# Sensor Export Definitions

## Monnit Corporation

### Version 1

# Revision History

| Version | Date | Description |
| --- | --- | --- |
| 1 | 12/3/12 | iMonnit V1.2 drafted by Brandon Young |
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# Contents

# Data Export

## Definitions

1) MessageID: Unique identifier of the message in our database.
2) Sensor ID: If multiple sensors are exported you can distinguish which reading was from which using this number even if the names for some reason are the same.
3) Date: The date the message was transmitted from the sensor.
4) Sensor: Name you have given the sensor to Identify it.
5) Signal Strength: Strength of communication signal between the sensor and the gateway, shown as percentage value.
6) Received Signal: the signal strength measured in RSSI (From Wikipedia: In telecommunications, Received Signal Strength Indicator (RSSI) is a measurement of the power present in a received radio signal.) This is the number that is used to calculate the "Signal Strength" column which we show as a percentage. For certain engineers this column is more useful than the calculated percentage so we display both to fulfill all the needs of our users.
7) Sensor State: Binary field represented as an integer containing information about the state of the sensor when the message was transmitted.(additional info below)
8) Battery: Estimated life remaining of the battery.
9) Text: Data transformed and presented as it is shown in the monitoring portal
10) Data: Raw data as it is stored from the sensor.
11) Alert: Boolean indicating if this reading triggered a notification to be sent from the system.
12) Voltage: actual voltage measured at the sensor battery used to calculate battery percentage, similar to Received Signal you can use one or the other or both if they help you.
13) Plot Value: Data presented with any transforms applied but without additional text labels
14) GatewayID: The Identifier of the gateway that relayed the data from the sensor.

## Sensor State

The integer presented here is generated from a single byte of stored data. A byte consists of 8 bits of data that we read as Boolean (True (1)/False (0)) fields.

| Field | Length | Description |
|---|---|---|
| Test Active | 1 bit LSB | Test state is active (1) or inactive (0) |
| Aware State | 1 bit | Aware state is active (1) or inactive (0) |
| Sensor Disable | 1 bit | Sensor is disable (communication still happens) |
| RSVD | 1 bit | Currently not used |
| Calibrate Active | 1 bit | Calibrate is active (1) or inactive (0) |
| Self Test Status | 1 bit | Self Test results are normal (0) or out of range (1) |
| Not Used | 1 bit | |
| Not Used | 1 bit MSB | |

In more practical terms let's take a temperature sensor as an example.

If the sensor is using factory calibrations the "Calibrate Active" field is set True (1) so the bit values are 00010000 and it is represented as 16.

If the sensor is outside the Min or Max threshold, the "Aware State" is set True (1) so the bit values are 00000010 and it is represented as 2.

If the customer has calibrated the sensor this field the "Calibrate Active" field is set False (0) AND the sensor is operating inside the Min and Max Thresholds, the bits look like 00000000 this is represented as 0.

If the sensor is using factory calibrations and it is outside the threshold the bit values are 00010010 and it is represented as 18
(16 + 2 because both the bit in the 16 value is set and the bit in the 2 value is set)

*Note: These two are the only bits that typically observed outside of our testing procedures.*