MONNIT KR

REMOTE MONITORING
SMART WIRELESS SENSORS

MONNIT KR

CONTENTS

Leader in IoT Wireless Sensor Solutions

MONNIT KR

Better and Smarter with **MONNIT IoT Solution!**

80 Plus **Sensors**

15 Years of **Experience**

85 Countries **Worldwide**

34k Thousands of **Clients**

15B Readings **Collected**

Monnit Korea is a leading provider of IoT wireless sensor technology. With our experience in various sensor manufacturing and platforms, we provide optimized and innovative solutions to customers across a wide range of industries.

With Monnit solutions monitoring of equipment, infrastructure and environments simplifies management, prevents accidents, enables proactive maintenance, and can reduce workplace injuries and loss of valuable assets.

MONNIT'S **STRENGTH**

Low-power wireless sensors and IoT gateways are used by a broad spectrum of industries for smart monitoring of anything — from BMS to FM to Smart City.

Wireless Sensor Network
Easily integrated into exisiting monitoring system

Convenient User Interface
Cloud-based system available on all internet-accessable devices

Expenses Reduction
Labor and operation cost reduction through data analysis

Easy Setup & Use
Install in just a few minutes and get data immediately

80+ Sensor Types
Unlimited industry use cases

High Quality/Low Price
Hardware for affordable price/ free basic software platfrom

Bank-grade Level Security
Sensor data encryption on all levels of transmission

Superior Signal Range
300 m coverage in open space/ up to 16 walls penetration

Long Battery Life
Up to 10 years of use with regular AA batteries

MONNIT Solution Process

Data collection → Transmission of data to server → Server / Cloud Data accumulation → Upon reaching the set thresholds → Immediate alarm to the manager

WORLDWIDE **CUSTOMERS**

Global Certifications

KC FC CE Industry Canada

GLOBAL AWARD

2011
Utah Innovation Awards

2012
Entrepreneur Excellence Award

2015~2021
Connected World Innovations Award
CRN's Internet of Things

2019
Facilitiesnet Vision Award
Utah Best Of State
Manufacturer Of The Year Award

2022~2024
IoT Evolution Industrial IoT Product of the Year Award
IoT Evolution IoT Product of the Year Award
IoT Evolution Private Wireless Network Innovation Award

2023
2023 IoT Global Awards

Customers in S. Korea

SK gas · SK telecom · VEOLIA · 3M · HDC · hp

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롯데건설 · 롯데마트 · AhnLab · ETRI · HAEZOOM · 문화재청

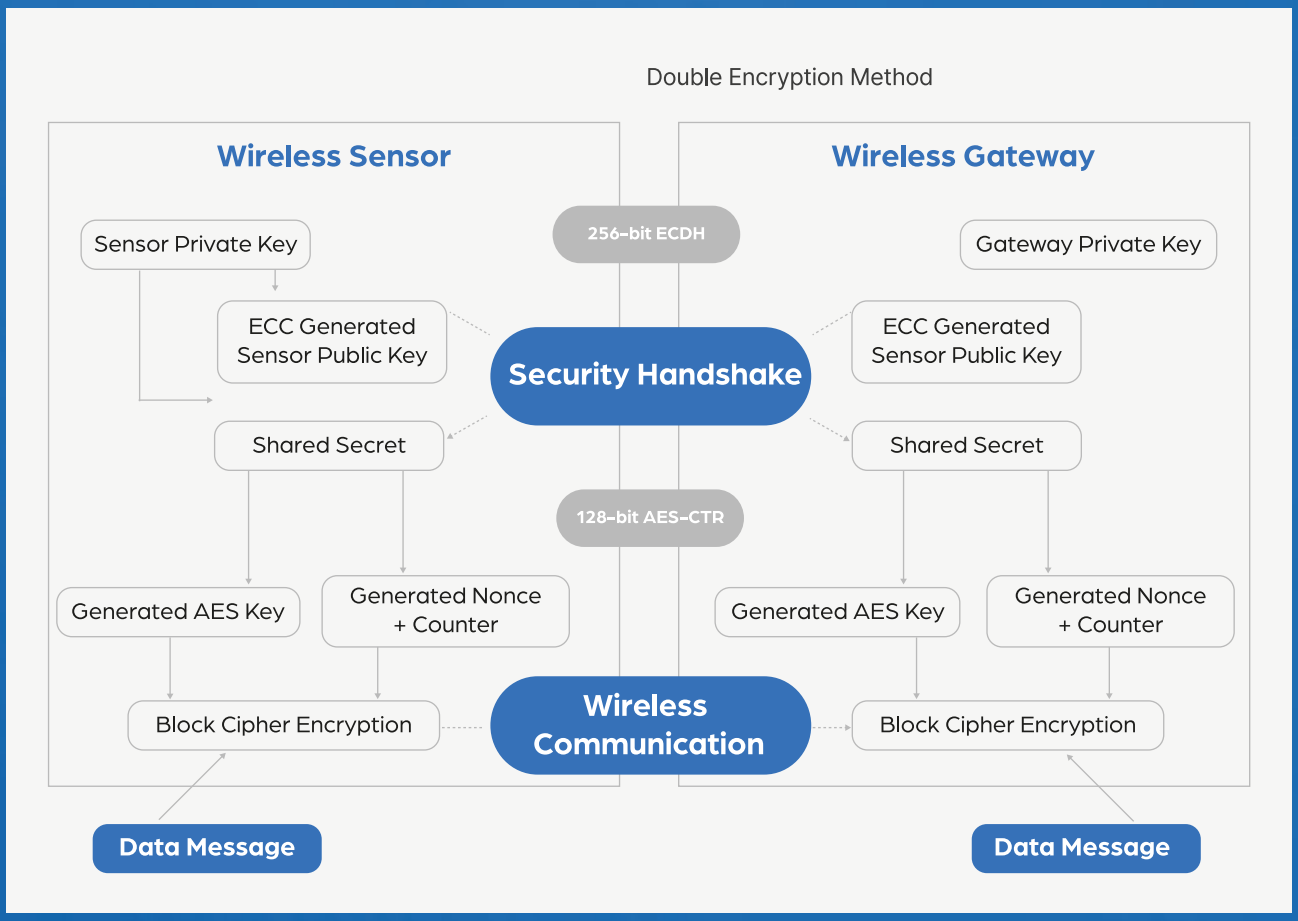
BANK GRADE **SECURITY**

Monnit products use Encrypt-RF® bank level security, featuring a 256-bit exchange to establish a global unique key, and an AES-128 CTR for all data messages.

Security is maintained at all communication points from sensor to gateway, gateway to software, and back again.

Upgraded security with Monnit SensorPrints™

Implementing 256-bit SHA3 authentication, SensorPrints creates a "fingerprint" for a Monnit Wireless Sensor that contains an authenticated sensor message. When data is transmitted from the sensor, it is accompanied by a generated authentication token. Upon receipt by the application, the token is evaluated via cryptographic hash function against a unique per sensor secret key. This step provides an unprecedented level of full-coverage security for any Monnit user wishing to secure their IoT devices and data.



MONNIT Wireless
SENSOR TYPE

ENTERPRISE SENSORS

AA Battery Powered
Up to 10 Years Battery Life

Monnit Commercial sensors are the highest performing low power long range sensors among the existing worldwide with 8 years battery life and 300m signal coverage. Integrated on-board data storage allows sensors to store data messages if communication to a gateway is disrupted.

INDUSTRIAL SENSORS

Waterproof and dustproof type
Suitable for heavy industries

The industrial sensor is the strongest and most robust type of MONNIT sensors. It is sealed in a IP65 rated case, NEMA 4X, CE. Powered by replaceable 3.6V (1800mAH) AA batteries with life span of more than 7 years.

MONNIT WIRELESS SENSORS

More than 80 types of wireless sensors can be applied to various industries such as manufacturing plants, construction sites, distribution centers and farms.

* MONNIT currently produces 80 types of sensors and constantly develops new types.

01

COMMON FEATURES

AA Type			
Performance			**Power Consumption**
Wireless range	Reliability(1-10)	Radio Frequency	Battery life
300m in open space	FHSS(9)*	940MHz	8 - 10 years (AA battery x 2) (Depending on transmission frequency)

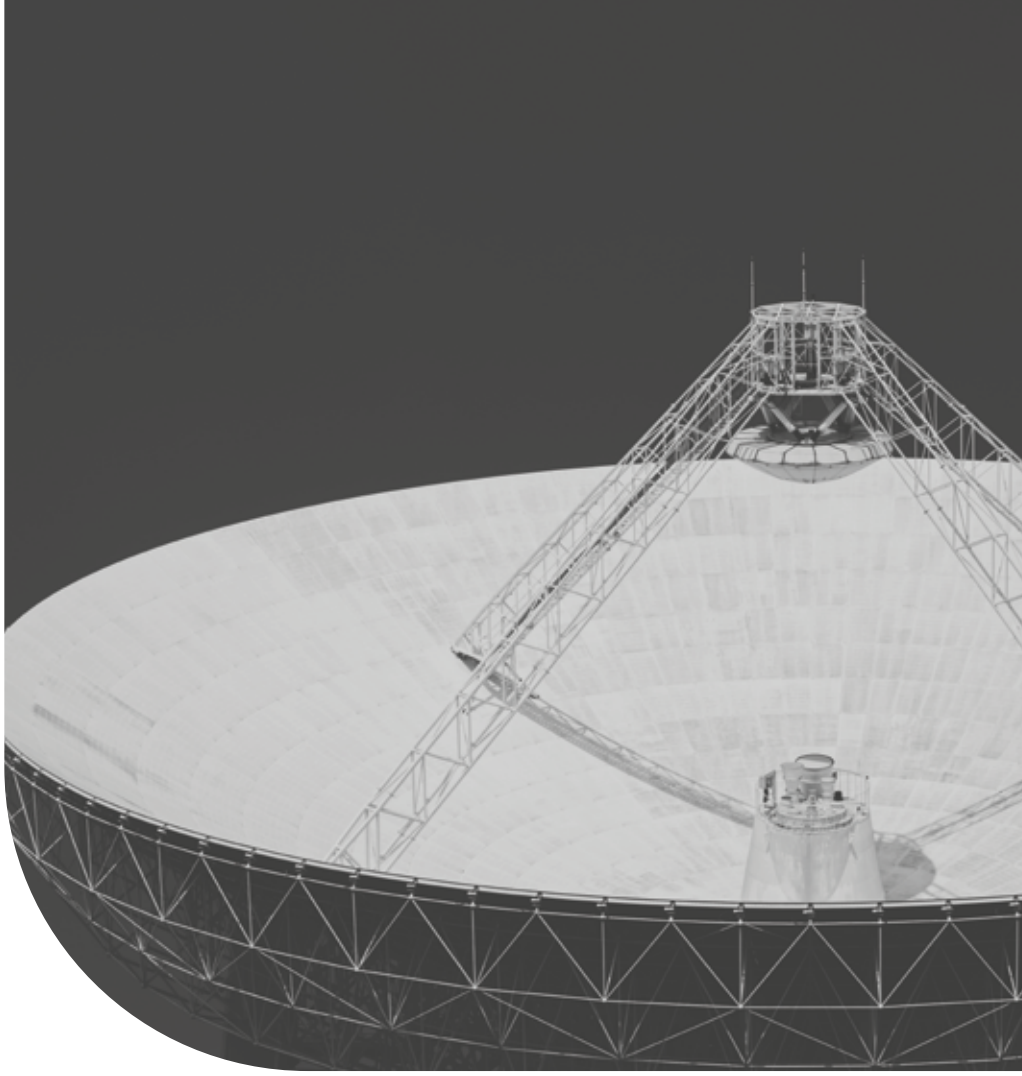
Industrial Type				
Performance				**Power Consumption**
Wireless range	Reliability(1-10)	RF	Safety Standard	Battery life
300m in open space	FHSS(9)*	940MHz	UL508-4x specifications	10 years(Depending on transmission frequency) Type : Replaceable 3.6V, 1800mAh (single AA sized)

Networking			**Memory**
Type	Security	Online update	Storage
Star Network**	256-bit key exchange & AES-128 CTR Bank level security / dual encryption	Online remote firmware update	5000 messages Heartbeats 10min / 22d

* Frequency Hopping Spread Spectrum (When a frequency is disturbed by a spread spectrum modulation method, it is retransmitted to other paths)
** Star Network : Top-rated networking method that provides connection to multiple platforms

02

GATEWAYS



Serial Modbus

Modbus gateway can connect 50 wireless sensors to existing Modbus RS-232C and RS-485 sensing. The robust industrial case enables stable use in various hursh environments, and a wide range of power sources between 4.5-36.0 VDC can be connected.

Serial port	RS232, RS485
Serial signal	RS232 : TXD(OUT), RXD(IN) and Ground/Common RS485 : D+, D- and Ground/Common
Network	RP-SMA connector, 5.0 dBi Standard
Operating temp.	-40°C ~ 80°C
Power	4.5 ~ 36.0VDC

Ethernet

Ethernet Gateway allows your Monnit Wireless Sensors to communicate with the iMonnit™ System without the need for a PC. Simply provide power and plug the gateway into an open Ethernet network port with an internet connection. It will then automatically connect with Monnit online servers, providing the perfect solution for commercial locations where there is an active internet connection.

Power	220V	**Memory**	50,000 messages
Frequency	940MHz		
Protocol	DHCP, DNS, NTP, UDP, TCP, SNMP, Modbus TCP		

IoT Gateway

IoT Gateway works on 4G LTE cellular technology and a built-in battery, so it has the advantage of accumulating data and receiving notifications through the platform even when not connected to power. It is the best gateway when wired internet connection is not available.

Power	220V / Lithium Battery / PoE Built-in battery lasts 70 hours
Memory	50,000 messages
Protocol	DHCP, DNS, NTP, UDP, TCP, SNMP, Modbus TCP
Security	ECDH-256 & AES-128

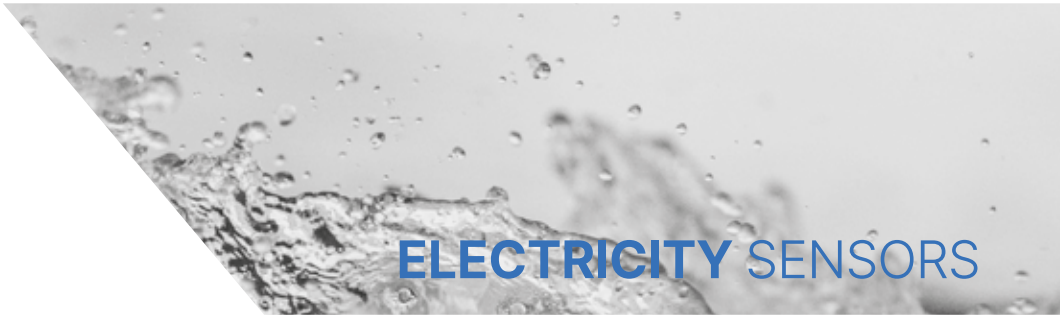
Advanced Edge

Able to support custom edge based IoT applications the Advanced Edge Gateway is ideal for IoT OEMs and ISVs. Additionally, the Advanced Edge Gateway deploys as an MQTTS client, allowing data to be sent to MQTT brokers hosted on platforms such as Amazon AWS, Microsoft Azure, IBM Watson, or to a user's own broker. The gateway includes a local web interface.

Hardware	• CPU: Cortex-A53 • RAM: 1 GB LPDDR2 SDRAM • Disk: 16 GB • Operating System: Linux

03

SENSORS



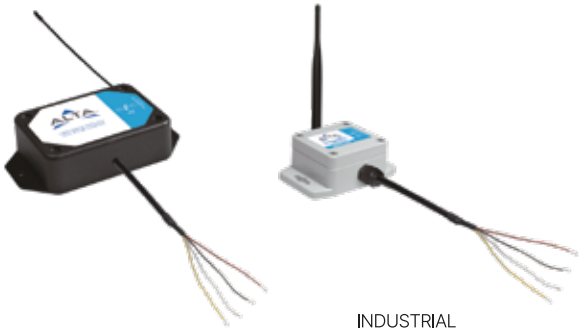
ELECTRICITY SENSORS

Pulse Counter

Pulse Counter Sensor can be connected to the pulse output of a system (water meter, power meter, etc.) to count the number of actuations within a given time frame.

Application	Water, gas & air flow meter, production line tracking
Max counts	More than 4 billion
Input voltage	0 ~ 15V(DC)
Filter settings	No filter, 4 Hz filter, 40 Hz filter
Wire length	90 cm

INDUSTRIAL



INDUSTRIAL

Dual Pulse Counter

Measures usage in real time by connecting to the pulse output of digital flow and power meters. Approved by KEPCO for signal line connection, enabling peak demand management. Supports both (+) and (–) pulse measurement.

Application	Applicable for high-voltage KEPCO meters, digital flow meters, and water meters
Max counts	More than 64bit(2^{64})
Input / Impedance	2 Channel / > 4.7MΩ
Wire length	90cm / 0~80V(DC)

INDUSTRIAL

5-input Dry Contact

Detects circuit status between mechanical switches, relays, and magnetic contacts.
Monitors up to 5 contact points simultaneously using 1 common (black) wire and 5 detection wires.

Application	Used for status monitoring in automatic control panels, water tank level panels
Wire	90cm / 2.5MΩ
Input	5
Trigger	Contact (Loop closed) No contact (Loop open)

INDUSTRIAL

200 VDC Voltage Detection

200VDC Voltage Detection Sensor measures the voltage between two electrical points. It can be connected to the power and ground of any voltage source and measure within stated accuracy up to 200 VDC. Perfect for measuring battery voltage at specified intervals.

Application	Relays/switches, power supplies
Full-scale voltage	1 ~ 200 VDC
Voltage detection threshold	Presennce: >2VDC Absence: <1.8VDC
Wire spec	22 AWG, Red(+), Black(-)
Wire length	30cm (expandable)

INDUSTRIAL

200 VDC Voltage Meter

200 VDC Voltage Meter is an analog device that measures voltage by directly connecting leads to terminals. It can measure up to 200VDC. The red line of the sensor must be connected to (+) terminal and the black line to (-) terminal.

Application	Battery management (UPS, generators, vehicles, boats, etc.) Firefighting equipment, PLC monitoring
Resolution	0.01V
Full-scale voltage	0~200VDC
Wire length	30cm

INDUSTRIAL

500 VAC Voltage Detection

500 VAC Voltage Detection Sensor can interface with other devices to detect voltage from 24 VAC to 500 VAC. The sensor notifies of the presence or absence of voltage. Perfect for monitoring electrical appliances.

Application	MCC panel, substation room, machine room, Circuit breaker trip detection
Full-scale voltage	500 VAC
Max input voltage	600 VAC

INDUSTRIAL

500 VAC Voltage Meter

500 VAC Voltage Meter is an analog device that reports the measured voltage on user specified intervals. It has three operating modes, in which you can obtain the voltage measurement in VACrms, the peak voltage, or the DC voltage.

Application	Power lines, machinery, generators, electrical motors
Operation mode	VAC RMS VAC Peak to Peak
Full-scale voltage	0 ~ 500 VAC
Max input voltage	600 VAC

Electricity Sensors

INDUSTRIAL

Dry Contact

Dry Contact Sensor detects when there is contact between the two wired end points. It can easily be integrated into existing switches or contact plates.

Application	Button/switch integration Device/machine functioning
Wire length	30cm
Detection wires	High impedance
Trigger	Contact (Loop closed) No contact (Loop open)

INDUSTRIAL

4-20mA Current Meter

4-20mA Current Meter is capable of measuring the current off another device or sensor up to 20mA VDC, by connecting the leads of the sensor to the positive and ground terminals of the device being measured.

Application	Current converter, flow meter, infrared thermometer, PH measurement, mA output equipment such as sound level meter and oxygen concentration meter
Accuracy	Uncalibrated: 0.7mA, 0.35mA Calibrated: 0.05mA
Input resistance	51Ω
Full-scale current	0~20mA (DC)

3 Phase Current Meter

Three Phase Current Meter is measured simultaneously using three CTs. The sensor displays the maximum, minimum, and average load amperage of three phases at a time, indicating amperage per hour.

Application	Current & Amperage monitoring
Range	20A/150A/500A
Wire length	90cm
Unit	Ah, MJ, Kwh

INDUSTRIAL

AC Current Meter

One Phase Current Meter uses non-contact CT(current transformer) to measure current usage. This sensor displays the maximum, minimum, and average load currents and shows the current per hour (Ah, Wh).

Application	Current & Amperage monitoring
Range	20A/150A/500A
Wire length	90cm
Unit	Ah, Wh, Kwh

For precision measurement

BRIDGE METER SENSORS

The sensor's internal processor is embedded in the module, eliminating the need for an external power supply. This enables minimal wiring and a low-power system.

The sensor itself detects and processes minute changes in resistance (Ohm) due to deformation, with this functionality built into our sensor module.

Inclinometer — Displacement — Strain — Force & Torque — Pressure

Bridge Meter

The bridge meter connects to precision analog bridge output (mV/V) sensors, wirelessly transmitting force, strain, and displacement data with high accuracy in industrial settings.

Application	Safety monitoring and strain measurement Precision weighing for hoppers, tanks
Applied bridge sensors	Load cells, strain gauges (1/4, 1/2, full bridge), inclination sensors, displacement sensors, torque sensors, pressure sensors — all bridge-type sensors.
Specifications	24bit ADC, ±0.1 mV/V to ±1 V/V, Resolution : 1/250,000, Accuracy : 1/30,000

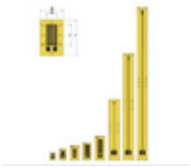
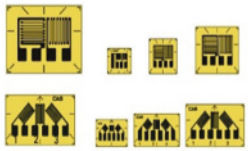
INDUSTRIAL

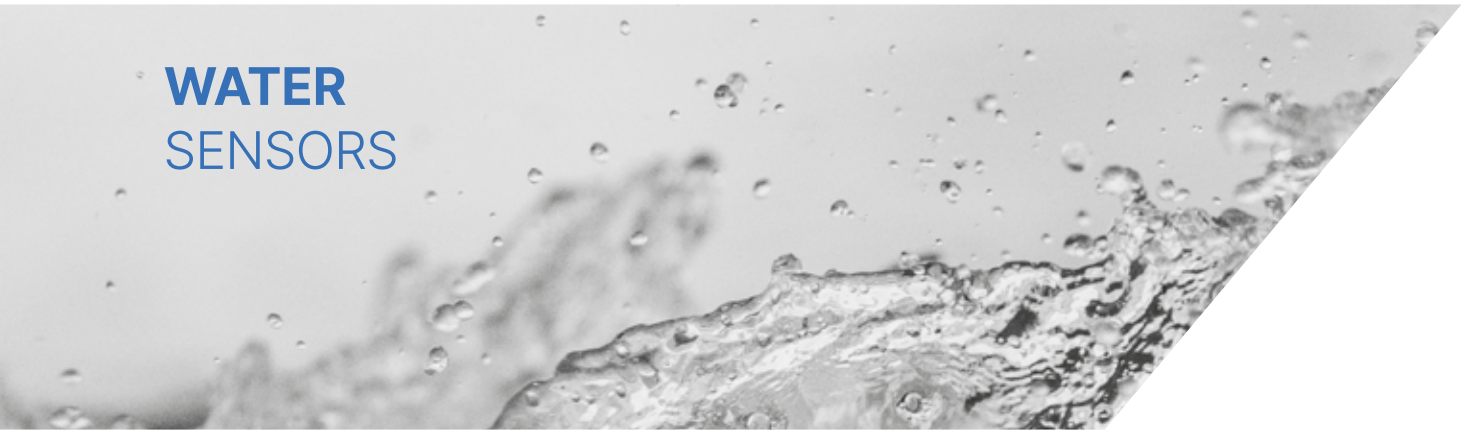
Bridge Meter Sensors

Full Bridge Transducer(mV/V type)

Load Cells	Strain Sensor	Inclinometer
		
Torque Sensor	**Pressure Sensor**	**Displacement Sensor**
		

Strain Gauges

Single Linear Grid Pattern	Shear & Double Shear Grid Pattern
	
• Widely used general purpose linear type strain gage [S series strain gage] • Bending application • Grid size: 1-90mm • Resistance: 120-2000Ω • Similar geometry pattern available	• General shear type strain gage [Q: single shear, T: double shear series] • Shear & torque application • Grid size: 110mm • Resistance: 120, 350, 700, 1000Ω • Similar geometry pattern available
T & 3-Element Rosette Pattern	**Diaphragm & Special Grid Pattern**
	
• Tee & [delta] Rosette type strain gage [T: 2-90°, TS: 2-90° stacked,R: 3-element, RS: 3-element stacked] • Shear, torque, point stress analysis application • Resistance: 120, 350, 1000Ω	• Diaphragm & other full bridge type strain gage [D: diaphragm, FB: full bridge] • Pressure sensor or special application • Resistance: 120, 350 • Special order made available



WATER
SENSORS

Water Detection

Water Detection Sensor is a trigger-type sensor that sends notifications via text messages and e-mails to the administrator when water is detected or not detected. It helps to prevent potential property damage from flooding and leaks.

Application	Water heater, sump monitoring, plumbing leak detection
Wire length	90cm
Detection wires	High impedance
Trigger	Water detected/ not detected

Puck INDUSTRIAL

INDUSTRIAL

Water Rope

Water Rope Sensor detects conductive liquids anywhere along the length of the detection rope by using two wires covered with conducting polymer and immediately sends an alert. The sensor rope dries quickly allowing the sensor to reset for next use.

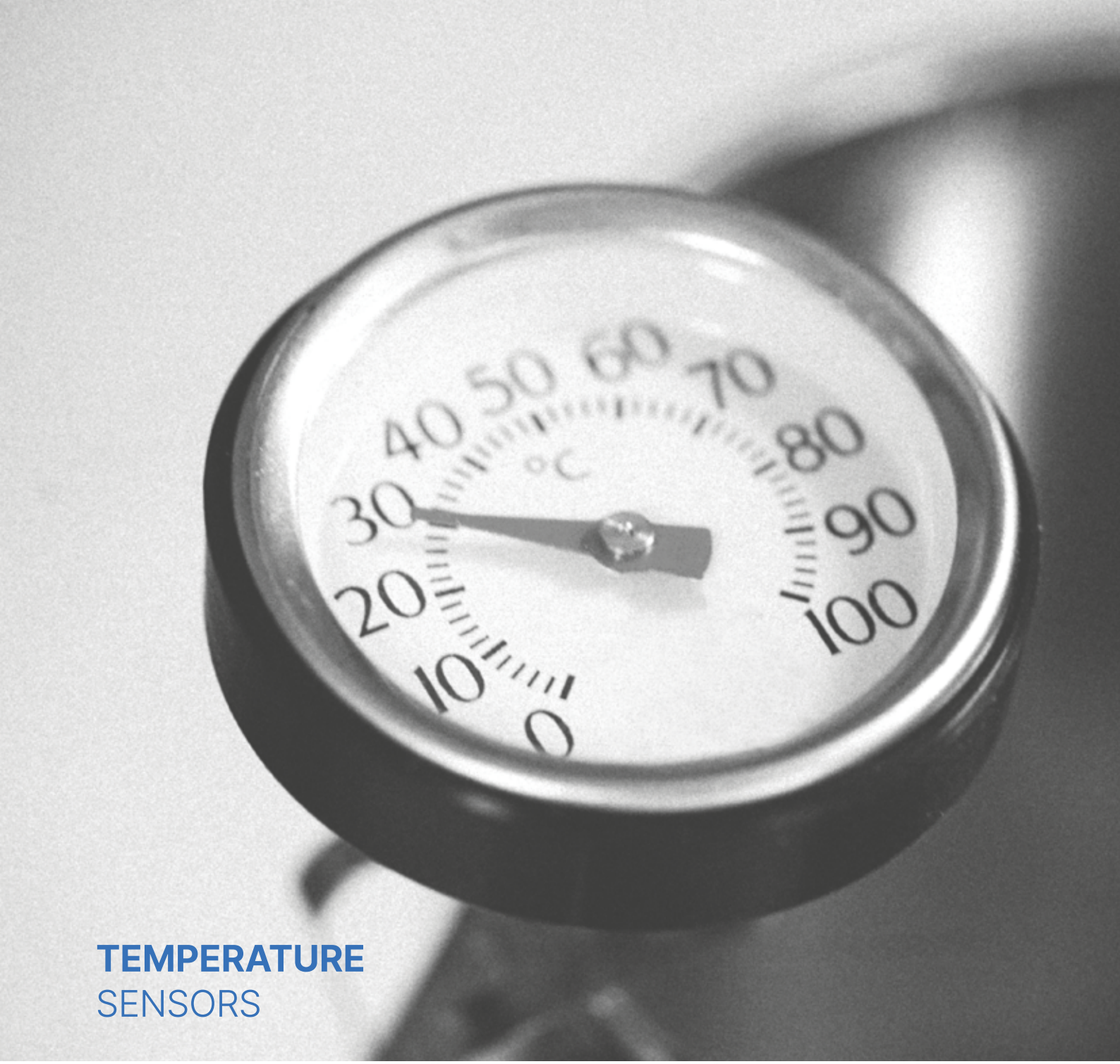
Application	Piping freezing, leak detection
Rope length	3m(expandable to 30m)
Rope material	PE + alloy lead
Resistance	3Ω/meters

3 Foot Lead | Middle of Enclosure
INDUSTRIAL

Ultrasonic

Ultrasonic Sensor can be used in a variety of applications for measuring distances between the sensor and objects in its path. The sensor uses the speed of sound and the time difference between sending and receiving the sound pulse to determine the distance to an object.

Application	Water tank, collection well, septic tank water level management
Min Measurement Distance	10cm
Max Measurement Distance	400cm



TEMPERATURE
SENSORS

Temperature

Temperature Sensor uses a thermistor to accurately measure temperatures. These sensors are perfect for monitoring of ambient temperatures around the sensors physical location.

Application	Server room, vacant property, warehouse, crop and livestock farm
Operating temp.	-40°C ~ 125°C
Accuracy	+/-0.25°C

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Temperature Probe

Temperature Sensor with Probe is optimized for measuring the internal temperature from the outside using a probe-type thermistor.

Application	HVAC (Air conditioning system), HACCP Certification, Motor surface temperature, Reactor surface temperature
Range	-40°C ~ 125°C
Probe length	90cm

INDUSTRIAL

Resistance

Resistance Sensor collects the measured resistance values at both terminals. It can only be connected to passive devices without voltage. If there is power the voltage will damage the sensor. Analog data is converted mathematically to calculate the resistance value.

Application	Strain measuring instruments (bridges, construction site facilities, etc.), batteries
Wire length	90cm
Meauring range	~ 250k(250,000) Ohms
Accuracy	± 2%

INDUSTRIAL

Low Temperature RTD

Low Temeparture Sensor uses a glass coated platinum RTD sensor to accurately measure temperatures from -200°C to +162°C.

Application	Freezers & coolers Cold chain
RTD range	-200°C ~ 162°C *RTD : Resistance Temperature Detector
Accuracy	+/-0.3°C

INDUSTRIAL

High Temperature RTD

High Temperature Sensor uses a glass coated platinum RTD sensor to accurately measure temperatures from -50 C to +370 C.

Application	Boilers, ovens, high temperature manufacturing facilities
RTD range	-50°C ~ 370°C *RTD : Resistance Temperature Detector
Accuracy	+/-0.3°C

Temperature Sensors

Digital Temperature

Digital Temperature Sensor measures from -40°C to 125 °C using the probe. At the touch of a button, the temperature value is displayed on the unit's display, making it ideal for sites requiring immediate temperature management.

Application	Coldchain, pharmacy, vaccine refrigirator
Range	-40°C ~ 125°C
Accuracy	+/- 0.25°C
Probe length	91cm or 304cm

INDUSTRIAL

Thermocouple

Thermocouple Sensor is available with a hardwired thermocouple or K-type connector to measure high temperature applications.

Application	Pharmaceutical laboratories, oil/gas plants, cement curing
Range	-100°C ~ 400°C
Accuracy	+/- 2.2°C
Probe length	152cm(K-type connector)

INDUSTRIAL

Duct Temperature

Duct Temperature Sensor uses an NTC thermistor with 2.4m lead wires to accurately measure temperatures in duct work, while maintaining a sealed environment.

Application	HVAC operation, Air duct temperature
	-40°C ~ 150°C
	+/- 0.25°C
Probe length	44cm

INDUSTRIAL

Water Temperature

Water Temperature Sensor can collect temperature data of water or other noncombustible liquids using a sealed NTC thermistor with 90cm lead wires.

Application	Water/ liquid storage tanks, swimming pool, aquarium, sauna
Range	-40°C ~ 125°C
Accuracy	~ 0.25°C
Probe length	90cm

ENVIRONMENTAL SENSORS

INDUSTRIAL

Humidity

Humidity (RH) Sensor accurately monitors the relative humidity of the air, temperature and dew point with high accuracy within a room or enclosure.

Application	Greenhouse, artgallery, museum, hotel, clean room
Range	0 ~100% RH (Relative humidity)
Accuracy	+/- 2%
Response time	8 sec

PAR Light Meter

Monitors the ideal light wavelengths required for photosynthesis by plants. Quantum light sensors can be used to monitor the presence of light, measure light intensity, and record daily saturation levels that affect plant health and growth.

Application	Greenhouses, botanical gardens
Range	389 to 692 nm +/- 5 nm
Accuracy	> 0.5%
Measuring angle	180°

Environmental Sensors

Hydrogen Sulfide(H2S)

Hydrogen Sulfide Sensor monitors the presence of toxic gas (hydrogen sulfide) in the air and provides temperature values. Accumulated data can be downloaded and viewed as graphs and spreadsheets.

Application	Crude oil/natural gas production, waste water treatment plant, septic tank, public toilet
Measuring range	0 ~ 50ppm
Measuring principle	Electrochemical reaction of H2S
Response time	< 40 seconds typical at 20°C
Stabilization time	< 120 seconds

Carbon Monoxide(CO)

Carbon Monoxide Sensor is a microelectronic control technology (MEMS)-based sensor that demonstrates high perfomance in an extremely low-power module, measures the amount of carbon monoxide in the air and temperature values.

Application	Stove, distribution panel fire, fire monitoring, Boiler gas leakage, septic tank, manhole
Measuring range	0 ~ 1000ppm
Measuring principle	Electrochemical oxidation of CO
Response time	< 40 seconds typical at 20°C
Stabilization time	< 120 seconds

Carbon Dioxide(CO2)

Carbon Dioxide Sensor is a microelectronic control technology (MEMS)-based sensor that demonstrates high performance with an amazing low-power module and boasts the longest battery life in the industry.

Application	Vessel, septic tank, manhole
Measuring range	0 ~ 1000ppm CO2
Sensing method	Non-dispersive infrared absorption Gold-plated optics Solid-state source and detector
Response time	180 sec

Air Particulate Meter

Air Particulate Meter measures PM1, PM2.5 and PM10 content using a laser that scatters based on the number and size of particles suspended in the air.

Application	Building/room air quality, public places Construction/Demolition sites
PM1	0.3 ~ 1.0 Mg/m³
PM2.5	1.0 ~ 2.5 Mg/m³
PM10	2.5 ~ 10 Mg/m³
Response time	~ 10 sec

INDUSTRIAL

Air Velocity

Air Velocity Sensor detects the pressure difference between the two input ports and measures the speed at which the air is moving (mps), taking temperature and altitude into account. When viewed from the top, the right inlet is (-) and the left inlet is (+).

Application	HVAC, Duct
Operation mode	MPS(Meter Per Second) MPH(Meter Per Hour) KMPH(Kilometers Per Hour)

INDUSTRIAL

Differential Air Pressure

Differential Air Pressure Sensor measures the pressure difference (Pascal) between the two input ports and transmits the measured value to the software. When viewed from the top, the right inlet is (-) and the left inlet is (+). Temperature measurement is also possible.

Application	Hospital clean room, HVAC efficiency measurement, air conditioner filter replacement cycle monitoring
Range	Pressure : -500Pa ~ 500Pa Temperature : -40°C ~ 85°C
Media compatibility	Air, N2, O2

INDUSTRIAL

Soil Moisture

Soil Moisture Sensor uses a resistive granular matrix element to accurately measure the matric water potential (soil moisture tension) in the soil and a thermistor-based temperature element to measure temperature.

Application	Botanical gardens, plant research institutes, landscaping companies
Range	0.0 ~ 240.0 centibar or kPa -40°C ~ 125°C
Resolution	~0.3 centibar or kPa / 0.1°C
Response time	Typically less than 15 seconds

INDUSTRIAL

Pressure Meter

Pressure Meter measures pressure from a 5 volt pressure transducer. This sensor is capable of measuring pressures up to 21 kgf/cm² in compressed gas, noncorrosive liquid and vapor feed lines.

Application	Gas supply line, compressors Connecting with analog pressure gauge
Measuring medium	Gas, liquid, vapor
Range	0 ~ 300 PSIG
Response time	300ms
Wire length	1m

ACCELEROMETER
SENSORS

INDUSTRIAL

Tilt

Tilt Sensor activates at a set time interval (defined by user) and converts accelerometer measurements to pitch and roll (0 to 180° -> -180° to 0°). The data is displayed in degrees with 0.1° of resolution.

Application	Old building safety diagnosis, Tower crane
Sensitivity	4096 count/g
Operating range	0° ~180° / -180° ~ 0°
Sensitivity range	+/-2G, +/-4g, +/-8g
Resolution	0.1

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Tilt Detection

Tilt Detection Sensor constantly monitors a single axis of rotation over a range of -179.9° to +180.0°. It detects changes in tilt on a single axis and reports data in the form of pitch, based on user configurable orientation changes.

Application	Earthquake monitoring, old building, construction site
Sensitivity	4096 count/g
Operating range	0° ~180° / -180° ~ 0°
Resolution	0.01

INDUSTRIAL

Activity Detection

Activity Sensors can be used in a host of applications where detecting vibration (sudden movement) or counting the number of vibrations is required.

Application	Enhancement of restricted area security (Ex. window impact alert) Motor/machine usage cycle check
Sensitivity	0.05g

INDUSTRIAL

G-force Snapshot / Max Avg

G-Force Snapshot Sensor Accelerometer activates at a set time interval (defined by user) and measures g-force along X, Y and Z axes.

Application	Machine malfunction detection, tower crane
Sensitivity	4096 count/g
Sensitivity range	+/-2G, +/-4G, +/-8G
Accuracy	+/-2.5%(force:X, Y, Z)

INDUSTRIAL

Vibration Meter

Vibration Meter Sensor uses an accelerometer to measure vibration speed (mm/s) and frequency (Hz) and duty cycle on all three axes.

Application	Bridges, railways, facilities Motor fault detection
Speed	Measurement range: 0~25.5mm/s Measurement resolution: 0.1mm/s
Frequency	Measurement range: 10~200Hz Measurement resolution: 1Hz

INDUSTRIAL

Advanced Vibration Meter

Advanced Vibration Meter reports vibration (acceleration, velocity, displacement, or acceleration peak), frequency (Hz/RPM), and crest factor on all three axes. It also reports duty cycle and temperature.

Application	Facility motor, building and bridge Tower crane monitoring
Sensitivity	Acc RMS/Acc Peak: 0 to 156912mm/s² Velocity RMS: 0 to 655.36mm/s Displacement: 0 to 655.36mm
Temperature	-40°C ~ 125°C
Wire length	3m

OCCUPANCY SENSORS

Light Meter

Light Meter uses a highly sensitive photo-diode to detect and measure the intensity of light from 0–82,000 lux (luminescence/unit area). It can alert upon immediate detection of light or a change in light intensity.

Application	Art gallery, museum, greenhouse, Facilities lighting
Max. light level	0 ~ 82,000 lux

INDUSTRIAL

Button

Button Sensor detects when the button has been pressed triggering a notification from the system. Best suits for situations where an immediate signal is needed.

Application	Remote order, emergency button, service call
Number of operations	10,000,000

Motion Detection

Motion Detection Sensor uses an infrared sensor to accurately detect movements made by people/animals within 4.5 m range.

Application	Restricted area access monitoring, movement monitoring by area/time
Range	Horizontal : 100˚ Vertical : 80˚
Detection distance	2.7~4.5m

INDUSTRIAL

Open-Closed

Open/Closed Sensor can be used to detect when a door or window is opened and closed using a magnetic switch. Applicable for smart toilet use.

Application	Restricted area access control Automatic lighting system
Switch	SPST(1 circuit short contact point)
Magnet	Alnico magnet/weatherproof
Wire length	38cm

Motion Plus

Motion Plus Sensor detects movements made by people and animals within a 4.5 m range and measures ambient temperature and relative humidity(RH) using a passive infrared (PIR) motion sensing element.

Application	Office building, secure areas
Range	Motion angle 80˚, 0 ~100% RH -40 ~ 125°C
Detection distance	4.5m

Local Alert

The Local Alert flashes a red LED, sounds an audible alarm, and displays the important message upon receiving a notification. The Local Alert can also display sensor readings from any sensor on the same account.

Application	Sites, secure areas where inventory and equipment protection is required
Display	LCD 128x32 px (8 lines of text) LEC One Ultra Bright Red
Size	101.6x101.6x40.64 mm

ADD-ON
DEVICES

Thermostat

The Thermostat is designed specifically for remote configuration and energy savings. It features an integrated motion sensor to auto detect if an area or room is occupied and can be set to enter an energy saving state when not needed. The thermostat allows to set a maximum and minimum temperature range for both occupied and non-occupied states.

Application	Smart office, hotel rooms, schools, sport centers, etc.
Accuracy	+/-3%(10 - 90% RH)
RH range	0 -100%RH
RH response time	8 seconds

Control

The device allows a user to control two separate power relays, all through the iMonnit online sensors portal. Automatically control motors or electrical devices when a condition is detected by a sensor or group of sensors.

Application	Automatic control system Sprinklers and pumps
Activation	Automatic / Manual
LEDs	Power / frequency Relay 1 status / Relay 2 status
Max operating speed	20 times(1 minute interval)

Site Survey Tool

It helps to plan the placement of Monnit sensors by measuring the strength and quality of the radio frequency (RF) signal from an Monnit gateway

Application	Monnit sensor installation survey

04

SOFTWARE

iMONNIT is a cloud-based monitoring platform provided exclusively for MONNIT wireless sensors and gateways, allowing sensor and network-related settings and user customization.
iMONNIT administrators can set thresholds for each sensor to send notifications via text message or e-mail to administrators or set users when an abnormality occurs, and can be accessed and managed from all Internet-based devices, including smartphones, tablet PCs, laptops, and desktop computers.

iMonnit Basic
Online Sensor Monitoring
Free with no ongoing costs!

iMonnit Premiere
Online Sensor Monitoring
Minimal Annual Fee!

iMonnit HX
Heartbeat Credits

iMonnit Express
Internal network

iMONNIT Basic is provided free of charge with the purchase of sensors and gateways, and provides basic functionality and limited functions for online monitoring of sensors.

iMONNIT Premiere enables detailed settings for sensors, gateways and users at a reasonable cost. It is essential when configuring with a 3rd party platform using the API from the Monnit server.

iMonnit HX is an upgraded version of iMonnit Premiere, which allows you to collect precise data by setting a shorter data collection period (less than 10 minutes).

iMonnit Express is a secure, standalone PC application that does not require an internet connection. It is possible to control equipment by linking with Bacnet and to set sensor readings.

Easy 3rd party system integration

XML, JSON-based MQTT, MODBUS TCP, and RS485 protocols are supported to easily integrate data to existing systems. Open API and SDK is provided.

iMONNIT Enterprise

iMonnit Enterprise is an installation software provided to customers who want to manage their data on their own server. It provides the same features as iMonnit Premiere, while allowing customers to host/manage their data themselves. However, to use the software, you must change the gateway to the IP of the server where Enterprise is installed using the unlock code.

iMONNIT® ENTERPRISE™
ENTERPRISE SENSOR SOLUTIONS

Minimum System Requirements
Windows Server ®, 2 GB RAM, 2.0GHz Processor, ASP.NET Framework v4.5
Web Server, IIS 7, ASP.Net MVC Framework v4.0
SQL Server ® 2008 or Newer (Database Server)

Monnit MINE SDK

MINE SDK is a library source that helps you combine Monnit hardware with your own software system or develop a new platform. The API is provided in .NET and JAVA, and all sample application functions are included. MINE also requires 1 unlock code per 1 gateway.

MINE™

Gateway Unlock

Gateway Unlock is required to use iMonnit Enterprise or Monnit Mine.
Data can be transmitted to a user-specified host or IP using an unlock code, and a user-developed backend can be used with wireless sensors and gateways.

MONNIT's gateway points to the MONNIT server by default.
MONNIT reflects the needs of customers who want to build and operate their own platform and provides iMONNIT Enterprise and MONNIT MINE for that puroses. In order to do so, you need to purchase an UNLOCK key and modify the default value. Enter the ID and SC code of the gateway at **www.imonnit.com/sethost** and enter the purchased unlock key to unlock the gateway. Enter the IP and port of the server you want to receive data from and send the data directly to your own server. Gateway unlock keys are sold separately, and purchase is not required when using the iMONNIT platform, but purchase is required for each gateway when operating iMONNIT Enterprise and MONNIT MINE.

Modbus TCP Settings

You can directly receive sensor data from the gateway via Modbus TCP without using the Monnit platform. However, the gateway must be assigned a fixed local IP.

Starting Address
Sensors information starts at 40101 + 16 (Slot Number - 1)

Slot Number	Starting Address
1	40101
2	40117
3	40133
4	40149
5	40165
6	40181
256	44181

A total of 256 sensors can be registered,
with 16 addresses per sensor

Slot 1 (Sensor 1) starts at 40101
Slot 2 (Sensor 2) starts at 40117
Slot 3 (Sensor 3) starts at 40133
.
.
.
Slot 256 (Sensor 256) starts at 44181

The data sheet on the right is in raw format and needs to be converted to a usable format. Since the data definition values differ for each sensor, please refer to the QR code on the right for more information.

SENSOR HOLDING REGISTERS (SLOT 1)
오른쪽 하단 표에 대한 설명

Field Number	Description
❶~❷	Sensor ID
❸	Type of Sensor (CO2 106/Light Meter 107/Motion Plus 138/Humidity 43)
❹	Elapsed time (in seconds) since the last data was retrieved / data age
❺	Operation = 1, No operation = 0 (communication interruption or failure)
❻	Sensor threshold status: Threshold reached = 1, Normal = 0
❼	Battery voltage (V) = 1/100 (Replace when below 2V).
❽	Signal strength (0~100%)
❾~⓰	Out of the 16 addresses per sensor, the first 8 are related to sensor information, while addresses ❾~⓰ correspond to the sensing data values output by the sensor

GATEWAY HOLDING REGISTERS			
Field	**Description**	**Register**	**Data Address**
Gateway ID_High	The first 16 bits of a 32-bit serial ID number.	40001	0
Gateway ID_Low	The last 16 bits of a 32-bit serial ID number.	40002	1
Gateway Version Revision + Major	The gateway firmware Revision and Major version numbers (1 byte each)	40003	2
Gateway Version Minor + Release	The gateway firmware Minor and Release version numbers (1 byte each)	40004	3
Gateway Device Count	The number of devices in its wireless network.	40005	4

SENSOR HOLDING REGISTERS (Slot 1)			
Field	**Description**	**Register**	**Data Address**
❶ Sensor ID_High	The first 16 bits of a 32-bit serial ID number	40101	100
❷ Sensor ID_Low	The last 16 bits of a 32-bit serial ID number	40102	101
❸ Device Type	The unique type identifier for the sensor profile	40103	102
❹ Data Age	The number of seconds that have elapsed since the last data was retrieved	40104	103
❺ Is Device Active	0 indicates no data for this slot	40105	104
❻ Is Aware	Becomes aware when a sensor threshold has been breached	40106	105
❼ Voltage	Battery voltage	40107	106
❽ RSSI	Signal Strength Indicator...0-100%	40108	107
❾ Data 1	Sensor Data Field 1	40109	108
❿ Data 2	Sensor Data Field 2	40110	109
⓫ Data 3	Sensor Data Field 3	40111	110
⓬ Data 4	Sensor Data Field 4	40112	111
⓭ Data 5	Sensor Data Field 5	40113	112
⓮ Data 6	Sensor Data Field 6	40114	113
⓯ Data 7	Sensor Data Field 7	40115	114
⓰ Data 8	Sensor Data Field 8	40116	115

Monnit Wireless Sensor Network Monitoring Feature Comparison			
Features	**iMonnit Basic**	**iMonnit Premiere / HX**	**iMonnit Enterprise MINE SDK**
	Online Sensor Monitoring	**Premium Online Sensor Monitoring**	**Self Hosted Software**
Price	Free	Call for pricing	Call for pricing
Basic configurations sensor name, heartbeat, measurement notifications	✓	✓	✓
Advanced configurations Recovery settings, sub heartbeat Heartbeat in case of emergency		✓	✓
Sensor data reports	✓	✓	✓
Sensor data charts	✓	✓	✓
Sensor data CVS file download	✓	✓	✓
Sensor calibration	✓	✓	✓
Monnit Link USB Gateway support	✓	✓	✓
Monnit Link Ethernet & Cell Gateway support	✓	✓	✓
Monnit Wi-Fi (MoWi) Sensors support	✓	✓	✓
Internet accessible	✓	✓	✓
Offline access			✓
Alert history	✓	✓	✓
Multiple users		✓	✓
Group configurations	✓	✓	✓
Privilege-based access control and reporting		✓	✓
Email & sms	✓	✓	✓
In-app alerts	✓	✓	✓
Sensor mapping		✓	✓
Heartbeat min. (Sensor Check-In)	2hours	10min / 1min(HX)	1sec
# of networks	1	5	unlimited
# of sensors	500 per network	500 per network	500 per network
# of gateways	100	1,000	unlimited
# of users	1	unlimited	unlimited
Sensor data saved history	45days	unlimited	unlimited

BETTER AND SMARTER WITH IoT

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