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| Re: |  |
| Abstract | This contribution proposes syntaxes, semantics, and examples for representing environment- related sensor information in the physical world in a standardized data format. |
| Purpose | To start discussion on purpose of the standard |
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# **Data formats for environment-related sensors**

## **Rain sensor**

### **General**

This subclause specifies a sensor data type that describes the amount of rainfall.

### **Syntax**

|  |
| --- |
| "rainSensorData": { "type": "object", "properties": {"value": { "type": "number" }, "unit": { "$ref": "#/definitions/unitType" } }} |

### **Semantics**

Semantics of the rainSensorData:

| *Name* | *Definition* |
| --- | --- |
| rainSensorData | Provides a structure for describing sensor data acquired by a rain sensor. |
| value | Represents the measured value of the amount of rain. |
| unit | Specifies the unit of the value as a reference to a term provided by unitType, default as millimetersperhour. |

### **Examples**

The measured rainfall is 100 millimeters per hour.

|  |
| --- |
| {"sensedInfoBaseAttributes":{},"rainSensorData": { "value": 100, "unit": "millimetersperhour"}} |

## **Insolation sensor**

### **General**

This subclause specifies a sensor data type that describes insolation.

### **Syntax**

|  |
| --- |
| "insolationSensorData": { "type": "object", "properties": {"value": { "type": "number" }, "unit": { "$ref": "#/definitions/unitType" } }} |

### **Semantics**

The semantics of the insolationSensorData:

| *Name* | *Definition* |
| --- | --- |
| insolationSensorData | Provides a structure for describing sensor data acquired by an insolation sensor. |
| value | Represents the measured value of the amount of insolation. |
| unit | Specifies the unit of the value as a reference to a term provided by unitType, default as wattspersquaremeter. |

### **Examples**

The measured insolation is 100 watts per square meter.

|  |
| --- |
| {"sensedInfoBaseAttributes":{},"insolationSensorData": { "value": 100, "unit": "wattspersquaremeter"}} |

## **Soil moisture sensor**

### **General**

This subclause specifies a sensor data type that describes soil moisture.

### **Syntax**

|  |
| --- |
| "soilMoistureSensorData": { "type": "object", "properties": {"value": { "type": "number" }, "unit": { "$ref": "#/definitions/unitType" } }} |

### **Semantics**

The semantics of the soilMoistureSensorData:

| *Name* | *Definition* |
| --- | --- |
| soilMoistureSensorData | Provides a structure for describing sensor data aquired by a soil moisture sensor. |
| value | Represents the measured value of the amount of moisture contained in the soil per unit volume. |
| unit | Specifies the unit of the value as a reference to a term provided by unitType, default as percentage. |

### **Examples**

The measured soil moisture is 1 percent.

|  |
| --- |
| {"sensedInfoBaseAttributes": {},"soilMoistureSensorData": { "value": 1, "unit": "percentage"}} |

## **Tensiometer sensor**

### **General**

This subclause specifies a sensor data type that describes moisture tension in the soil.

### **Syntax**

|  |
| --- |
| "tensiometerSensorData": { "type": "object", "properties": {"value": { "type": "number" }, "unit": { "$ref": "#/definitions/unitType" } }} |

### **Semantics**

The semantics of the tensiometerSensorData:

| *Name* | *Definition* |
| --- | --- |
| tensiometerSensorData | Provides a structure for describing sensor data aquired by a tensiometer sensor. |
| value | Represents the value of moisture tension in the soil. |
| unit | Specifies the unit of the value as a reference to a term provided by unitType, default as kPa. |

### **Examples**

The measured tensiometer sensor is 1kPa.

|  |
| --- |
| {"sensedInfoBaseAttributes": {},"tensiometerSensorData": { "value": 1,"unit": "kPa"}} |

## **Electrical conductivity sensor**

### **General**

This subclause specifies a sensor data type that describes a electrical conductivity.

### **Syntax**

|  |
| --- |
| "electricalConductivitySensorData": { "type": "object", "properties": {"value": { "type": "number" }, "unit": { "$ref": "#/definitions/unitType" } }} |

### **Semantics**

The semantics of the electricalConductivitySensorData:

| *Name* | *Definition* |
| --- | --- |
| electricalConductivitySensorData | Provides a structure for describing sensor data aquired by a electrical conductivity sensor. |
| value | Represents the measured value of electrical conductivity in water based solutions. |
| unit | Specifies the unit of the value as a reference to a term provided by unitType, default as microsiemenspercentimeter. |

### **Examples**

The measured electrical value is 100 microsiemens per centimeter.

|  |
| --- |
| {"sensedInfoBaseAttributes": {},"electricalConductivitySensorData": { "value": 100, "unit": "microsiemenspercentimeter"}} |

## **Acidity sensor**

### **General**

This subclause specifies a sensor data type that describes acidity.

### **Syntax**

|  |
| --- |
| "aciditySensorData": { "type": "object", "properties": {"value": { "type": "number" }, "unit": { "$ref": "#/definitions/unitType" } }} |

### **Semantics**

The semantics of the aciditySensorData:

| *Name* | *Definition* |
| --- | --- |
| aciditySensorData | Provides a structure for describing sensor data aquired by a acidity sensor. |
| value | Represents the measured value of hydrogen ion concentration (acidity) for drainage, soil, etc. |
| unit | Specifies the unit of the value as a reference to a term provided by unitType, default as ph. |

### **Examples**

The measured acidity value is 10.

|  |
| --- |
| {"sensedInfoBaseAttributes": {},"aciditySensorData": { "value": 10, "unit": "ph"}} |