

Radionode365 SaaS

# Temperature & Environment Monitoring



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# Radionode365 Main Features



# Field Applications Using Radionode365 Cloud

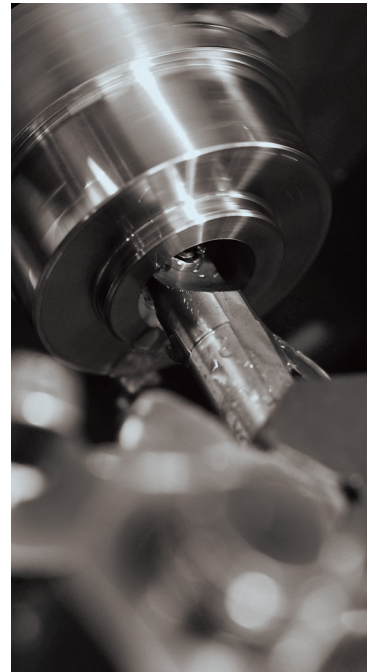
Environmental Safety



Vaccine Management



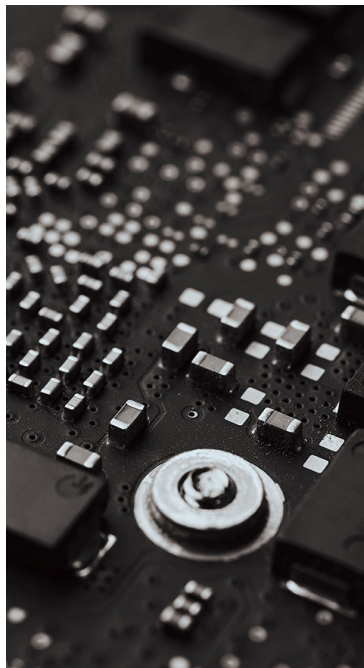
Facility Management



Cold Chain



Electronics Industry



Smart Farm



“  
Radionode365 is always with you  
”

To date, Radionode365 has measured and recorded customer's assets more than 3 billion times.

**Also, we informed them  
by detecting 540 thousand risks per year.**

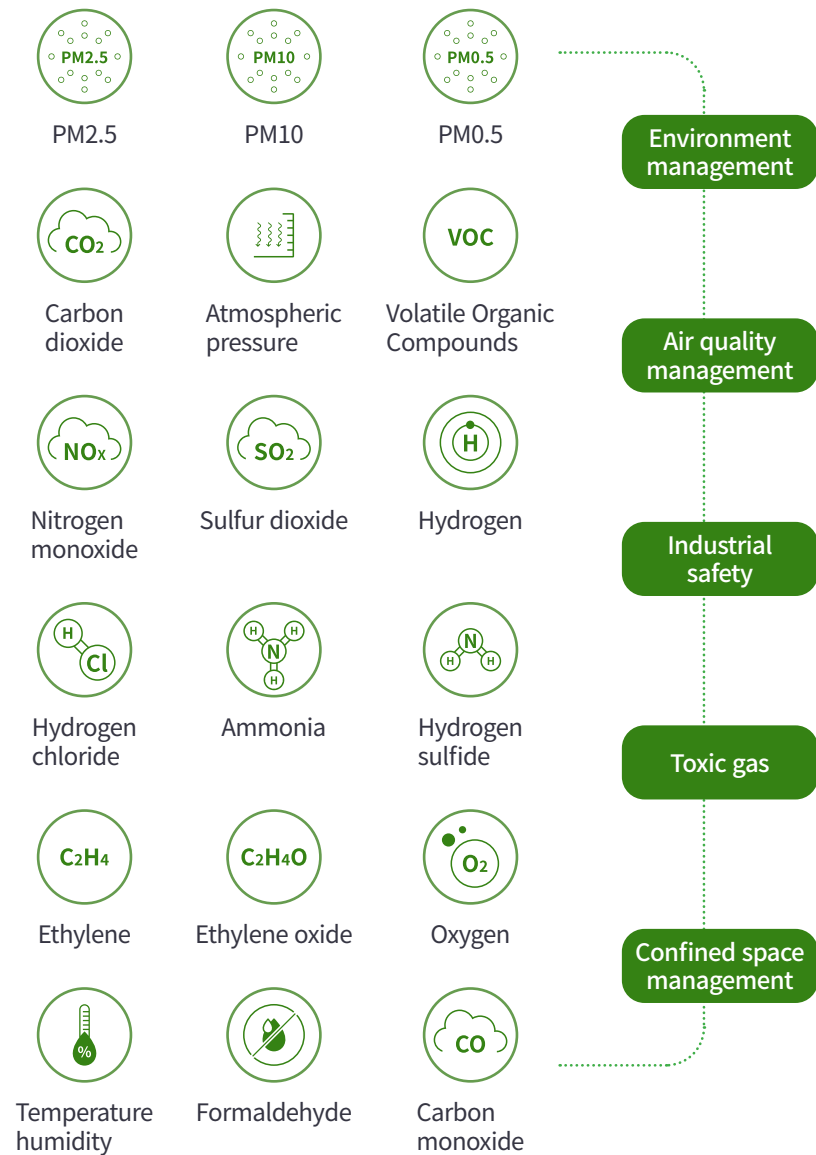
We are currently reporting risks over 6,400 facility managers in real-time while remotely monitoring temperature, humidity, and gas more than 3,000 times with 12,400 sensors. Now It's time to monitor your assets with Radionode365.

[As of 31st December 2021]

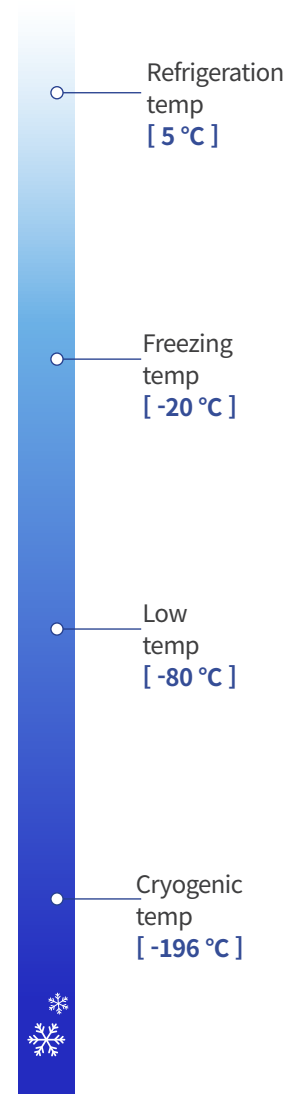
Monitoring

# What sensors Radionode365 has been monitoring

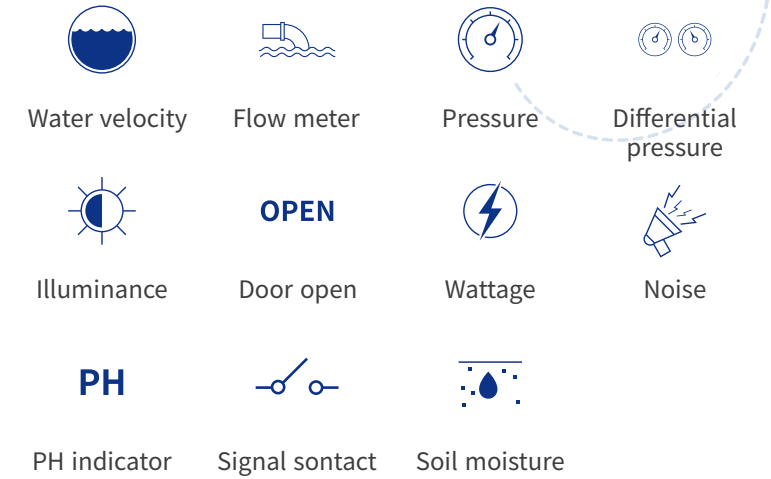
## 01 Environment Monitoring



## 02 Temperature Management



## 03 Signal Integrated Management (4-20mA, 0-1V, Pulse)



## 04 Virtual channel based on Algorithm

- ① Food poisoning index
- ② Corruption index
- ③ Dew point
- ④ Sum of temperature
- ⑤ MKT temp

All data is collected as a **RADIONODE®** product.



# Makes your own sensor monitoring dashboard on Web Browser.

### Custom LOGO

You can upload your own logo image and setup Full Screen Title.

**DEKIST**

## Radionode Lab

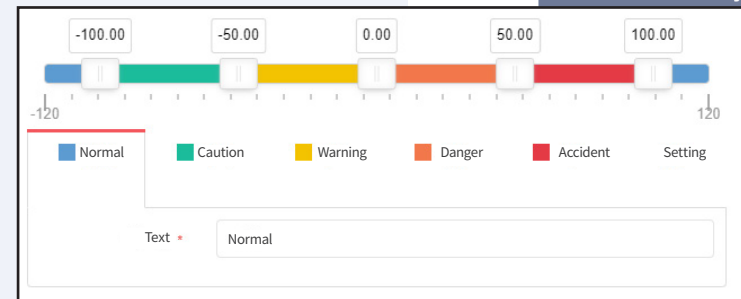
### Number widget

It shows the current value of sensor in real time.

- Blue: Normal
- Red: Goes out of the set range
- Gray: Disconnect to the network

### Text widget

It shows Text Message that depend on the range of sensor value. The range is reconfigurable by user.



The dashboard displays several sensor widgets:

- Freezer Temp:** 5.92 °C (Blue)
- VOC:** 60.00 ppm (Gray)
- Gas DP:** RN400-T2GS (H2S) 0.03 w; RN400-T2GS (NH3) 0.02 L/min (Gray)
- NH3 GAS Amount:** today 23.40 L; yesterday 39.60 L (Blue)
- LESS THAN 22%RH:** today 10 hours 0 mins; yesterday 24 hours 0 mins (Blue)
- Oxygen:** Danger (Red)
- Warehouse Door:** Closed (Blue)
- EQ-CO2:** 945.00 ppm (Blue)
- Room-humidity:** 0 % (Blue)
- Food poisoning:** Warning (Yellow)
- TVOC DP:** 0.63 ppm (Blue)
- monthly SO2:** this month 966 L; last month 1131 L (Blue)
- Run Time - Fan B:** this month 314 hours 30 mins; last month 316 hours 15 mins (Blue)
- Room-humidity (bottom):** 20.33 °C (Blue)

### Running Total Widget

It shows the accumulated sensor value such as flow meter or watt-hour. Monthly and Daily calculation are supported.

Example.

Today amount of water consumption.

### Total time Widget

It shows the total calculated time spent in specific conditions. Monthly and Daily calculation are supported.

Example.

Today time in abnormal vaccine temperature last month.

### Quick Report(SMS)

User can receive the same value of the specific number widget every hours. The schedule panel is given to user.

Example. Everyday On 9:00 AM and 2:00 PM , channel to display data. Water Level value will be sent to you via SMS

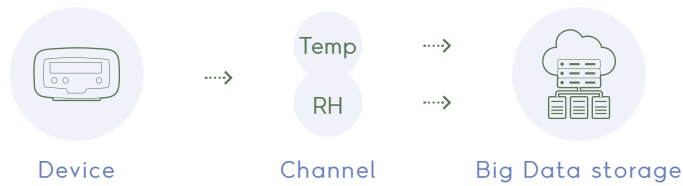
### Widget modification

You can change the name, type (number, text, usage time, operation time) of widget and

# Simply 4 Digit I-Code make Radionode Sensor added on Radionode365 Cloud.

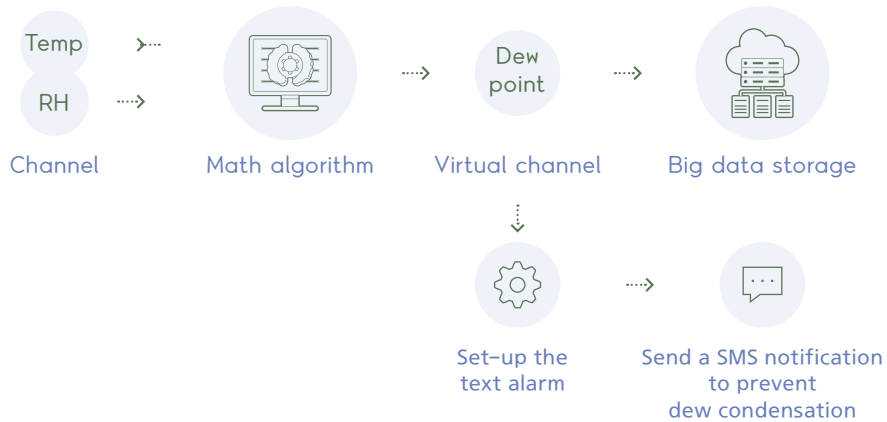
## Channel & Device

What is channel? What is device? The device is hardware product. The channel is sensor data source that belong to the device. Radionode365 manage the sensor data as a channel. For example, Adding one wireless thermo-hygrometer, one hardware device and two channel (temperature and humidity) could be created.



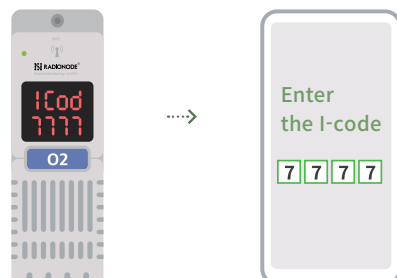
## Virtual channel

Virtual Channel is real time calculating channel that consist of real channel such as temperature. calculating value is recorded in big data storage in the same way as the real channel. the formula of calculation is user defined LUA script language. SMS / Phone Call Alarm Rules can be set up on Virtual Channel just like real channel.



## Add a device

It automatically recognizes when you enter I-Code number on the add device screen.



## Device Information

All the device of your Radionode365 account can be listed on this page. It shows that Device unique ID, Name, IP address, sending rate, sampling rate, Picture of installation location and number of channels, update time.

ID(MAC)	Device Name	Location	Device Model	Public IP	Private IP	Channels	Sending Interval	Sampling Interval	System Notification	La
B452A99E8307	Meeting room		RN400H2PS	210.108.251.29	192.168.1.101	03 3EA	1200 sec	300 sec	OFF ON OFF	
508CB18A4355	Gas DP 1		RN400T2GS	210.108.251.29	192.168.10.98	02 2EA	1200 sec	300 sec	OFF OFF OFF	
001EC02F0123	VOC		RN172	210.108.251.29	192.168.40.9	02 2EA	300 sec	300 sec	OFF OFF OFF	
D4363955C6FE	Particle		RN400T2PM	210.108.251.29	192.168.10.96	06 6EA	1200 sec	300 sec	OFF OFF OFF	
D436394A6A54	Warehouse		RN400H2EX	210.108.251.29	192.168.10.120	06 6EA	1200 sec	300 sec	OFF OFF OFF	
001EC0168FB0	Gas DP 2		RN172	210.108.251.29	192.168.040.002	02 2EA	300 sec	300 sec	OFF OFF OFF	

## Channel Information

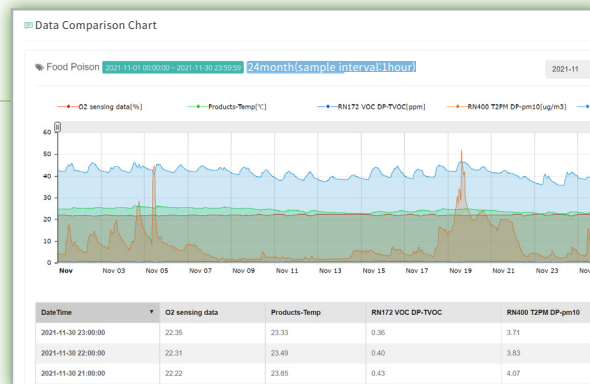
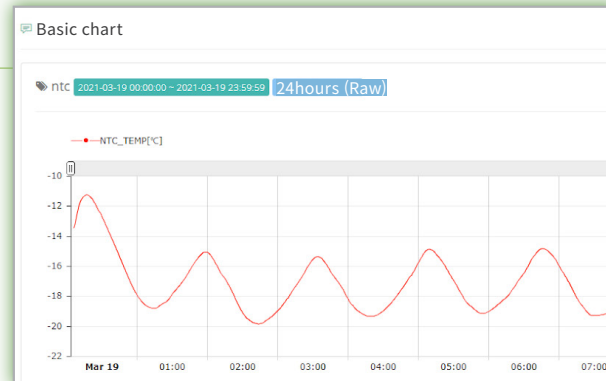
All the channel of your Radionode365 account can be listed on this page. It shows Name of channel, Update time and sensor current value. On this page, virtual channel can be created by user.

Channel Name	Channel property	Device Name	Device Model	Last Value	Unit	RF Signal	Battery	Sending Interval	Sampling Interval	La
VCH-B <span style="color: green;">Virtual</span>	Undefined	Virtual Device	Virtual Device	0.00	V			1200 sec	300 sec	
VCH-A <span style="color: green;">Virtual</span>	Undefined	Virtual Device	Virtual Device	1.00	V			1200 sec	300 sec	
Food poisoning index <span style="color: green;">Virtual</span>	Undefined	Virtual Device	Virtual Device	44.16	%			1200 sec	300 sec	
RN400 T2PM DP.pm10	Fine Dust	PM DP 2	RN400T2PM	5.28	ug/m3			1200 sec	300 sec	
TEMP	Temperature	Meeting room	RN400H2PS	22.89	°C			1200 sec	300 sec	
RH	Humidity	Meeting room	RN400H2PS	33.20	%			1200 sec	300 sec	
Sever room Temp <span style="color: green;">Virtual</span>	Undefined	Virtual Device	Virtual Device	12.62	°C			1200 sec	300 sec	
RN400-T2GS (HZS)	Power	GAS	RN400T2GS	0.05	W			1200 sec	300 sec	
RN400-T2GS (NH3)	Flow Velocity	GAS	RN400T2GS	0.02	L/min			1200 sec	300 sec	
RN172 VOC DP.CO2eq	carbon dioxide	VOC	RN172	4300.00	PPM			300 sec	300 sec	

# Many types of view chart helps you understand your data

## [ Basic chart ]

Basic chart of Raw sensor data by time. Time Range are 24 Hours, One Week, One month

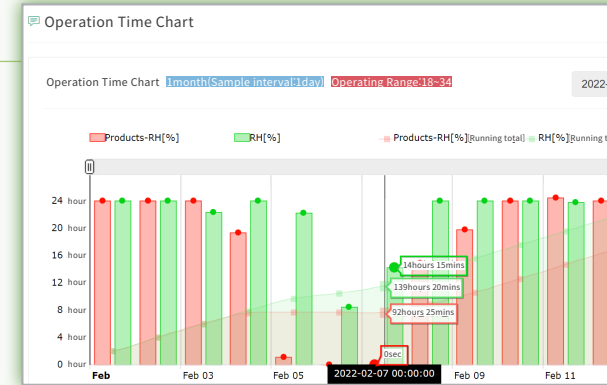
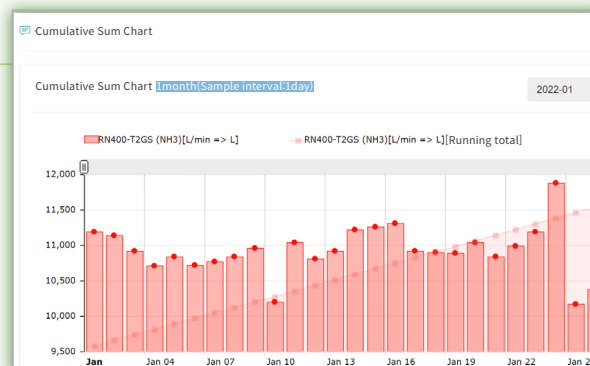


## [ Data comparison chart ]

More than two sensor data can be compared. The average value will be used.

## [ Cumulative sum chart ]

Daily or Hourly Cumulative Summation unit will be shown in form of Bar chart. Also Running total line chart will be drawn during a month or a day.

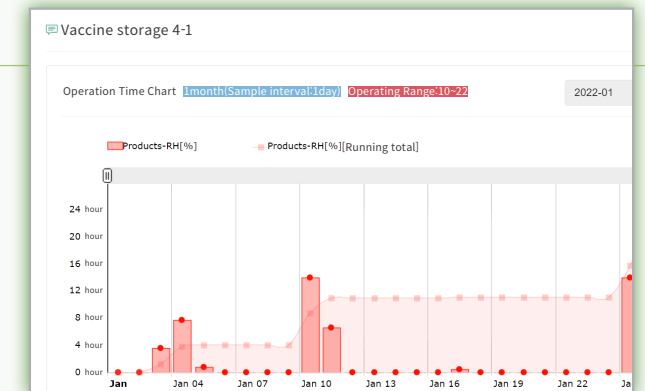


## [ Operation time chart ]

We shows the operating time of a particular device. The bar graph represents the operating time per unit hour. For example, the daily pump operating time is indicated by a bar.

## [ Deviation time chart ]

Cumulative Time spent in the middle of deviation. For example, You can see how long time your vaccine exposed to dangerous temperature.



### QR CODE APP

You can just print and paste QR CODE at any place you want. If you scan the QR CODE, You can directly check the data value.

Attach the QR code to the entrance to a confined space such as a sewage treatment plant or boiler room. Also, stick the QR code on the exterior wall of the museum storage room or vaccine refrigerator. By scanning the QR code, you can check whether you can enter the confined space or the current temperature in real time.

## Immediate Notification

# Radionode365 notification does not bother you

Radionode365 service sends real-time alarm to you and your employees. The Emergency alarm service provides the following functions.

- TTS voice generation engine supports multilingual voice.
- Warning notifications via voice phone call
- You can check whether emergency call is received.
- Warning notifications via SMS or Voice phone call when set ranges exceeded
- We manage all detected risks with a history.
- Alarms are sent with various exception conditions as well as threshold settings.



### When can I receive a notification?

When set ranges exceeded

Out of battery

When sensor information is not collected

When there's a power outage in workplace

### How do you send the notifications ?

Warning notification via voice phone call

Sending a simple text message

Sending a warning email

Recording a history

### Many exception rule of notification

Case 1 Don't notify me on Monday



Prevent notifications on holidays depending on the shift hours.

Case 2 Don't notify him during 9am to 6pm



Prevent notifications when normal working hours.

Case 3 Don't send me duplicated message during two hours.



Prevent duplicate notifications during restoration work.

Case 4 Considering for 30 mins before sending the first alert.



Prevent notification when taking out vaccines from the refrigerator.

The screenshots illustrate the 'Add Alarm' process in the Radionode365 Cloud Service interface. The process is divided into four main steps: 1. Data Channel selection, 2. Condition setting (including Normal Range, Don't Notify again for, and Don't Notify Initially for), 3. Notification method and recipient selection, and 4. Confirmation and saving. The final screenshot shows a summary of the alarm settings, such as 'Support\_Oxygen' as the alarm name, 'O2 sensing data' as the channel, and 'Calling Alert' as the method. It also shows the alarm method, recipient name (Jessi), and the user text message text.

[Radionode365 alarm setting process]



# please EMAIL me the monthly report of this freezer every first day of the month.

Support various report forms(daily, weekly, monthly, MKT, Deviation Control), Report forgery prevention function, Reservation for email sending time.

Report's name: Monthly Report

Representative: 주자장

Channel 1 information (Channel name, Unit): Atmosphere Pressure [unit : mBar]

Channel 2 information: CO2 eq. [unit : ppm]

Supervisor: 코크

Certain time period for report: 2021-06-01 00:00:00~2021-06-30 23:59:59

Upper limit / Lower limit

Daily average number of data (Highest Value, Minimum Value)

- Daily reports and weekly reports are also provided.
- It provides a linear, territorial, and vertical bar chart.
- When setting up an email sending reservation, we will send you a report by email at reservation time.

Report's name: Vaccine freezer report [Oct 2021]

Company logo: DEKIST

Supervisor: 코크

QR code to prevent forgery

Installation place: DEKIST

Deviation detection history

Guidance of control

Statistics

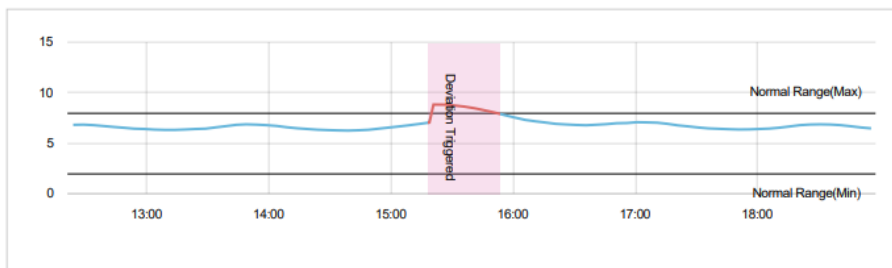
Approval

\* What is MKT(Mean Kinetic Temperature)?  
 Mean kinetic temperature (MKT) is a simplified way of expressing the overall effect of temperature fluctuations during storage or transit of perishable goods. The MKT is widely used in the pharmaceutical industry. MKT is defined as "a single calculated temperature at which the total amount of decomposition over a specific period is equal to the sum of individual decompositions to occur at various temperatures.-It is extracted from ECA Academy -

# Radionode365 manage and follow up all the deviation case.

Deviation is a case for temperature or gas concentration to exceed a guideline. Abnormal temperature of vaccine is said the deviation is occurred. As well as notification, Radionode365 look into the case of deviation and help user to manage them and prevent them in the future .

## Deviation Case Report of 1116-5FB2



Deviation Case ID	1116-5FB2
Alarm Title	SQA Freezer
Alarm Enable Time	2021-09-29 15:59:33
Device-Channel Name	Freezer - Freezer-CH1
Smart Detection	OFF
Occurrence time	2021-11-16 15:48:18
Close time	2021-11-16 16:23:15
Duration	⌚ 34 min

Case Status	Close
Normal Range(Min - Max)	2~8
Average Value in this case	8.64
Max. Value in this case	8.89
Min. Value in this case	8.1
Notification Callee	Jess
Notification Type and Count	☑ S

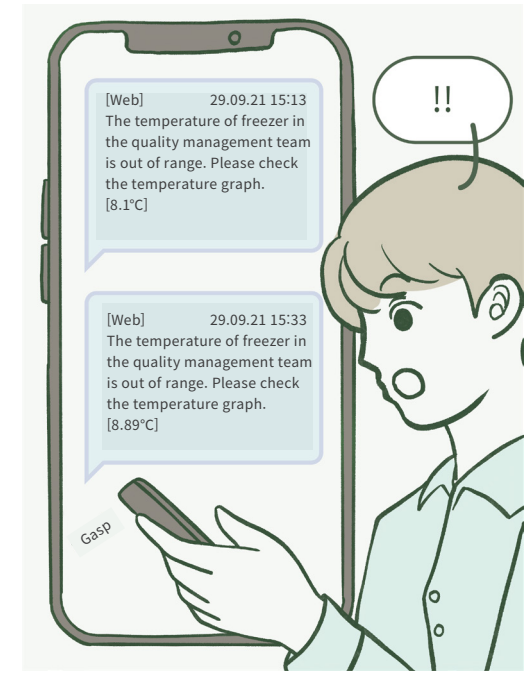
### Information to be verified

- ✓ When did the incident take place?
- ✓ How big of deviation has occurred? (Average,maximum,minimum)
- ✓ How long did the deviation last?
- ✓ Who was notificated of the alarm?
- ✓ What caused the occurrence and How did you respond ?

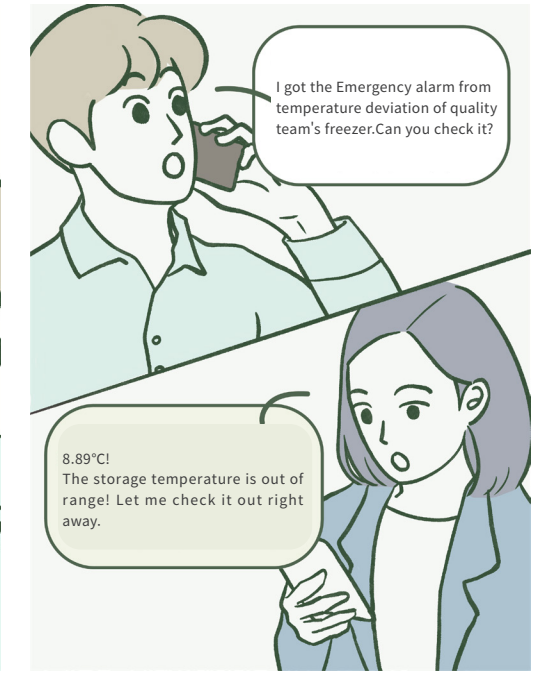
\* Deviation management services are provided to members above the ECO plan.

Type of Occurrence: AirCircul  
 Manager Comments:  
 Date: 2022-04-08 10:54:12  
 A lot of medicines are stored > Separate storage

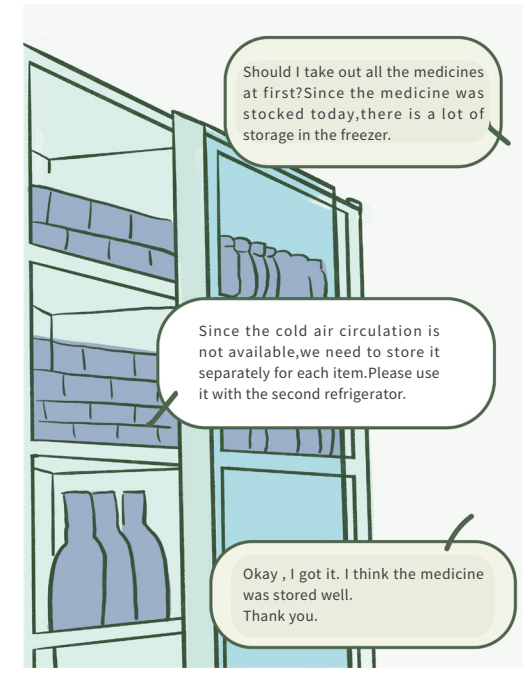
01 29.09.21 15:13



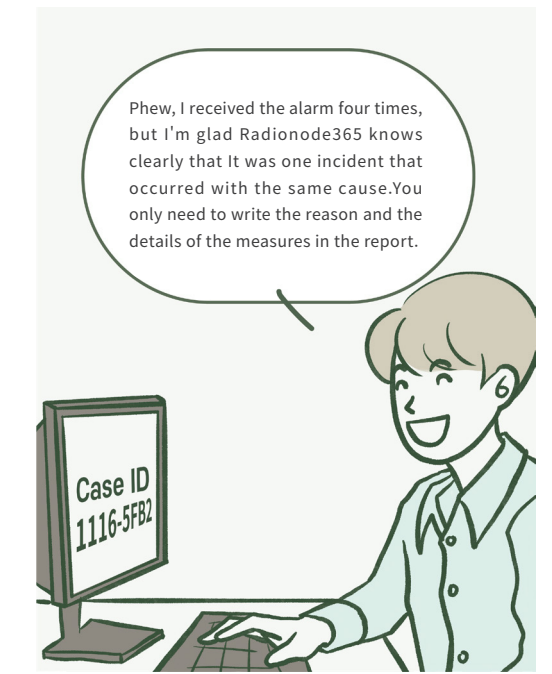
02 29.09.21 15:33



03 29.09.21 15:55



04 29.09.21 16:25



# Restful OPEN API allow you data integration

## Open API

- ▶ Radionode365 Provide Open API for easy data integration. you can easily integrate lot sensor data on your IT infra structure



### How to use

Once you make Eco Plan or higher payment, You can get an open API key from your account information

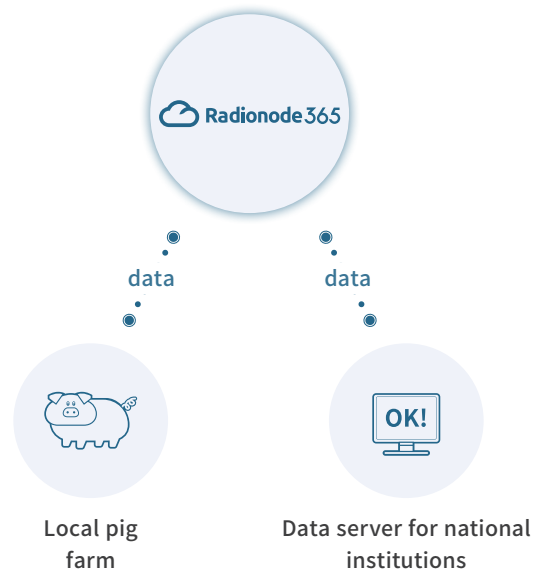
### Use authentication key

- The output format of Tapaculo365 OpenAPI supports JSON/XML.
- \* It provides up to 24 hours of data.
- Limit on the number of calls per minute by IP: 10 times maximum.  
(If you call more than 10 times a minute on the same IP, you'll be blocked for 1 minute)

## Data Connection with State Institution

- ▶ We support government agencies' IT information systems.

South Korea's Livestock Environment Management Agency, EPIS Agriculture, Forestry and Fisheries Food Education and Culture Information Center is participating in ICT projects. If you subscribe to the dedicated service product, you can use the data linkage service.



# SMS Notification, Email-Report and Phone call alert will deduct your credits.

## Analysis for amount of credit usage

- ▶ When you look at the credit usage chart, You can easily set the budget for disaster prevention.

You can figure out when many accidents occur in a year and prevent them in advance. Make a budget to prevent accidents in advance with immediate response. You can also store evidence of spending charged with credit charging.

2020 : [SMS 475 Credit, Call 28 Credit, Email 1,341 Credit]

	SMS	Call	Email
Threshold Value	461 Credit	28 Credit	179 Credit
Low Battery	0 Credit	0 Credit	0 Credit
Power Failure	0 Credit	0 Credit	0 Credit
Lost connection notification	14 Credit	0 Credit	1,052 Credit
Send Report	-	-	110 Credit
<b>Total</b>	<b>475 Credit</b>	<b>28 Credit</b>	<b>1,341 Credit</b>

## Credit charge

- ▶ You can decide the type and amount of credit you want to top up and pay directly with your credit card at any time

Don't miss important notifications that tell you the current status of your valuable assets.

Credit List	Deductions List	USD 10	USD 30	USD 50	USD 100
SMS	Threshold Deviation & Device Management Notification	90	280	520	2,000
CALL	Threshold Deviation Notification	50	160	300	1,000
E-MAIL	Threshold Deviation & Device Management Notification, Report	200	1000	2500	10,000

## Service charge

Choose the service plan that's best for you.  
You can pay by credit card and use it right away.

### » Radionode365 plan (Annual Fee)

Just sign-in to Radionode365 for remote integrated management.  
No matter where you are, The place where you are is the work place.

	FREE	WHITE	ECO	SILVER	GOLD
Data storage	15 days	20 channels (for 3 years)	40 channels (for 3 years)	80 channels (for 3 years)	160 channels (for 3 years)
Rea Time Dashboard	⊙	⊙	⊙	⊙	⊙
Data comparison chart	Only 24 Hour Data	All Data	All Data	All Data	All Data
Data Download	-	⊙	⊙	⊙	⊙
Daily Report	⊙	⊙	⊙	⊙	⊙
Weekly Report	-	⊙	⊙	⊙	⊙
Monthly Report	-	⊙	⊙	⊙	⊙
MKT Report	-	⊙	⊙	⊙	⊙
Deviation Management	-	-	⊙	⊙	⊙
SMS Notification	Available for charging	1000 per year	2000 per year	4000 per year	5000 per year
Voice call Notifications	Available for charging	500 per year	500 per year	1000 per year	1500 per year
E-mail Notifications	Available for charging	500 per year	2000 per year	4000 per year	10000 per year
Service use history	1day available	⊙	⊙	⊙	⊙
Authority division	-	Representative/ User(1/1)	Representative/ User(1/2)	Representative/ User(1/5)	Representative/ User(1/20)
Simultaneous Login	-	⊙	⊙	⊙	⊙
Power outage Alerts	-	⊙	⊙	⊙	⊙
Virtual Channel	-	⊙	⊙	⊙	⊙
OPEN API	-	-	⊙	⊙	⊙
Subscription fee	-	US\$200/Yearly	US\$330/Yearly	US\$660/Yearly	US\$1,200/Yearly

\* Once you join Radionode354,you will registered as a free member.

\* Credit card and Voucher payment is available.

\* If you select Automatic Extension at the first payment, the payment method will be automatically renewed every year during the valid period.

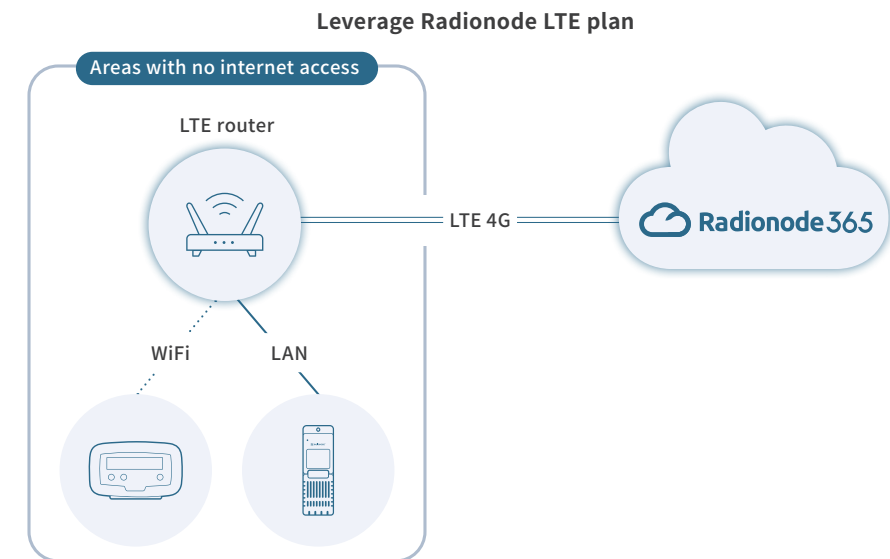
### » Radionode365 Custom plan

We can design a new subscription plan just for you.If you only need email reports, Radionode365 can create a custom plan that's right for you with 0% text or phone credit and 100% email credit.

Alternatively, you can get a custom plan that only expands the number of channels without alarm credits.

### » Radionode365 LTE Plan

If there is no internet or it is difficult to use the internet for security reasons, add LTE service to about 8,000 won per month. (No need for a separate contract with a telecommunication company)



Service	Price	Amount of data (@5mins)
LTE Router L1	8,000 won/month, [192,000 won]	About 2 Radionodes
LTE Router L2	10,500 won/month, [252,000 won]	Less than 10 Radionodes
LTE Router L3	13,500 won/month, [324,000 won]	10+ Radionodes

\* This service is offered on a two-year contract upon initial subscription.

\* After that, the contract can be renewed in increments of one year.

\* This is the price list for the standard amount in Korea, and the rate may vary by country.