that can be sent to mobile phones and e-mail accounts.

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How it works:

The system includes a mobile sensor (Artmon wireless sensor) that is attached to the canvas stretcher on a painting. The sensor frequently measures the climatic conditions and stores the data in the internal memory.



At configurable intervals (for example once per day), the measurement data are reported back to the centralised database system through the world wide GSM network. A high end quad-band GSM modem inside the Artmon sensor ensures a stable and secure communication with the Artmon data base from most countries in the world.

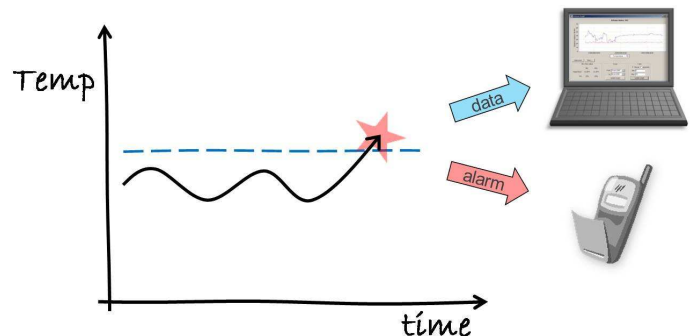
Standard:	
• Temperature	-40°C to +85°C
• Relative Humidity (RH)	0% to 100% RH
Optional, available upon request:	
• Shock (3-axis acceleration)	20G to 110 G
• Light (external sensor)	0 to 5000 lux

Since the database is web-based, the user has access to all measurement data from any PC with Internet access. Through secure access and user right controls, the system prevents intrusion and usage by non-authorised users.

The Artmon web application is a user friendly tool that presents collected data in configurable tables and graphs.

Alarm handling:

The Artmon system generates an alarm if measurements fall outside user-defined threshold values. The user decides which threshold values to apply (both upper and lower limits). As soon as the temperature or relative humidity is outside of the defined range, the system generates an alarm that is sent to the user. Alarms can be sent as SMS (to a mobile phone) or e-mail.



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The Artmon wireless sensor

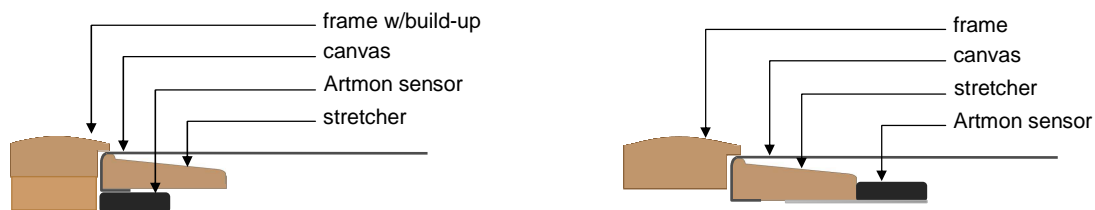
The unit measures both temperature and relative humidity through sensors integrated in the unit. Optionally, it is possible to measure both shock and light exposure. Light exposure is measured by connecting an external light sensor fixed on the front or on the side of the frame of the painting.

GSM communication:

The Artmon wireless sensor contains a GSM module ensuring a stable and regular communication to the central database of the Artmon system. The GSM module is left turned off most of the time, and is switched on automatically only during the short time of the transmission. This ensures a long battery life time and eliminates any heating of the unit. It is possible to define "quiet periods" to prevent the GSM modem from working during transport in airplanes. It is also possible to turn off the GSM module manually (without affecting the ongoing data collection).



Easy attachment:



The Artmon sensor is easily attached to the back side of the painting, either to the frame build-up or directly on the canvas stretcher. The sensor has a weight and size that compares to a small mobile phone, which means the unit is attached without the risk of damaging the painting.

Internal memory / data logger:

The Artmon wireless sensor stores all data measurements in the internal memory before transmitting the data through the GSM network. Any data that is not successfully transmitted to the GSM network is stored inside the Artmon sensor. In this way, when the unit is outside GSM coverage (off-line), the unit works like a normal data logger and the data can be retrieved either when the GSM communication is re-established, or when the unit is returned to the user. Under normal settings, the Artmon sensor is able to store all data collected during an off-line period of for more than 1 year.

Battery operation:

The Artmon sensor runs on rechargeable batteries. Under normal operation, the batteries will last for approx. 1 year before they need to be recharged. The batteries are easily recharged by connecting the unit to a PC (USB interface).



External sensors:

It is possible to connect external sensors to the Artmon unit. This makes it possible to attach a light sensor at the front or at the side of the painting frame to detect possible damaging light exposures.

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The Artmon web application

The Artmon web application is a very flexible and user friendly tool available on any PC with Internet connection. It gives all the functionality needed to keep a close and efficient track of the paintings out on loan.

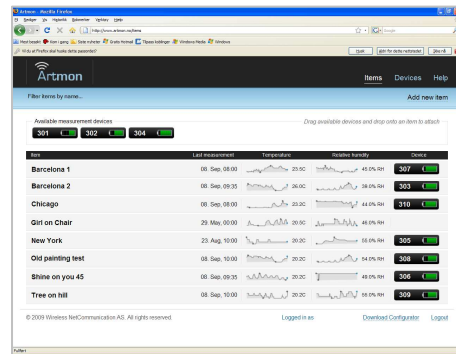
All measurement data collected by the Artmon wireless sensor is presented in the Artmon web application. The data is shown both in tables and graphs. It is possible to generate reports for desired time periods including statistical information and user comments.

Main functionality:

- Overview and status of all sensors
- Data presentation in graph and table
- Max/min values of selected time periods
- Zoom graph (both X-axis and Y-axis)
- Generate report including text
- Print graph/table/report

Access control:

Since the database is web-based, the user has access to all measurement data from a PC with Internet access. Through secure access and user right controls, the system prevents intrusion and usage by non-authorized users.



Artmon configuration tool

The Artmon configuration tool is a PC application used to configure the Artmon sensors. Configuration is performed when the Artmon sensor unit is connected to the PC (USB interface).



The following parameters are configurable:

- Interval between each data measurement (5 - 60 minutes)
- Interval between each data transfer (4 - 48 hours)
- Alarm on/off, alarm receiver
- Alarm threshold values (both upper and lower limits)
- GSM modem quiet periods. (Periods for internal data logging only)

System specifications

Artmon Wireless Sensor

Measurements

Temperature
Relative Humidity (RH)
Shock (3-axis acceleration, optional)
Light (optional, external sensor)

Operating Range

-40°C to +85°C
0% to 100% RH (non condensing)
20G to 110 G
0 to 5000 lux

Accuracy

±0,4°C typical
±2% RH (±0.5%RH/year)
±10%
±10%

Storage condition: -40°C to 125°C
10%-95% RH (non condensing)

Optimal storage for long life battery: 0°C to 25°C

Dimensions: 120 x 78 x 12 mm (H/W/D)

Weight: Approx 145 g

Cover material: PVC and stainless steel

Power supply: Rechargeable ultra low leakage NiMH battery (800 mAh). The battery is charged via USB connection. One battery charge is normally sufficient for 12 months operation.

PC interface: One USB connector

Sensor interface: One interface for external sensor

GSM modem: Quad band (800, 900, 1800, 1900 MHz)

Measurement intervals: 5 – 60 minutes (configurable)

Options: Shock sensor (20-110G)
External sensors (light)
2000mAh battery



PC configuration

System requirements: Stationary or portable PC with one available USB port.
Windows XP or Vista. Internet Explorer 7 or Firefox (recommended).

The Artmon system is developed in cooperation with:

