

RN400 H2

RADIONODE WiFi DATA LOGGER

- ✓ Supports WiFi b/g/n 2.4GHz
- ✓ Connects to temperature-humidity, NTC external sensors
- ✓ Supports micro SD/ embedded F-RAM
- ✓ Supports cloud monitoring(Tapaculo365)
- ✓ OLED screen/ sound buzzer installed
- ✓ Waterproof (IP66 standard)
- ✓ Uses C batteries



Product Overview

RN400-H2 is a WiFi-based data logger with a high-performance temperature-humidity sensor installed. Powered by batteries, it operates in wireless settings and its waterproof and dustproof design allows for application in a wide range of working conditions. All sensor data is transmitted in real-time to Tapaculo365 or any other web software. The OLED screen installed on the front allows users to check data as well as the setup values, and the Micro SD card slot allows for storage of the measured data as well as supports the use of RN400-H2 in WPA2-enterprise settings. F-RAM, known for high durability, is used for internal memory, which allows data storage up to a maximum 18 days without any connection to the Internet. Moreover, as it comes with various interface terminals, RN400-H2 can be linked with several devices, including the external sensors, door sensors, and dry contact.

Potential Applications

- Collect sensor information via network
- Build an integrated control system
- Build an industrial alarm system

Currently-In-Use Applications

- Food storage sites(refrigerators, freezers)
- Bio-labs
- Building energy usage monitoring
- Medicine and medical goods storage sites
- Semiconductor production lines

Order Number

- RN400H2PS • RN400H2EX
- RN400H2PS-S • RN400H2EX-S

Block Diagram



Caution / Warning

Warning

1. **When used in combination with large-scale devices that may potentially lead to casualties or property losses or damages, ensure to use after installing dual safety controls.**

These applications may lead to serious fires, human accidents, and property losses or damages.

2. **As the product is not explosion-proof, do not use near flammable gases.**

Possibility of explosions.

Caution

1. **Replace batteries with the power turned off.**

RTC embedded within the product may be damaged and cause functional errors.

2. **Refrain from using in extreme or non-supported environments.**

This leads to shorter product lifespan and may cause breakdowns or malfunctions.

3. **Do not use power that exceeds the allowed voltage range.**

This may damage the product.

4. **Do not short-circuit.**

This may damage the product.

5. **Do not connect wires to the wrong electrodes.**

This may damage the product.

6. **Do not apply unreasonable force to the product or bend the product casing.**

This may damage or break the product.

Product Components

Model	Components
RN400-H2PS	<ul style="list-style-type: none">• RN400-H2PS WiFi Data Logger• Installation Guide• 2 Type Cable Glands(PG-9 1EA/ PG11 1EA)
RN400-H2EX	<ul style="list-style-type: none">• RN400-H2PS WiFi Data Logger• Installation Guide• 2 Type Cable Glands(PG-9 1EA/ PG11 1EA)

1. Product Specifications

RN400 H2		
Model Number	RN400-H2PS	RN400-H2EX
Communication Method	2.4GHz IEEE 802.11 b/g/n up to WPA2-Enterprise	2.4GHz IEEE 802.11 b/g/n up to WPA2-Enterprise
Embedded Sensors/Accuracy	MEMS Sensor CH1:Temp ,CH2:RH -20~80°C / $\pm 0.3^{\circ}\text{C}$, 5~95 %/ $\pm 2.0\%$	MEMS Sensor CH1:Temp ,CH2:RH -20~80°C / $\pm 0.3^{\circ}\text{C}$, 5~95 %/ $\pm 2.0\%$
External Sensor I/F	CH3 : NTC Temp I/F	CH3: TC or PT100 Temp Sensor CH4: TC or PT100 Temp Sensor
External Sensor		Option (TC-K, PT100)
Door Contact	N/A	Option (Door Magnet Sensor) CH5: Able / Unable
Dry Contact	N/A	YES, controlled by RN400 Threshold CH6: On / Off
Buzzer	YES	YES
Screen(color)	OLED 20X2 CHAR (Y or W) with Timer feature	OLED 20X2 CHAR (Y or W) with Timer feature
Sensing Interval	1Min, 5Min, 10Min	1Min, 5Min, 10Min
Sending Interval	5Min, 10Min, 30Min	5Min, 10Min, 30Min
Onboard Memory	F-RAM, 32KB	F-RAM, 32KB
External Memory	Option (16GB microSD, permanent logging)	Option (16GB microSD, permanent logging)
Water/Dust proof	IP66	IP66
Battery	C Type 1.5V X 2EA OR C Type 3.6V X 1EA	C Type 1.5V X 2EA OR C Type 3.6V X 1EA
Battery Lifespan	Over One Years (@10 Min)	Over One Years (@10 Min)
External Power	DC 5~30V	DC 5~30V
UPS	YES(Built In UPS, Operation BAT.)	YES(Built In UPS, Operation BAT.)
Installation Types	Magnet & Screw Hole	Magnet & Screw Hole
Bottom Cable Glands	Three Holes on the bottom PG-11 X 2EA / PG-9(Center) X 1EA	Three Holes on the bottom PG-11 X 2EA / PG-9(Center) X 1EA
Weight	352 g	352 g
Dimension	H100 x W165 x D50 mm	H100 x W165 x D50 mm

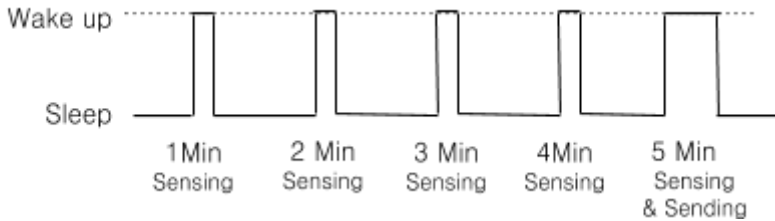
* MODEL-S lines are for applications with System Integrator after deleting the Tapaculo365 function.

2. Product Features

<ul style="list-style-type: none"> • IP66 grade waterproof / dustproof design • Robust WiFi security • Built-in UPS (automatic conversion during blackout) • Ultra low standby power • OLED screen, strong in winter • Tapaculo365 (web storage, reports, alarm) 	<ul style="list-style-type: none"> • Easy installation (supports both magnet and screws) • Highly durable F-RAM • External micro SD memory • Door Open sensing (EX-model) • RELAY ON/OFF control (220V 1A, EX model) • Links to user server (HTTP)
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2.1. Power

Actions	Details
Turn On Power	<ul style="list-style-type: none"> • Once 'POWER ON' is pressed, the product shows the model name, firmware version, power connection type, UPS, basic measurement frequency, basic transfer frequency, and the name of the connecting WiFi channel. • When WiFi connection fails: <div> <div>CONNECT TIMEOUT 25S !! NO INTERNET !!</div> <div>Shows WiFi connection failure, and tries to reconnect to the network</div> </div> <div> <div>NO WIFI CONNECTION! PRESS 'W' FOR SETUP</div> <div>If the device continues to fail to connect to WiFi, press 'W' and open the configuration settings.</div> </div> <div> <div>SOFTAP: _RN400-E2E8 ACCESS: 192.168.1.1</div> <div>Shows SOFT AP and ACCESS address for connection Setup of the product. (Refer to 4.2. WiFi Settings)</div> </div>
Turn Off Power	<ul style="list-style-type: none"> • When the device is on 'WAKEUP' mode, press 'POWER OFF' [JK1], which will show 'PRESS 'P' ONE MORE TO POWER OFF'. Press 'P' once more then the device shows 'POWER OFF! GOOD BYE' and turns off.
Power Supply	<ul style="list-style-type: none"> • C Type 1.5V X 2EA OR 3.6V X 1EA • Batteries should be inserted when connecting to DC power supply for contact control. • BUILT-IN UPS: During a DC power blackout, converts automatically to battery mode(When using DC power supply, batteries are not used.)
Battery Lifespan	<ul style="list-style-type: none"> • 2 years(when set at 10-min.sensing interval frequency)
Battery Saver Mode	<ul style="list-style-type: none"> • The device operates on Battery Saver Mode as the default other than during data sensing and transfer. Press 'WAKE UP' to activate the device to change

	<p>settings.</p> <p>Ex.) Sensing interval 1 min, transfer interval 5 min</p>  <ul style="list-style-type: none"> Once the product is activated by pressing 'WAKE UP', the last data transmission time, amount of saved data, name of the connected WiFi network, and connection signal strength can be checked.
Replace Batteries	<ul style="list-style-type: none"> Low battery warning <ol style="list-style-type: none"> Shown on RN400 OLED screen <div data-bbox="512 732 924 857" data-label="Text"> <p>WARNING! S:menu Low Battery!</p> </div> <p>The screen will show 'WARNING! LOW BATTERY!' before showing the setup screen when the battery is low once 'WAKE UP' is pressed on RN400 in Battery Saver Mode.</p> <p>* For general use, Energizer MAX is recommended.</p> Tapaculo365 web service supports email or SMS alerts to send low battery warnings.

2.2. Wireless Communication

Actions	Details
WiFi Signal Strength (RSSI)	<ul style="list-style-type: none"> 0 ~ - 40 dBm : good - 40 ~ - 70 dBm : normal - 70 ~ - 95 dBm : weak
Lost WiFi Connection	<div data-bbox="692 1603 1139 1738" data-label="Text"> <p>LOST INTERNET S:menu Holding Sample: 230</p> </div> <ul style="list-style-type: none"> When the 'LOST INTERNET' message shows after pressing 'WAKE UP' on RN400 in Battery Saver Mode, the amount of data to be transferred will be shown.

2.3. Memory

Type	Details										
Onboard Memory	<ul style="list-style-type: none"> F-RAM Temporary storage: Saves the data measured at the predefined intervals until data transmission is made per predefined intervals. Saved data will be deleted once transmitted. When WiFi connection is lost, data will be automatically stored on F-RAM, and data transmission will be re-attempted every 20 min. Ex.) Sensing interval 1 min., sending interval 10 min., 10 data measurements will be sent each transmission <ul style="list-style-type: none"> F-RAM BACKUP SAMPLE SIZE per Model Type <table border="1"> <thead> <tr> <th>Model</th><th>Data Storage Duration (sensing set at 10min.)</th></tr> </thead> <tbody> <tr> <td>RN400-T2PS(1CH)</td><td>27 days</td></tr> <tr> <td>RN400-H2PS(2CH)</td><td>18 days</td></tr> <tr> <td>RN400-T2EX(3CH)</td><td>11 days</td></tr> <tr> <td>RN400-H2EX(5CH)</td><td>7 days</td></tr> </tbody> </table> 	Model	Data Storage Duration (sensing set at 10min.)	RN400-T2PS(1CH)	27 days	RN400-H2PS(2CH)	18 days	RN400-T2EX(3CH)	11 days	RN400-H2EX(5CH)	7 days
Model	Data Storage Duration (sensing set at 10min.)										
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RN400-T2EX(3CH)	11 days										
RN400-H2EX(5CH)	7 days										
External Memory	Micro SD Card(16G FAT32, Option) <ul style="list-style-type: none"> Permanent storage: Without the need to configure any settings, insert the Micro SD card into the slot, and the measured data will be stored under each date. * Data storage location: 0-XXXX(last 4 digits of MAC) stored in the order of>year >month> day * Example of saved file(measurement every 1 min.) 										

	A	B	C	D	E
1	CALENDAR	TIMESTAMP	MACADDR	CH1	CH2
2	2017-10-22T00:00:09Z	1508630409	9884E3E5E2E8	24.8	36.27
3	2017-10-22T00:01:09Z	1508630469	9884E3E5E2E8	24.8	36.23
4	2017-10-22T00:02:09Z	1508630529	9884E3E5E2E8	24.8	36.23
5	2017-10-22T00:03:09Z	1508630589	9884E3E5E2E8	24.8	36.23
6	2017-10-22T00:04:09Z	1508630649	9884E3E5E2E8	24.79	36.23
7	2017-10-22T00:05:09Z	1508630709	9884E3E5E2E8	24.79	36.3

- May also be used for saving a certificate(CA.PEM) to run the system in a WiFi enterprise security environment.
- Location of saved certificate: cert/ca.pem

3. Sensors

3.1. H2 Model Onboard Sensors

Type	Spec(Accuracy)	Other Sensor Values	Remarks
MEMS Temp.-RH	-20~80°C (±0.3°C), 5~95 % (±2.0%)	CH1 : Temp CH2 : RH	Installed inside the product casing with membrane filter attached on the front side

* Membrane filter: Eliminates heavy metals and microorganism contaminants, including ionized virus particles

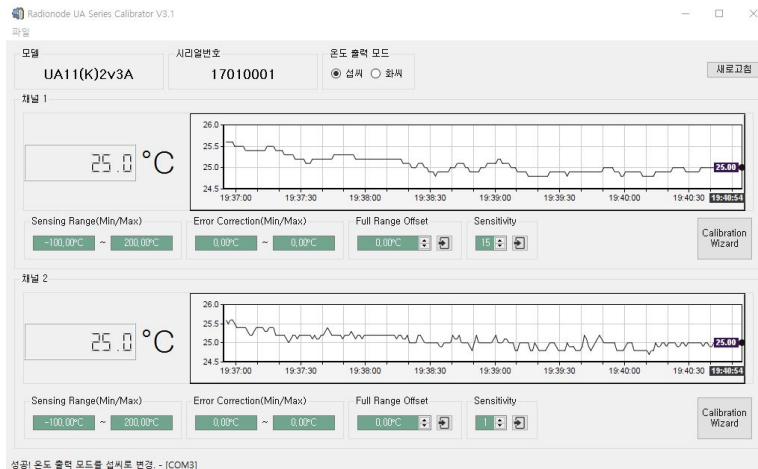
3.2. Applicable External Sensor Probes

Type	Model Number	Cable Length/ Diameter	Spec (Accuracy))	Other Sensor Values	Size of Sensor Tips
PT100	PR-P1-3	3M / 4.0ø	-200 ~ 300°C (± 0.625°C)	-999995.0 : Sensor not connected	Diameter: 4.8 ø Length: 60.0mm
	PR-P1-15	15M / 4.0ø			
TC-K	PR-K1-3	3M	-20~300°C (± 0.8°C)	-999995.0 : Sensor not connected	Diameter: 3.0ø Length: 60.0mm
	PR-K1-15	15M			
NTC	PR-N1-30	30CM / 4.0ø	-20 ~ 40°C (± 1.0°C)	-999995.0 : Sensor not connected	Diameter: 6.5 ø Length: 60.0mm
	PR-N1-150	150CM / 4.0ø			
DOOR	PR-D1-1	1M	NORMAL CLOSE (NC)	99.0 : Open 0.0 : Closed	

3.3. External Sensor Calibration

3.3.1. PT100, TC-K Calibrations (Require additional calibration device)

Connect the micro SD port at the Inside the Lower Casing of RN400 to the PC with a USB cable and calibrate by using Radionode Calibrator software(refer to UA-Calibrations).



3.3.2. NTC Calibration (Require additional calibration device)

1. Activate RN400 by pressing 'WAKE UP' while in Battery Saver Mode and press 'SET UP' and press 'ENTER' after choosing '5. CALIBRATE NTC' from the screen to open the 'CALIBRATE NTC' menu.
2. Start calibration by checking the NTC temperature sensor. The 'd' value shows the OFFSET value in mV, and 'NTC' refers to the actual temperature sensor value.

CAL.NTC |S-W+ P: exit
NTC: -10.0 , d: -20mV
3. When the 'OFFSET' value is increased, the actual temperature value goes up. Use 'SET UP' (-) and 'WAKE UP' (+) on the front of the device to calibrate the sensor value.
4. Once calibration is complete, press 'POWER' to save and end the process.

4. How to Use the Product

4.1. Product Exterior and Interior

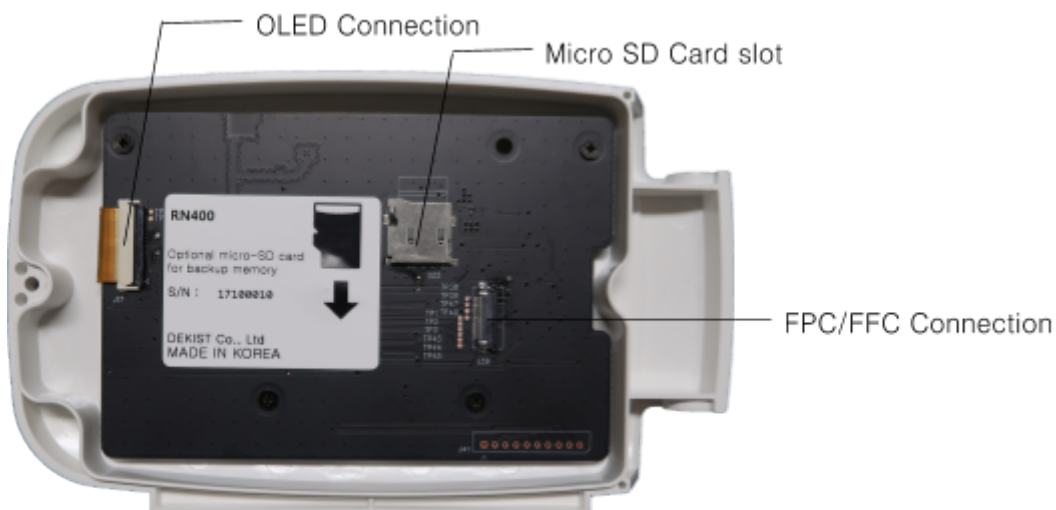
4.1.1. Front



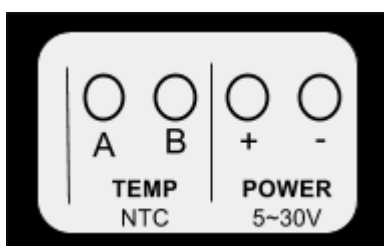
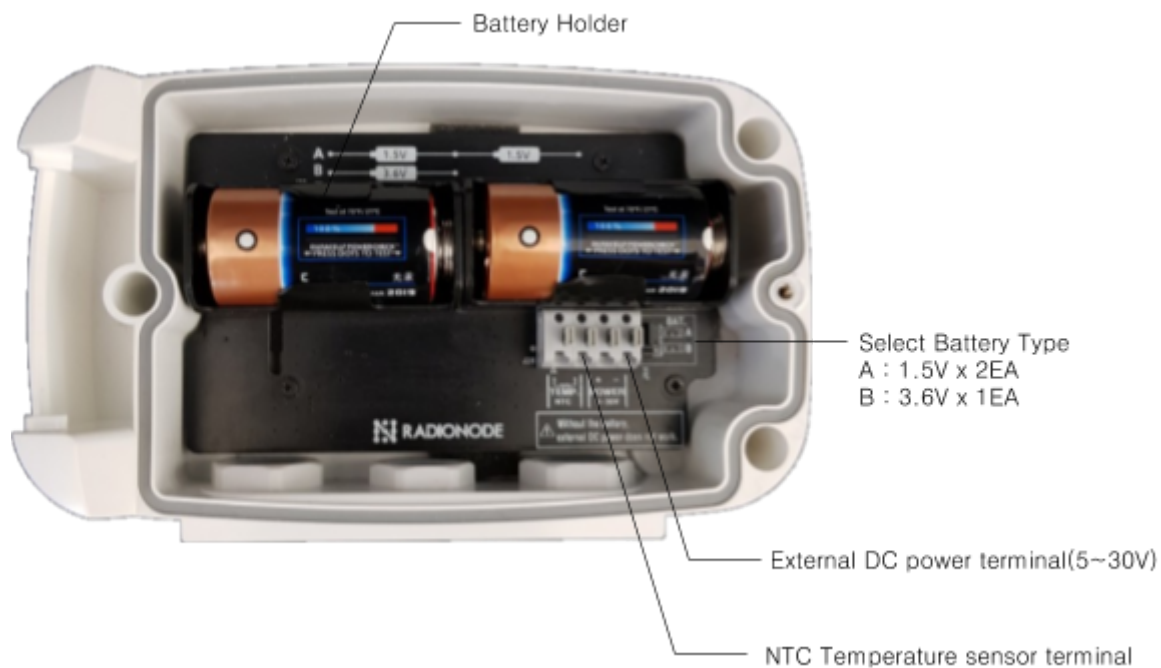
4.1.2. Side



4.1.3. Inside the Upper Casing



4.1.4. Inside the Lower Casing(PS Model)



③ TEMP NTC

As the NTC temperature sensor does not distinguish '+' and '-' electrodes, connect freely to the terminal. The applicable sensor models are: PR-NTC-15CM and PR-NTC-150CM.

④ POWER

When using the contact control function, connect to a DC 5~30V power supply by checking the '+' and '-' electrodes.

- * Batteries should be inserted when connecting to a DC power supply for contact control.
- * BUILT-IN UPS: During a DC power blackout, converts automatically to battery mode(When using DC power supply, batteries are not used).

4.2. Connecting to WiFi

Step 1

MANU | W: enter P: exit
2.CONFIG MODE(AP)

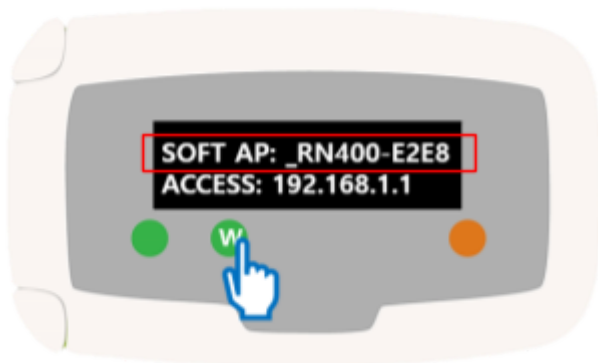
Press 'WAKE UP' to activate the device and press 'SET UP' twice to move to the 'CONFIG MODE(AP)' menu.

SOFTAP: _RN400-E2E8
ACCESS: 192.168.1.1

Enter the mode by pressing 'WAKE UP(ENTER)' and check the SOFT AP and ACCESS address.

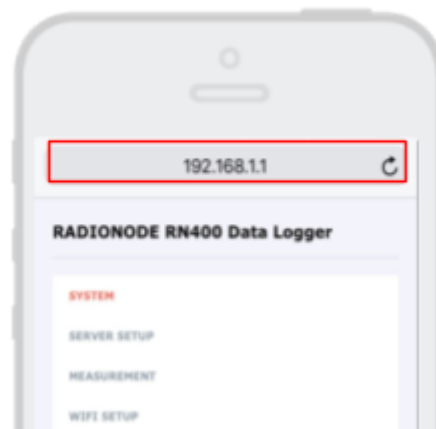
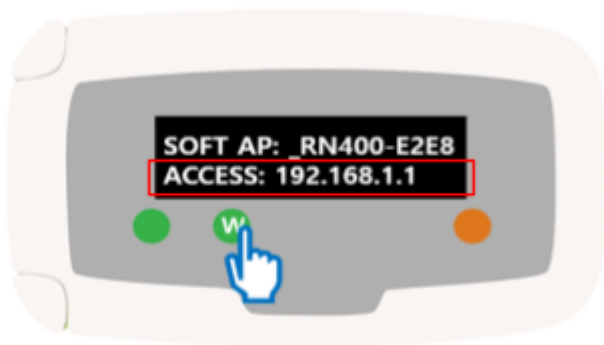
Step 2

Proceed with RN400 setup with your smart phone. From the WiFi setting screen of your smart phone search for 'WIFI AP' and select '_RN400-E2E8' as shown on the RN400 device.



Step 3

Run the web browser app on your smart device and input '192.168.1.1' in the address window to access the site.



Step 4

Select the 'WIFI' tab, and from the 'WIFI SETUP' window, select the WiFi AP to connect RN400 from the Access Points list.

Step 5

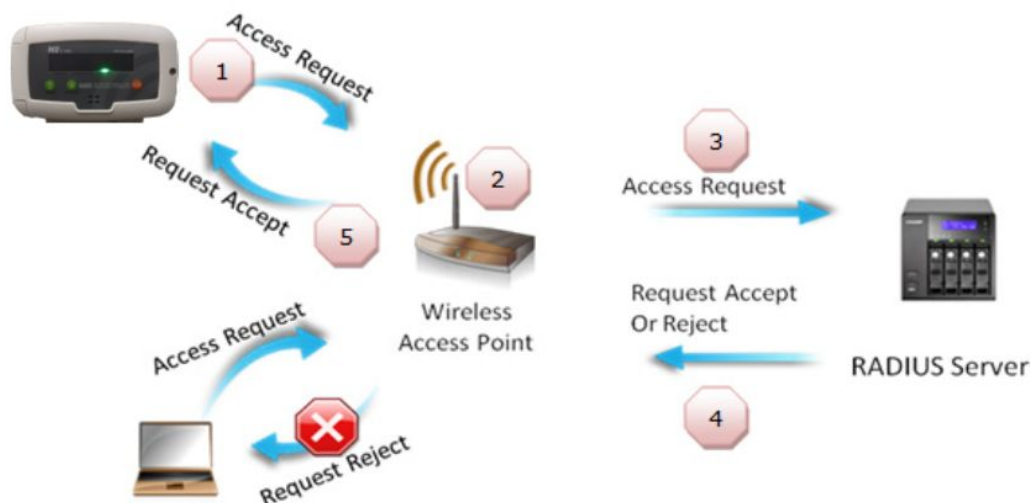
Select each AP information 'Access Point Type' and 'Personal Security Type' and input the Security KEY/PIN.

Step 6

After clicking 'SAVE', at the bottom of the device the message will show: 'Do you want System Reset?' When confirmed, the device will reboot and the WIFI AP setting will change.

4.3 WiFi Enterprise Security Connection

To use enterprise-level security, a router AP that supports a RADIUS server and provides enterprise service is required. A RADIUS server is a server that manages the certification and authority level by user within a company. A router AP with enterprise support usually comes with an embedded RADIUS server. Thus, to access the RADIUS server, an ID, PASSWORD, and certificate CA.PEM files should be prepared. Save the 'ca.pem' file on the micro SD card under '/cert/ca.pem' and insert the micro SD card into the SD card slot of RN400 and proceed with AP setup under the CONFIG(AP) menu.



Requirements to Connect to Enterprise Security AP

1. Certificate to access the RADIUS server

When saving the 'certificate to access the RADIUS server' on the SD card, the name of the file should be changed to 'ca.pem'. The created file shall be stored under the '/cert' folder.

2. ID / PASSWORD for the RADIUS server

If provided with an ID and PASSWORD, input the fields when setting up the AP with a smart phone.

3. SSID and KEY value for the AP

Input the SSID and KEY values of the enterprise AP to be accessed.

5. Product Configuration

5.1. Access the Configuration Screen

Step 1

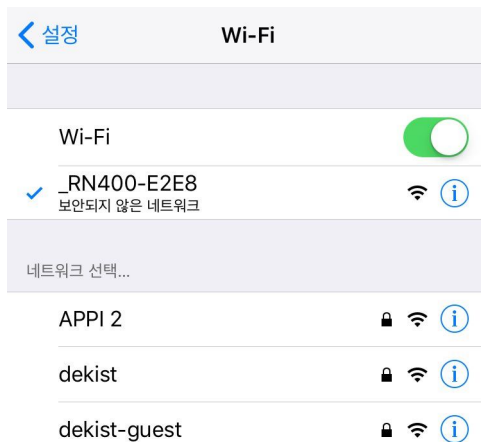
MANU | W: enter P: exit
2.CONFIG MODE(AP)

Press 'WAKE UP' to activate the device and press 'SET UP' twice to move to the 'CONFIG MODE(AP)' menu.

SOFTAP: _RN400-E2E8
ACCESS: 192.168.1.1

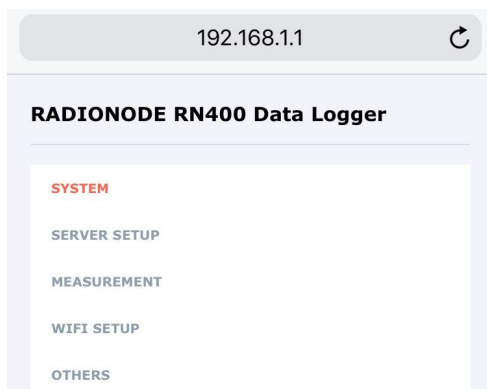
Enter into the mode by pressing 'WAKE UP(ENTER)' and check the SOFT AP and ACCESS address.

Step 2



Use your smart phone to proceed with RN400 setup. From the WiFi setup screen of the smart device, search for WIFI AP and select '_RN400-E2E8' as confirmed from the RN400 device.

Step 3



Run the web browser app on your smart device and input '192.168.1.1' in the address window to access the site.

5.2. System Configuration

OVERVIEW

RefreshSave & Reset

SYSTEM INFORMATION

Tapaculo365 Owner	showdemo
MAC	98:84:E3:E5:E2:E8
Model Name	RN400T2PS
SW-Version	20171023
OTA Release Version	Ver00
SDCARD Inserted	Inserted
WIFI SSID	RN_iptime
IP Address	192.168.0.17
GW Address	192.168.0.1

Tapaculo365 Owner
Shows the device manager ID for Tapaculo365 owner

MAC
Shows the product MAC

Model Name
Shows model name of product

SW-Version
Shows the currently operating software version

OTA Release Version
Shows the currently operating firmware version

SDCARD Inserted
Micro SD card inserted (yes / no)

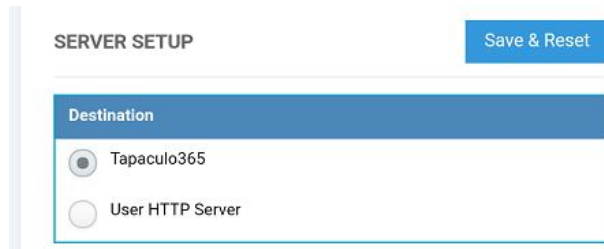
WIFI SSID
Shows WiFi SSID

IP Address
Shows the IP address that can change the product settings

GW Address
Shows the connected gateway

5.3. Server Configuration

5.3.1. When Using Tapaculo365



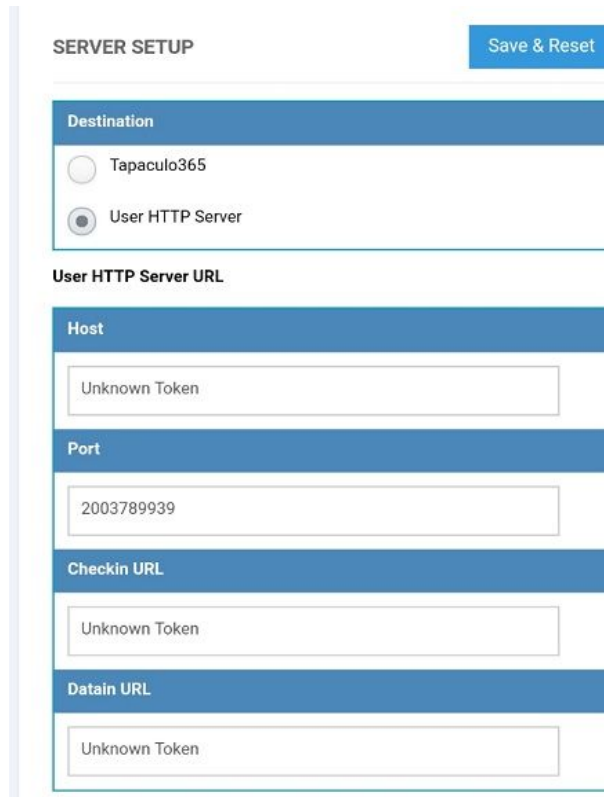
The screenshot shows a web form titled "SERVER SETUP" with a "Save & Reset" button. Under the "Destination" section, the "Tapaculo365" radio button is selected, and the "User HTTP Server" radio button is unselected.

Destination

Select either **Tapaculo365** or **User HTTP Server** to set the server to receive the measured data.

* Refer to separate user manual for Tapaculo365.

5.3.1. When Using User HTTP Server



The screenshot shows a web form titled "SERVER SETUP" with a "Save & Reset" button. Under the "Destination" section, the "User HTTP Server" radio button is selected. Below this, there are four input fields: "Host" (containing "Unknown Token"), "Port" (containing "2003789939"), "Checkin URL" (containing "Unknown Token"), and "Datain URL" (containing "Unknown Token").

User HTTP Server URL

Host

Enter Host information.

Port

Enter Port information.

Checkin URL

Enter Check-in URL information.

Datain URL

Enter Data-in URL information.

* Refer to 'HTTP Server Implementation for Connecting to RN400' for more details.

5.4. Measurement Configuration

SENSOR SETUP Save & Reset

Sensing - Sending Interval

☒ Sensing 1Min - Sending 10Min

☐ Sensing 1Min - Sending 5Min

☐ Sensing 5Min - Sending 20Min

☐ Sensing 5Min - Sending 10Min

☐ Sensing 10Min - Sending 10Min

☐ Sensing 10Min - Sending 30Min

Temperature Scale

☒ °C ☐ °F

SENSORS

CH Info

CH1:NTC_TEMP

SENSOR SETUP

Sensing - Sending Interval

Select a combination of Sensing Interval (1Min, 5Min, 10Min) and Sending Interval (5Min, 10Min, 30Min)

Temperature Scale

Select between °C or °F.

SENSORS

CH Info

Information of the sensors by channel currently operated by the RN400 model

5.5. WiFi Configuration

5.5.1. When Using Personal Type

WIFI SETUP Save & Reset

Access Points

☒ dekist [-48 dB]

SSID

dekist

Security Type

☒ Personal

☐ Enterprise

Personal Security Type

☐ OPEN

☐ WEP

☒ WPA/WPA2

Security KEY/PIN

Static IP

☒ Dynamic IP ☐ Static IP

Access Point

Select the name of the desired wireless connection.

SSID

Show the selected wireless connection.

Security Type

Select between 'Personal' and 'Enterprise'.

Personal Security Type

Select the network authentication method: OPEN, WEP, WPA/WPA2.

Security KEY/PIN

Input the password.

Static IP

Select the appropriate Dynamic IP or Static IP.

5.5.2. When Using Enterprise Type

Enterprise Security Type

☒ TLS

☐ TTLS with TLS

☐ TTLS with MSCHAPv2

☐ TTLS with PSK

☐ PEAP0 with TLS

☐ PEAP0 with MSCHAPv2

☐ PEAP0 with PSK

☐ PEAP1 with TLS

☐ PEAP1 with MSCHAPv2

☐ PEAP1 with PSK

RADIUS User ID

dekist

RADIUS User Password

Static IP

☒ Dynamic IP ☐ Static IP

Enterprise Security Type

Select the relevant Enterprise Security Type.

RADIUS User ID

Input the User ID for authenticating a registered user.

RADIUS User Password

Input the Password for authenticating a registered user

5.6 Other Settings(Time Zone, Screen Display Setting)

OTHERS SETUP [Save & Reset](#)

TimeZone Config

GMT+09:00 ▼

Display Timer OP Mode

30Min ▼

Display Timer Start Time

08:00 ▼

DebugCode

0

Time Zone Configuration

Select the time zone as per the location of the device.

Display Time OP Mode

Setup the OLED screen to show the sensor value for a given duration at the pre-fixed time.

Ex.) 'Show the sensor value on the screen for 30 mins from 08:00'

Setup the start time to display the sensor value on the OLED screen (Display Timer Start Time: 08:00) and time for display duration (Display Timer OP Mode: 30Min).

6. Screen Operations

The buttons on the front of RN400 can be used for many operations, such as checking the information on RN400.

6.1 Check Sensor Value, Time of Sensing and Transfer

After turning on RN400 by pressing 'POWER' on the front, or activating the device by pressing 'W' while RN400 is in Battery Saver Mode, the OLED screen displays the sensor values, time of sensing and data transfer.

SENSOR DATA | S:menu
1: 10.00 | 2: 20.00

Sensor Data

The RN400 Channel 1 and 2 values are displayed on the OLED screen.

SENSOR DATA | S:menu
3: 00.00

Sensor Data

The RN400 Channel 3 value is displayed on the OLED screen.

LAST TRANSMIT | S:menu
1 Min Ago, 9 Samples

Data Transfer

Shows time elapsed from the last data transmission, and the amount of sample data stored for the next transmission.

WIFI SSID, dB | S:menu
dekist, -50dB

Wireless Connection Signal Strength

Shows the connected WiFi network name and the signal strength.

6.2 RN400 Information and Function

After turning on RN400 by pressing 'POWER' on the front, or activating the device by pressing 'W' while RN400 is in Battery Saver Mode, press 'S' to display the product information, setup mode, firmware update, reset mode, calibration mode menu on the OLED screen.

MENU | W: enter, P: exit
1.VIEW INFO



INFO | S:next, P:exit
1.HOLDING DATA : 1

1) HOLDING DATA

(Until data transmission) amount of data stored for transmit.

INFO | S:next, P:exit
2.POWER : External DC

2) POWER

Shows current power supply type (External DC/Battery)

INFO | S:next, P:exit

3.SENSING : 1 Min

3) SENSING

Shows the setup data sensing interval(1Min, 5Min, 10Min.

INFO | S:next, P:exit

4.SENDING : 10 Min

4) SENDING

Shows the setup data transmission interval (1Min, 5Min, 10Min, 30Min.

INFO | S:next, P:exit

5.UPDATE : 1 Min Ago

5) UADATE

Shows the last data transmission time.

INFO | S:next, P:exit

6.ID : DEKIST

6) ID

Shows the ID managed by Tapaculo365.

INFO | S:next, P:exit

7.IP : 192.168.10.13

7) IP : 192.168.10.13

Shows the IP address.

INFO | S:next, P:exit

8.GW : 192.168.1.1

8) GW : 192.168.1.1

Shows the gateway address.

INFO | S:next, P:exit

9.MAC:9884E3E5E28

9) MAC

Shows the MAC address.

INFO | S:next, P:exit

10.SW BUILD : 20171022

10) SW BUILD : 20170913

Shows the date of the last firmware update.

INFO | S:next, P:exit

11.OTA VER : VER00

11) OTA VER : Ver00

Shows the firmware version.

MENU | W: enter, P: exit

2.CONFIG MODE(AP)

Configuration Mode

Shows the SOFT AP and ACCESS address to change the RN400 settings with a smart device(Refer to '7.2 WiFi Connections' to access configuration mode).



SOFTAP: _RN400-7E1F
ACCESS:192.168.1.1

MENU | W: enter, P: exit
3.FIRMWARE-UPGRADE

Firmware Update Mode

Connects to the firmware update mode and starts the firmware update.



FIRMWARE IS UPDATING
NOW....

Firmware download in progress.

DOWNLOAD COMPLETED
DEVICE WILL BE RESET

Firmware download completed.

MENU | W: enter, P: exit
4.FACTORY-RESET

Reset Mode

Resets the information and setting of RN400.



INFO.
Factory Default OK!

MENU | W: enter, P: exit
6.CHECK SYSTEM

Check System Mode

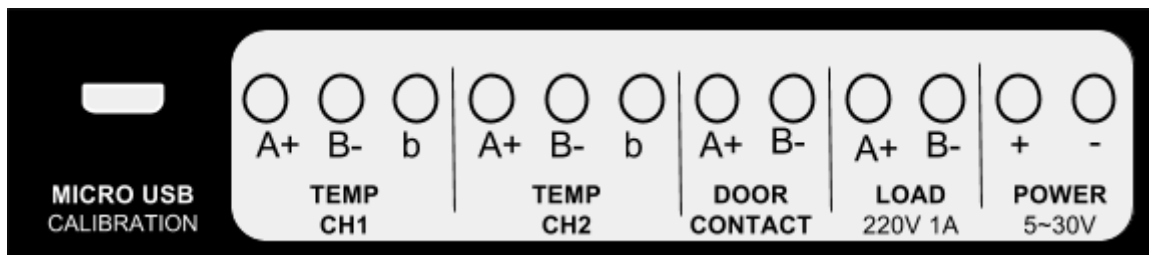
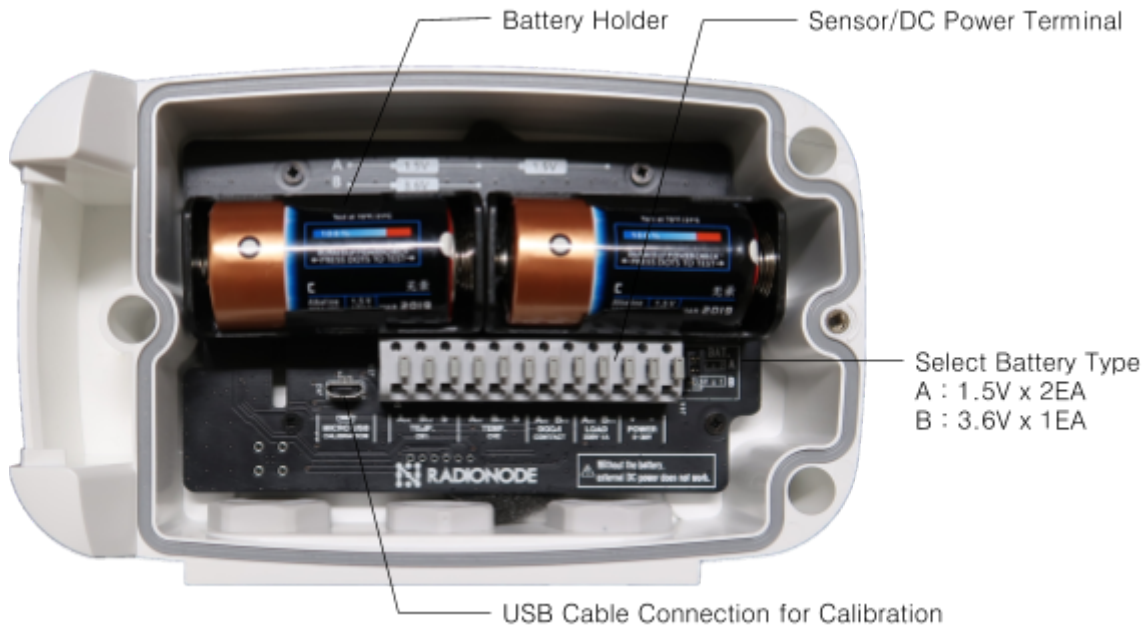
When registering a channel to Tapaculo365, this is used to check the connection between the device and server. Check the data value displayed on the RN400 screen every 3 seconds, and check if the data is correctly updated every 3 seconds on the device from Tapaculo365.



CHK.SYSTEM |W.P:exit
TEMP: 24.80

7. RN400-H2EX Additional Functions

7.1. Inside the Lower Casing (EX model sensor connection terminal)



Ⓐ TEMP CH1/CH2

Check the '+' and '-' of the external sensor (PT100 OR TC-K) and connect to the terminal in the right order.

Ⓑ DOOR CONTACT

Connect the door sensor freely as there are no designated electrodes.

Ⓒ LOAD(220V, 1A) / DRY CONTACT

Contact the terminal that performs automatic control based on the internal software setting. There is a max load of 220V, 1A. Once the device exceeds the setup temperature from the configuration screen, the 220V contact is turned 'ON' and can control other devices.

Ⓓ POWER(5~30V)

When using the contact control function, connect the DC 5~30V power to the terminals by checking '+' and '-'.

* Battery should be inserted when connecting to the DC power supply for contact control.

* BUILT-IN UPS: During a DC power blackout, automatically converts to Battery Mode.

(When using a DC power source, batteries are not used.)

7.2. Open Door Sensing (Door Contact)

When the Door Sensor status is 'Open' due to an open door, RN400 automatically wakes up from Sleep Mode and shows the '**EVENT I DOOR OPENED!**' message on the screen. At the same time,

all connected sensors will measure the current values and immediately update the data (transmit to server). When an open door alert is set up, an Voice/SMS/E-mail notification will be sent to the registered user.

- Smartphone Configuration Mode> MEASUREMENT > Wakeup By Door Contact

Enable: Use open door sensing

Disable: Do not use open door sensing

	When sensing an open door	After the door is closed
Display	EVENT DOOR OPENED! PLS, Close the Door!	EVENT DOOR CLOSED! Thank You!
Sensor Values	99.0	0.0

7.3. DRY CONTACT

접점 제어 I/O

대상 채널

IF CH1 IS OUT OF

정상범위 지정

(선택한 채널의 값이 최소 XX - 최대 XX 을 벗어났을 때)

2 ~ 8 THEN

릴레이 및 부저

☐ 접점제어 ON (MAX: 300V - 1A)

☒ 부저 ON

Dry Contact only works when the DC power supply is connected.(However, batteries should be inserted even when connecting to DC power.)Contact control can operate a warning light or fan.

- Smartphone configuration mode> MEASUREMENT
>Contact Control I/O

Ex.) Setup the buzzer to sound when CH1 (MEMS) goes beyond the 2~8°C range.

* As there are only 2 door sensor values, open(99.0) and closed(0.0), setup the Min/Max values as a random range excluding the open value(99.0).

8. Certification

► FCC Class B digital device

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION : Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions.

- 1) This device may not cause harmful interference, and
- 2) This device must accept any interference received, including interference that may cause undesired operation.

9. Inquiries and Product Guarantee

- | | |
|---|-------------------------------|
| • Free of charge A/S for malfunctions within 1 year | • Producer: : DEKIST Co., Ltd |
| • A/S due to user negligence or exposure to an extreme environment will be charged. | • Phone : 070-7529-4359 |
| | • Fax : 031-8039-4400 |
| | • E-mail : master@dekist.com |

10. Software Download

Product-related software can be downloaded at the following webpage.

WWW.RADIONODE365.COM