Sanlien Technology Corp.

VWdot16

Vibrating Wire Datalogger

User Manual

Model: VD-1601

Be the frontier of environmental monitoring

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Contents

I. Introduction

The VWdot16 is a vibrating wire datalogger with both LTE-M and NB-IoT wireless transmission technologies. It is designed to measure vibrating wire sensors and Thermistor temperature signals. VWdot16 features a robust waterproof housing and energy-efficient design, powered by five 18650 lithium batteries, ensuring prolonged measurement recording and data uploading to the cloud. With a built-in 32 GB SD card, it can backup and store over one million records. Suitable for various applications such as urban civil engineering projects, river water management, bridge construction, slope engineering, measuring parameters like water level, water pressure, load, stress, strain, cracks, and landslide displacement.

Applications:

- Water level monitoring: Measurement using VW water level and pressure sensors.
- Stress monitoring: Measurement using VW strain gauges on steel structures.
- Strain monitoring: Measurement using VW strain gauges.
- Load monitoring: Measurement using VW load cells.
- Cracks monitoring: Measurement using VW crack gauges.
- Landslide monitoring: Measurement using VW displacement sensors for landslide detection.

II. Specification

Description	Note
Measurement Type	Vibrating Wire sensor
Channel	16
Measuring Range	450~6000 Hz
Accuracy	± 0.01% @ 3000 Hz
Resolution	0.01Hz
Storage	32 GB Micro SD card
LPWAN	NB-IoT / LTE-M (CAT M1)
Network Protocol	MQTT
Temperature Sensor	Thermistor (Resolution 0.1℃)
Power Supply	18650 Li-Ion Battery x5 (Provides 5-18 Vdc battery recharging function, can be connected to solar panel or external power supply)

III. Accessory

VWdot16 standard package includes:

(1) VWdot16 main unit (x1) + antenna (x1)

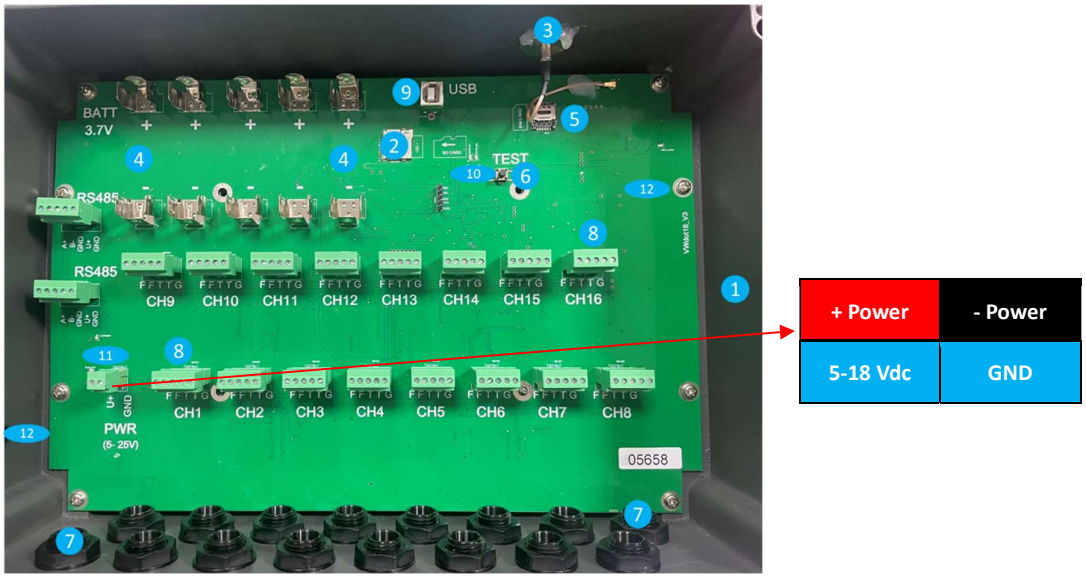
(2) 32 GB micro-SD card (x1)

(3) NB-IoT / LTE-M SIM card (customer to purchase separately)

(4) 18650 rechargeable lithium batteries (x5, excluded)

(5) Sanlien dot cloud platform license key

#	Description
1	Enclosure
2	SD Card Slot
3	Antenna Port
4	Battery Holder (x5)
5	SIM Card Slot
6	Test Button
7	Cable Gland
8	Terminal Socket
9	Com Port
10	LED Indicator Light
11	5-25 Vdc External Power Charging Terminal
12	Vent Valve or Charging Cable Gland



IV. SD Card Setup

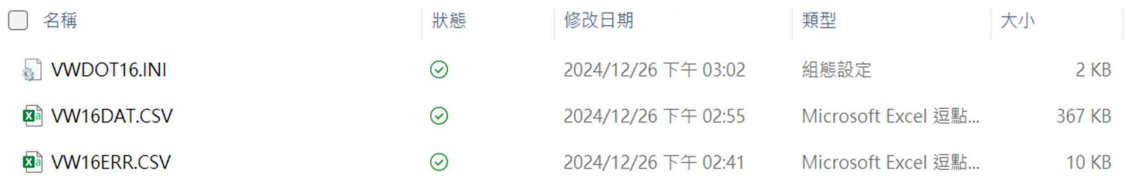
The SD card utilizes a storage space of 32 GB and needs to be formatted to FAT32 with a unit size of 64 KB. The SD card can be configured and data downloaded via computer access. It contains three files:

(1) VWDOT16.INI: This file is for configuring parameters related to the data measurement and transmission. Customers need to set it up themselves.

(2) VW16DAT.csv: This file serves as a backup for measurement reading data. When the system operates normally, it automatically generates the VW16DAT.csv file. In case of unsuccessful data upload due to communication or MQTT server interruption, this file provides backup for measurement reading data and 20 data supplements.

(3) VW16ERR.csv: This file records system execution error messages. When errors occur during system operation, the system automatically generates this file to record the error messages for user inspection and debugging purposes.

(4) SETUP2.txt: This file is generated automatically by the cloud software using the Device Setting feature to modify the measurement frequency. SETUP2.txt has a higher execution priority than VWDOT16.INI. Therefore, when modifying the configuration file via the SD card, SETUP2.txt must be deleted if necessary.



名稱	狀態	修改日期	類型	大小
VWDOT16.INI	✓	2024/12/26 下午 03:02	組態設定	2 KB
VW16DAT.CSV	✓	2024/12/26 下午 02:55	Microsoft Excel 逗點...	367 KB
VW16ERR.CSV	✓	2024/12/26 下午 02:41	Microsoft Excel 逗點...	10 KB

V. VWDOT16.INI Configuration

The symbol '#' at the beginning of a command indicates that the command will not be executed. The content and instructions for each parameter are as follows:

[Global]

interval = 00:05 Must enter hh:mm

Remark: Measurement recording frequency.

- hh represents hours
- mm represents minutes.

The minimum frequency is 5 minutes (00:05), and the maximum is 24 hours (24:00).

Wakeup_LED = 1 Must enter "0" or "1"

Remark: Enables the LED indicator during measurement according to the set frequency.

- Enter "1" to enable the LED, causing it to light up during measurements.
- Enter "0" to disable the LED for power saving. This setting does not affect the LED display during the initial boot or while using the TEST button.

[Time]

source = network Must enter "network" or "manual"

Remark: Time synchronization method.

- "network" synchronizes time via the network.
- "manual" allows manual time input.

set_manual = 2024.12.07 11:30:06 Must enter YYYY.MM.DD hh:mm:ss

Remark: Used to manually set the date and time when source = manual.

- To activate this setting, remove the # symbol.

The time will start counting from when the device is powered on.

GMT_offset = +04:00 Must enter “-12:00” to “+12:00”

Remark: Configures the time zone offset when synchronizing via the network.

[Wireless]

Choose the transmission method using NB-IoT or LTE-M. Enter “1” to enable or “0” to disable:

nb_enabled = 1 Must enter “0” or “1”

Remark: Enables NB-IoT transmission

cat_enabled = 1 Must enter “0” or “1”

Remark: Enables LTE-M transmission

Wireless band number for NB-IoT or LTE-M communication. Consult the telecom provider for these parameters:

nb_band = 8 The wireless band number of NB-IoT communication channel

cat_band = 3 The wireless band number of LTE-M communication channel

APN = " internet.iot " Access Point Name for Wireless service

Remark: Access Point Name (APN) for NB-IoT or LTE-M service. Consult the telecom provider for this parameter.

[MQTT]

server_IP = SANLIEN MQTT Server Name or IP address

Remark: IP address or name of the MQTT server for data upload.

- For Sanlien web services, type “SANLIEN”.
- For custom MQTT servers, refer to the cloud/remote configuration service manual.

data_path = "sanLien/vwDot16/01234"

Remark: MQTT subscription topic.

- For Sanlien web services, set this to "sanLien/vwDot16/01234", where 01234 is the VWdot16 serial number. Ensure the serial number is correct.

sub_path = "sanLienmq/VWdot16/01234"

Remark: New subscription topic for publishing through the MQTT server.

- For Sanlien web services, set this to "sanLienmq/VWdot16/01234", where 01234 is the VWdot16 serial number.

confirm_path = "sanLienconf/VWdot16/01234"

Remark: Confirmation topic for responses from VWdot16 to the MQTT server after receiving new subscription topics.

- For Sanlien web services, set this to "sanLienconf/VWdot16/01234", where 01234 is the VWdot16 serial number.

rec_num = 20 **Must enter “1” to “50”**

Remark: Number of unsent measurement records to automatically retransmit. Consider communication RSSI when setting this value.

[Encryption]

enabled = 1 **Must enter "0" or "1"**

Remark: Enables encryption for cloud/remote configuration services.

- Set to “1” for encryption or “0” for no encryption.
- For Sanlien web services, set to “1”.

new_key = 0 **Must enter "0" or "1"**

Remark: Encryption key setting.

- For Sanlien web services, set this to 0.
- For custom MQTT servers, configure according to encryption requirements. If it is set to “1”, create a key.txt file in the SD card. Refer to the cloud/remote configuration service manual.

[Sensor1]

enabled = 1 **Must enter "0" or "1"**

Remark: Enables CH1 measurement. Enter “1” to enable or “0” to disable.

sweep_start = 450 Must enter "450" or "5900" (Hz)

sweep_end = 1200 Must enter "550" or "6000" (Hz)

Remark: Input the frequency range of the vibrating wire instrument. The “sweep_end” value must be at least 100 Hz greater than the “sweep start”.

read_delay = 30 Must enter "1" or "200" (ms)

Remark: Sets the delay between excitation sweep and data reading in milliseconds.

V_exc = 5 Must enter "5" or "12" (Volt)

Remark: Sets the excitation voltage for the sweep in volts.

“VWDOT16.INI” Example:

```
[Global]
# hh:mm
interval = 00:05
Wakeup_LED = 1

[Time]
source = network
# YYYY.MM.DD hh:mm:ss
#set_manual = 2024.12.07 08:00:00
# +/-hh:mm
GMT_offset = +04:00

[Wireless]
nb_enabled = 1
#cat_enabled = 1

nb_band = 8
#cat_band = 3

APN = "iot.1nce.net"

[MQTT]
server_IP = SANLIEN
data_path = "sanLien/vwDot16/05658"
sub_path = "sanLienmq/VWdot16/05658"
confirm_path = "sanLienconf/VWdot16/05658"
rec_num = 20

[Encryption]
enabled = 1
new_key=0

[Sensor1]
enabled = 1
sweep_start = 450
sweep_end = 1200
read_delay = 30
V_exc = 5
```

VI. VW16DAT Content Descriptions

The data format of VW16DAT is a CSV file, with each column has the following meanings:

- Column A: Serial number
- Column B: Date
- Column C: Time
- Columns D to AY: Sequentially represent S1 to S16, corresponding to Channel 1 to Channel 16, including vibrating wire measurement values (Hz) and temperature (°C).
- Column AZ: Battery capacity (%)
- Column BA: RSSI signal strength
- Column BB: Remark messages

For example:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	5658	18/12/2024	14:00:00	S1	912.6	21.2	S2	895.8	21.1	S3	877.2	23.9	S4	899.6	23.9	S5	778.3	21
2	5658	18/12/2024	14:05:00	S1	912.6	21.3	S2	895.9	21.1	S3	877.3	23.9	S4	899.7	24	S5	778.7	21
3	5658	18/12/2024	14:10:00	S1	912.6	21.3	S2	895.9	21.1	S3	877.3	23.9	S4	899.7	24	S5	778.8	21
4	5658	18/12/2024	14:15:00	S1	912.6	21.3	S2	895.9	21.1	S3	877.3	23.9	S4	899.7	24	S5	778.2	20.9
5	5658	18/12/2024	14:20:00	S1	912.5	21.2	S2	895.9	21.1	S3	877.2	23.9	S4	899.6	23.9	S5	783.6	20.9
6	5658	18/12/2024	14:25:00	S1	912.5	21.2	S2	895.9	21.1	S3	877.2	23.9	S4	899.5	23.9	S5	783.7	20.8
7	5658	18/12/2024	14:30:00	S1	912.5	21.1	S2	895.9	21	S3	877.2	23.9	S4	899.5	23.8	S5	783.6	20.8
8	5658	18/12/2024	14:35:00	S1	912.5	21.1	S2	895.9	21.1	S3	877.1	23.8	S4	899.4	23.8	S5	783.6	20.7
9	5658	18/12/2024	14:40:00	S1	912.4	21.1	S2	895.9	21	S3	877.1	23.8	S4	899.4	23.8	S5	783.6	20.7
10	5658	18/12/2024	14:45:00	S1	912.4	21	S2	895.9	21	S3	877	23.8	S4	899.3	23.8	S5	783.6	20.6
11	5658	18/12/2024	14:50:00	S1	912.4	21	S2	895.9	20.9	S3	877	23.8	S4	899.3	23.8	S5	783.5	20.6
12	5658	18/12/2024	14:55:00	S1	912.4	21	S2	895.9	20.9	S3	877	23.8	S4	899.3	23.8	S5	783.6	20.6

	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1	S6	820.3	21.7	S7	774.1	21.6	S8	3050.9	21.9	S9	3107.7	21.1	S10	2833.3	20.9	S11	2881.5	21.1
2	S6	820.2	21.7	S7	773.8	21.6	S8	3050.9	21.9	S9	3107.7	21.2	S10	2833.3	20.9	S11	2881.5	21.1
3	S6	820.2	21.7	S7	773.7	21.6	S8	3050.9	21.7	S9	3107.7	21.2	S10	2833.3	21	S11	2881.5	21.2
4	S6	820.2	21.7	S7	773.8	21.5	S8	3050.9	21.5	S9	3107.7	21.3	S10	2833.4	21	S11	2881.5	21.2
5	S6	820.1	21.6	S7	773.3	21.5	S8	3050.9	21.4	S9	3107.7	21.3	S10	2833.4	21	S11	2881.5	21.2
6	S6	820	21.6	S7	773.2	21.4	S8	3050.9	21.2	S9	3107.7	21.3	S10	2833.4	21	S11	2881.5	21.2
7	S6	819.9	21.5	S7	773.1	21.4	S8	3050.8	21.1	S9	3107.7	21.3	S10	2833.4	21	S11	2881.5	21.2
8	S6	819.9	21.5	S7	773.1	21.4	S8	3050.8	21.1	S9	3107.7	21.3	S10	2833.4	21	S11	2881.5	21.2
9	S6	819.8	21.4	S7	773	21.3	S8	3050.8	21	S9	3107.7	21.3	S10	2833.4	21	S11	2881.5	21.2
10	S6	819.7	21.4	S7	773	21.2	S8	3050.8	20.9	S9	3107.7	21.3	S10	2833.3	21	S11	2881.5	21.1
11	S6	819.7	21.4	S7	772.9	21.2	S8	3050.8	20.8	S9	3107.7	21.3	S10	2833.3	21	S11	2881.5	21.1
12	S6	819.7	21.3	S7	772.9	21.2	S8	3050.8	20.8	S9	3107.7	21.3	S10	2833.3	21	S11	2881.5	21.1

S18 | fx | S6

	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB
1	S12	3018.9	21.1	S13	3063.3	21.3	S14	3024	21.1	S15	2700.5	21.8	S16	2543.1	21.4	80	23	
2	S12	3018.9	21.2	S13	3063.4	21.3	S14	3024	21.2	S15	2700.5	21.8	S16	2543.1	21.4	80	22	
3	S12	3018.9	21.2	S13	3063.3	21.4	S14	3024	21.2	S15	2700.5	21.8	S16	2543.1	21.4	90	19	
4	S12	3018.9	21.2	S13	3063.3	21.4	S14	3024	21.2	S15	2700.5	21.8	S16	2543.1	21.4	90	22	
5	S12	3018.9	21.2	S13	3063.3	21.4	S14	3024	21.3	S15	2700.5	21.8	S16	2543.1	21.4	90	22	
6	S12	3018.9	21.2	S13	3063.3	21.4	S14	3024	21.3	S15	2700.5	21.8	S16	2543.1	21.4	90	22	
7	S12	3018.9	21.2	S13	3063.3	21.4	S14	3024	21.3	S15	2700.5	21.8	S16	2543.1	21.4	90	21	
8	S12	3018.9	21.2	S13	3063.3	21.4	S14	3024	21.3	S15	2700.5	21.8	S16	2543.1	21.4	90	22	
9	S12	3018.9	21.2	S13	3063.3	21.4	S14	3024	21.2	S15	2700.5	21.8	S16	2543.1	21.4	90	20	
10	S12	3018.9	21.2	S13	3063.3	21.4	S14	3024	21.2	S15	2700.5	21.8	S16	2543.1	21.4	90	21	
11	S12	3018.9	21.2	S13	3063.3	21.4	S14	3024	21.2	S15	2700.5	21.8	S16	2543.1	21.4	90	21	!QSUB
12	S12	3018.9	21.2	S13	3063.3	21.4	S14	3024	21.2	S15	2700.5	21.8	S16	2543.1	21.4	90	21	

VII. VW16ERR Content Descriptions

The remarks in the VW16DAT file are also recorded in the VW16ERR event log, with the following codes representing their meanings:

(a) !PWRx: NB-IoT / LTE-M module power supply problem.

(b) !CPIN: Issue with the SIM card.

(c) !REG: NB-IoT / LTE-M communication failure or no signal RSSI.

(d) !RSSI: NB-IoT / LTE-M signal RSSI too low or error.

(e) !RST: Problem encountered during NB-IoT / LTE-M module reset.

(f) !QNEW: No response from MQTT server.

(g) !QCON: MQTT server available, but login failed (incorrect username or password).

(h) !QPUB: MQTT server available and login successful, but data upload failed.

(i) !QSUB: Problem encountered when retrieving data from subscribed topics while connecting to MQTT server.

(j) !QCNF: Not possible to deliver confirmation to “confirm_path” after configuration request.

(k) !USUB: Problem encountered when unsubscribing from topics while connecting to MQTT server.

(l) !SDx: SD card installation failed.

(m) !LOWB: Battery voltage is too low, please replace the battery.

(n) !OFFB: VWdot16 automatically shuts down due to low voltage, until the battery is replaced.

(o)!CFG1: Error in configuration data saved in nonvolatile memory. The factory default values are used.

(p) !RTC: The internal real time source problem: it contains wrong time and will be updated based on time/date read according to the configured time source value.

VIII. VWdot16 Installation

(1) Connect the antenna, please avoid applying excessive force during installation.

(2) Insert the NB-IoT / LTE-M SIM card after ensuring that the SIM card has been activated for service.

(3) Insert the SD card and ensure that the VWDOT16.INI file is correctly configured and stored on the SD card. Note: The system will not verify whether the content of the file is correct.

(4) Refer to the table below to correctly connect the vibrating wire instrument signals to the VWdot16 terminal socket and lock them in place.

F	F	T	T	GND
Frequency (Red)	Frequency (Black)	Temperature (Green)	Temperature (White)	Shield

(5) Insert the lithium battery, ensuring the correct polarity. Wait for 3 seconds before reinserting the battery if it is removed. If an external power source is needed to charge the 18650 batteries, please replace the vent valve with the charging cable fixed head and provide a 5-18 Vdc power supply, paying attention to the Power (+) and Power (-) positions.

(6) The LED indicator will remain lit until the data is successfully uploaded to the dot cloud software platform, after which the LED will turn off. For details on the VWdot16 working status corresponding to LED blinking states, refer to Chapter IX.

(7) After VWdot16 powers on successfully, it will automatically take one measurement and upload the data to the dot cloud software platform. Once the upload is complete, VWdot16 will enter sleep mode and perform subsequent measurements and uploads according to the configured frequency.

(8) Verify on the dot cloud software platform that the data has been uploaded correctly. If the upload is accurate, the VWdot16 installation and configuration are complete.

(9) During the sleep mode after successfully uploading one measurement, the TEST button may be pressed once. The LED indicator will light up, and the device will immediately take one measurement, upload the data to the dot cloud software platform, and then return to sleep mode.

IX. LED Light Indicator

The table below shows the LED blinking status corresponding to VWdot16 working states.

Description	Red LED	Green LED
Sleeping	Off	Off
Wake up	Off	On
Measuring	Off	Flashing
End of Measurement	Off	Off
Modem Initial Procedure	On	Off
Network Communication	Flashing	Off
	On	Flashing

X. Battery Power

VWdot16 requires five 18650 lithium-ion batteries with a working voltage range of 3.5 V to 4.2 V. It is recommended to use PANASONIC NCR18650GA batteries with a capacity of 3450 mAh or higher. The battery power is expressed as a percentage (%), indicating the remaining charge level:

bat_volt > 4.149 bat_%=99

bat_volt <=4.15 bat_%=90

bat_volt <= 4.03 bat_%=80

bat_volt <= 3.88 bat_%=70

bat_volt <= 3.75 bat_%=60

bat_volt <= 3.70 bat_%=50

bat_volt <= 3.68 bat_%=40

bat_volt <= 3.65 bat_%=30

bat_volt <= 3.60 bat_%=20

bat_volt <= 3.56 bat_%=10

bat_volt <= 3.48 bat_%=5 // The message "!LOWB" indicates that the battery voltage is low, prompting the user to replace the batteries.

bat_volt <= 3.35 bat_%=2 // The message "!OFFB" indicates that the system has automatically shut down due to low voltage, and it prompts the user to replace the batteries.

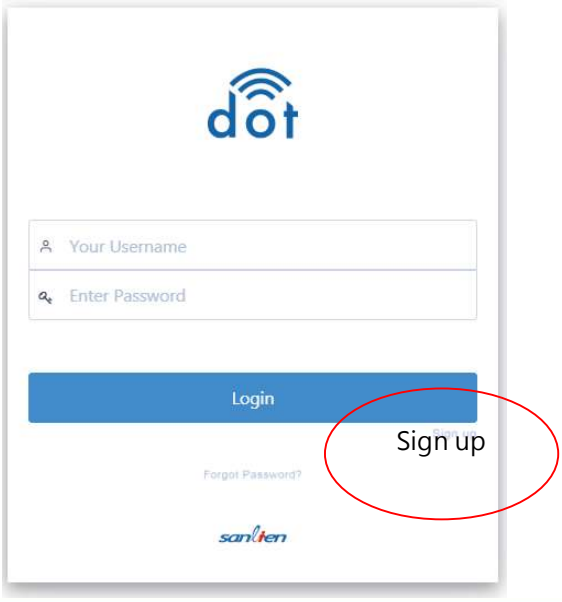
XI. SANLIEN “dot” Web Service

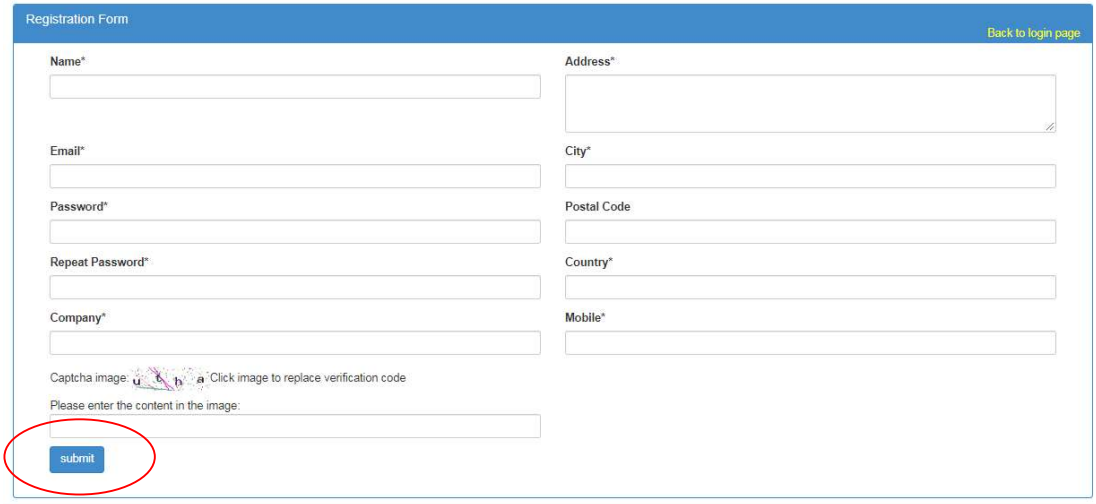
This section is the explanation for using the Sanlien Technology MQTT server dot web service platform. If users wish to set up their own MQTT server platform, please contact Sanlien Technology technical staff.

Sanlien Technology dot web service platform link: http://wms.sanlien.com.tw/dot

(1) For the first login, please sign up to register a new account.

(2) After filling out the information, click on ‘submit’. The system will send an email with the Sanlien Technology dot service platform link to the registered email address. Users need to access the platform through the login link in the email to activate the account.





(3) After creating an account, users can log in to the dot web service platform. Here are the main functions:

(a) Latest Record: Displays the latest data records.

(b) Record Query: Allows for data query and download services.

(c) Chart Query: Provides curve query and download services.

(d) Map: Displays location and measurement-related information on a map.

(e) Company Setting: Configures basic information, including company name and project name.

(f) FTP Setting: Enables automatic data transmission via FTP.

(g) FTP Log: Records errors that occur during FTP transmission.

(h) SMS Setting: Provides SMS notification for values exceeding certain thresholds.

(i) Project User Setting: Allows adding client accounts for remote login.

(j) Device Setting: Allows cloud-based settings modification.

(k) Admin: Configures device information.

(4) When logging in to the dot web service platform for the first time, users need to set up VWdot4 device information through “Company Setting” and “Admin” to use related services on the platform.

(A) Company Setting

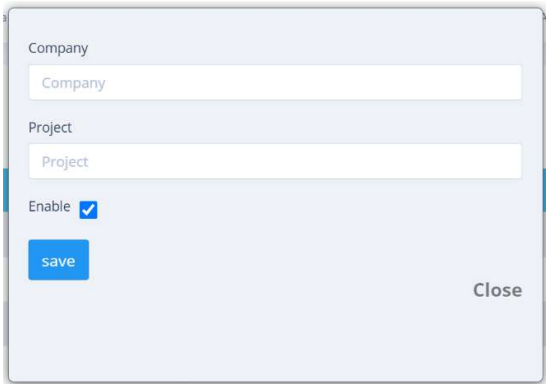
(a) Click on ‘Company Setting’.

(b) Click on ‘Add’ to add new data.

(c) Enter the Company name.

(d) Enter the Project name.

(e) Click on ‘save’ to add the data.



(B) Admin Setting

(a) Click on ‘Admin’.

(b) Click on ‘Add’ to add new data.

(c) Type: Select the type of instrument, choose the option VWdot16.

(d) S/N: Enter the device serial number, please input a 5-digit serial number, for example, 01234.

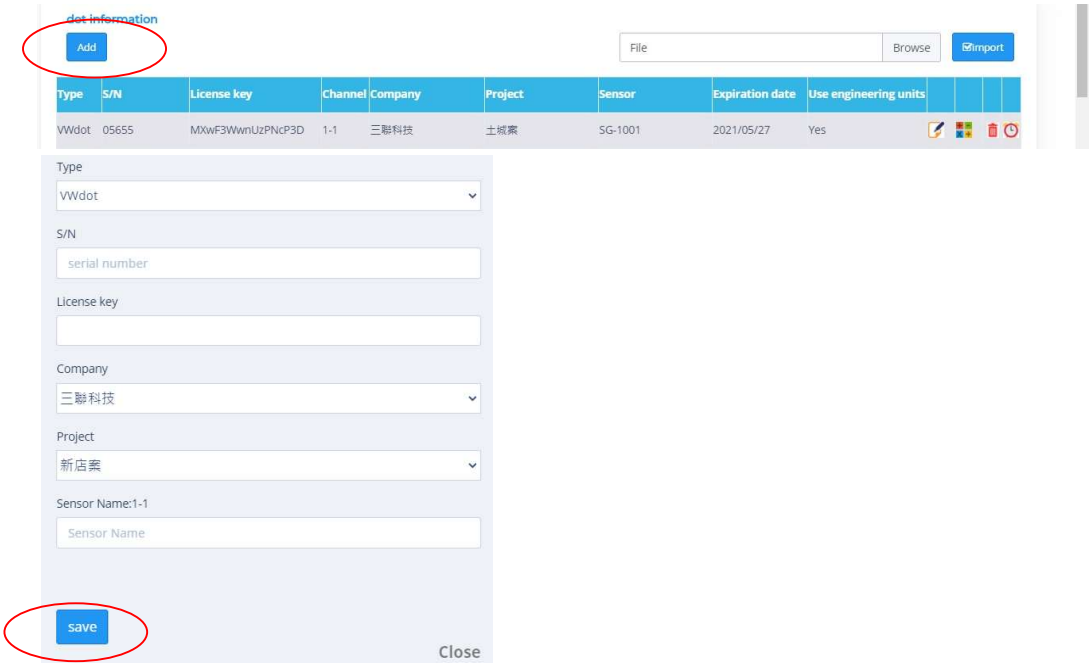
(e) License key: Enter the license key for the service platform provided by Sanlien Technology.

(f) Company: Select the company name from the dropdown menu.

(g) Project: Select the project name from the dropdown menu.

(h) Sensor Name: Enter the instrument identifier directly, for example, OW-01.

(i) After completing the entries, click ‘save’ to add the new configuration to the data table.



(C) After completing the configuration, users may use the functions on the right side of the table, such as modify, settings, delete, renew, etc.

(a) Modify function: Modify the Company or Project data.

(b) Settings function: Configure measurement physical quantities, threshold values, Email notifications, SMS notifications, etc.

(c) Delete function: Each VWdot16 data provides only one VWdot16 service platform account. If users want to change to another account, the original account needs to delete the configured VWdot16 first.

(d) Renewal function: Purchase the rental service before the expiration of the platform rental period, and enter the key to extend the platform rental period.

(D) Settings Function:

(a) Physical Quantity Calculation: Check ‘Use engineering units’ to perform physical quantity calculation for measured values. Enter the units in the "Units" field. Enter coefficients A~F for the instrument. Enter the initial reading value (R0), the measured reading (Ri), and the offset value (M).

- Engineering unit (Hi)=A(Ri)5+B(Ri)4+C(Ri)3+D(Ri)2+E(Ri)+F
- Engineering unit Change= Current Engineering unit (Hi) - Initial Engineering unit (H0) +M

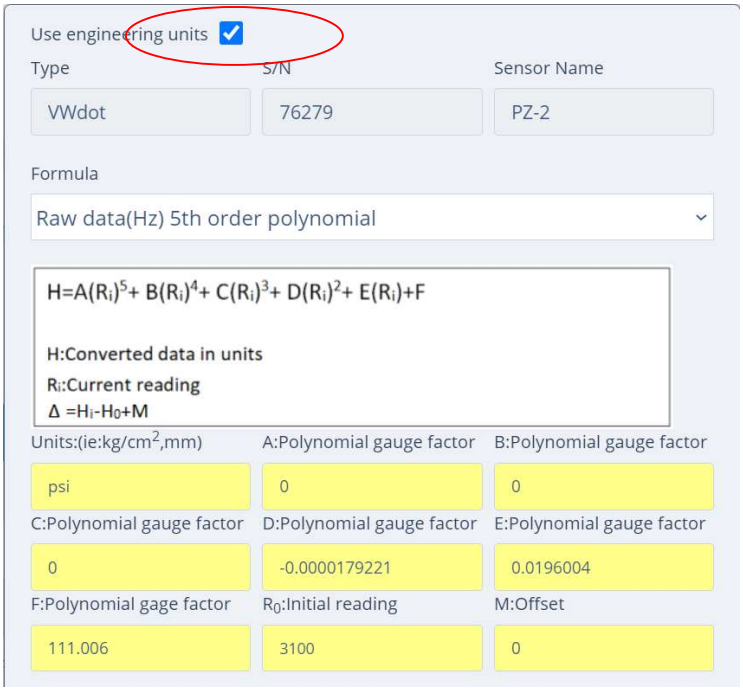
(b) Alert notification configuration: Check the ‘Alert notification’ box to configure management values. The colors of the indicator lights represent the following:

Value < Level 3	Value < Level 2	Value < Level 1	Normal Value	Value > Level 1	Value > Level 2	Value > Level 3

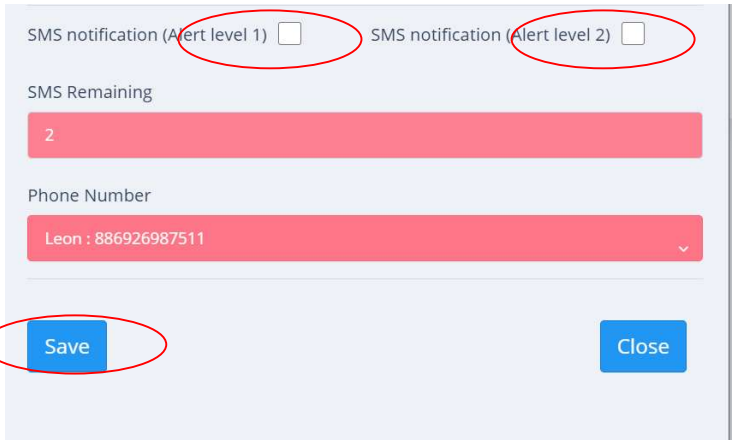
(c) Email notification setup: Check the ‘Mail notification’ box to configure email notification. When the physical change exceeds the set Level 1 to Level 3 thresholds, the system will automatically send notifications to the specified email addresses.

(d) SMS notification setup: This feature requires the purchase of SMS sending services for mobile phones. Before using it, users need to configure various settings in the "SMS Setting" section (details in section 5). Check the ‘SMS notification’ box to configure SMS notification. When the physical change exceeds the set Level 1 to Level 3 thresholds, the system will automatically send notifications to the specified mobile phone numbers.

(e) The "SMS Remaining" field indicates the remaining number of SMS notification service instances, which the system calculates automatically. The "Phone Number" field is where users input the mobile phone number. Phone number settings need to be configured in the "SMS Setting" section.


Use engineering units
Type
S/N
Sensor Name
VWdot
76279
PZ-2
Formula
Raw data(Hz) 5th order polynomial
H=A(Ri)5+ B(Ri)4+ C(Ri)3+ D(Ri)2+ E(Ri)+F
H:Converted data in units
Ri:Current reading
Δ =Hi-H0+M
Units:(ie:kg/cm2,mm)
A:Polynomial gauge factor
B:Polynomial gauge factor
psi
0
0
C:Polynomial gauge factor
D:Polynomial gauge factor
E:Polynomial gauge factor
0
-0.0000179221
0.0196004
F:Polynomial gage factor
R0:Initial reading
M:Offset
111.006
3100
0


Alert notification
Alert level 1(<)
Alert level 1(>=)
-5
0
Alert level 2(<)
Alert level 2(>=)
-25
0
Alert level 3(<)
Alert level 3(>=)
-30
0
Mail notification (Alert level 1)
Mail notification (Alert level 2)
Mail notification (Alert level 3)
Notification mail(1)
Notification mail(2)
sanlienbu1cs@gmail.com
Notification mail(3)
Notification mail(4)
Notification mail(5)
SMS notification (Alert level 1)
SMS notification (Alert level 2)
SMS notification (Alert level 3)
SMS Remaining
0

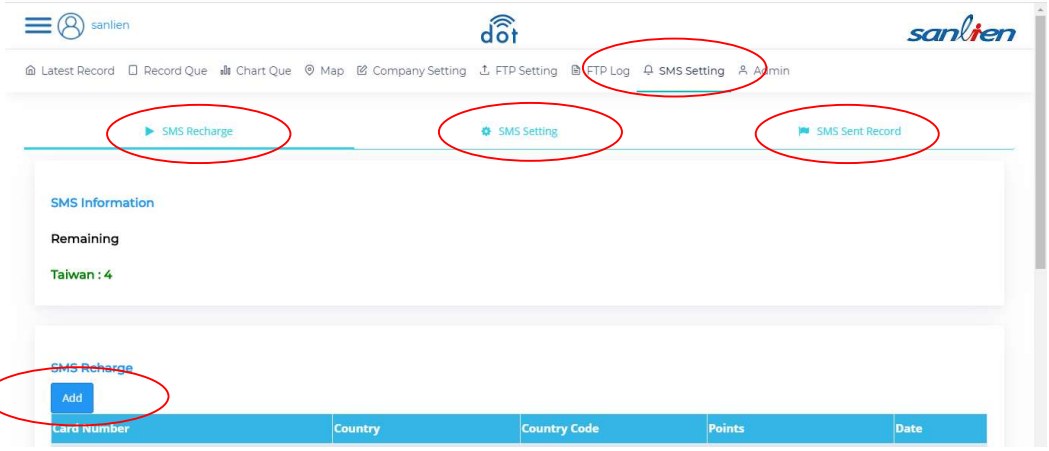


(5) To set up SMS sending phone numbers, click on "SMS Setting."

(a) SMS Recharge: This is an additional SMS service value-added function. Click on ‘Add’ to enable SMS value-added service. "Card Number" and "PIN Code" are the key numbers provided on the purchased SMS card.

(b) SMS Setting: Configure SMS transmission settings. Click on ‘Add’ to enter the phone numbers for SMS transmission. Do not include the first digit "0" in the "Phone Number" field. For example, for the phone number 0912-345678, only enter 912345678.

(c) SMS Sent Record: Records of SMS transmissions.



(6) To set up map display information, click on ‘Map’ to configure the settings.
Map Setting: Configure map settings.

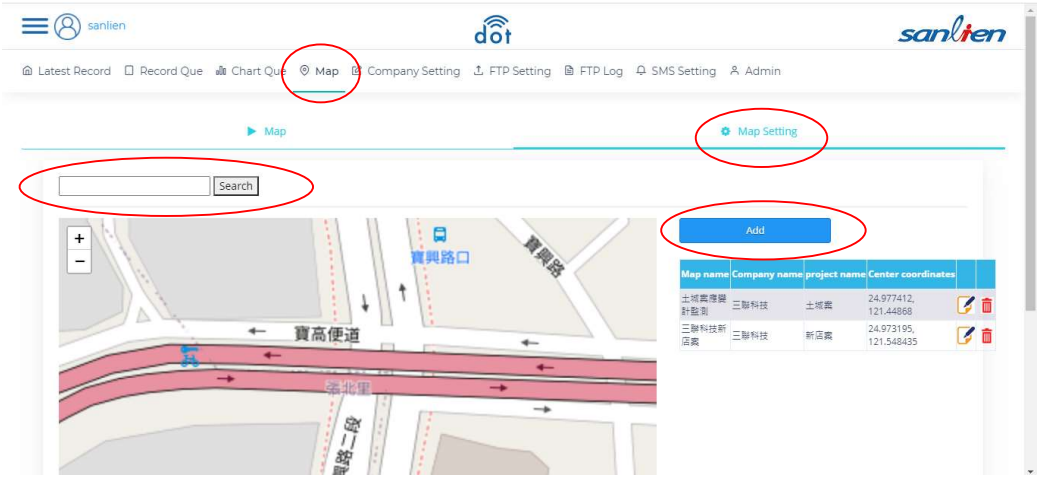
(a) Enter the location name or coordinates in the search field to search for the desired location.

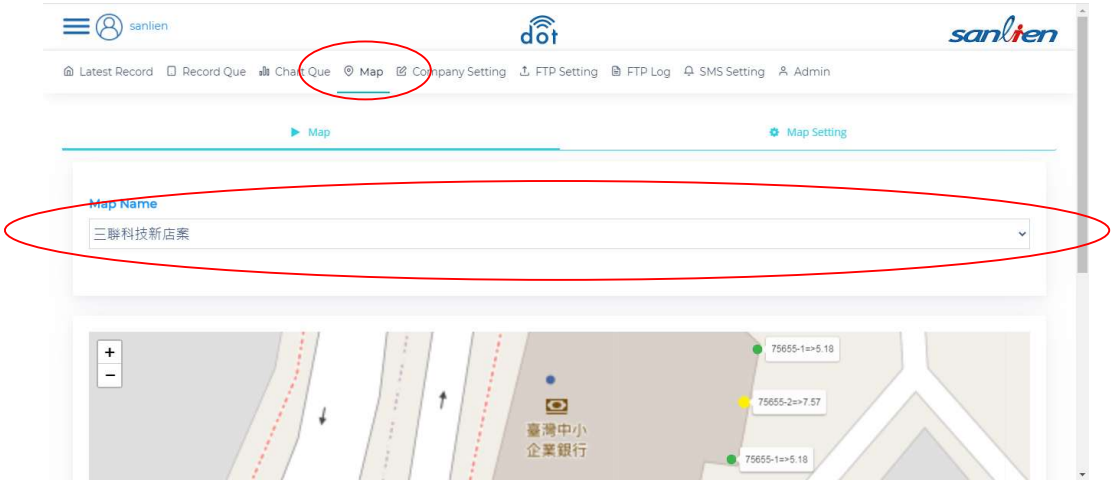
(b) Use the map zoom, pan, and move functions to select the desired map area.

(c) Click on ‘Add’ to set the map name, company name, project name, etc., and then save the map information.

(d) Left-click on the map with the mouse to set the instrument position and number.

(e) Once the settings are completed, users can view the status of the instruments in the “Map” function.





(7) To configure FTP data transmission settings, click on ‘FTP Setting’.

(a) Company: Select the data to be transmitted.

(b) FTP Server: Enter the FTP login IP.

(c) FTP Port: Enter the FTP login port.

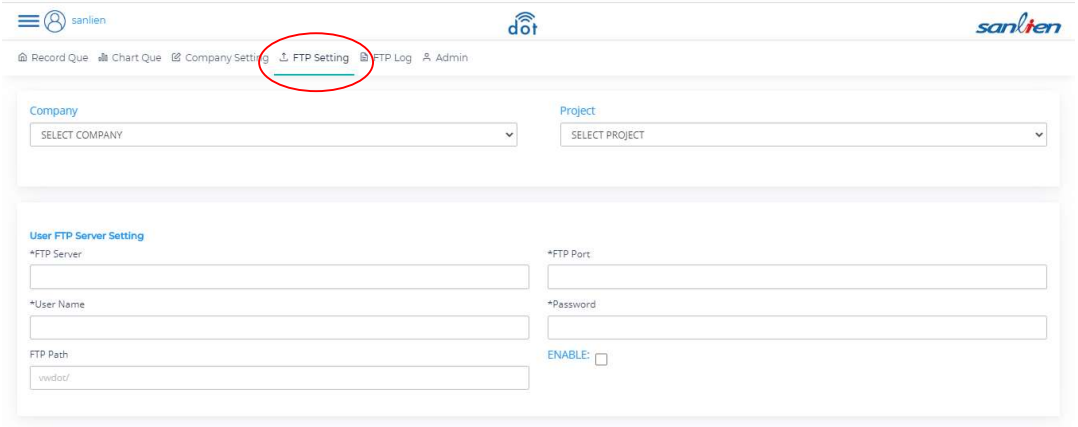
(d) User Name: Enter the FTP login username.

(e) Password: Enter the FTP login password.

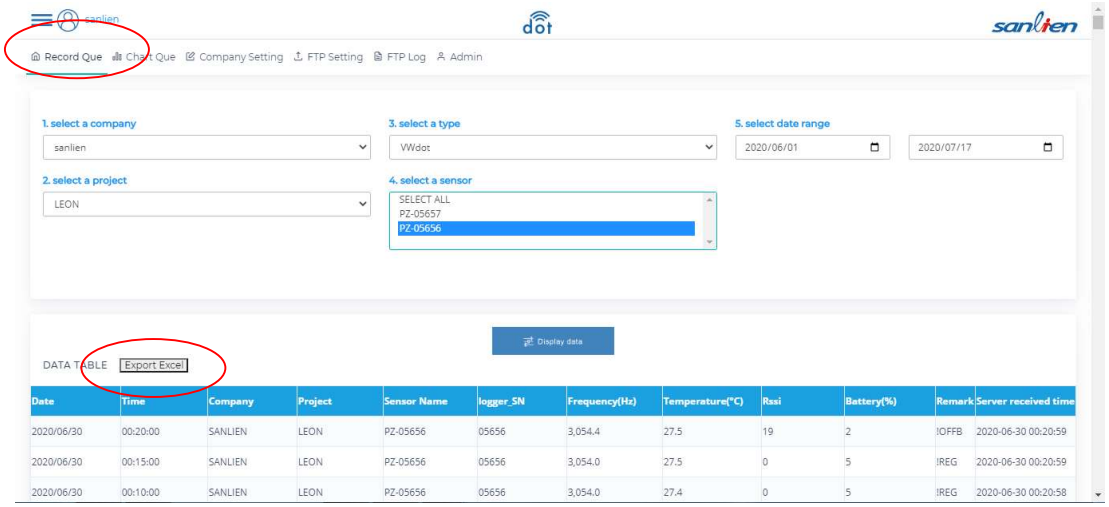
(f) FTP Path: Enter the data storage location. If no subdirectory is set, leave this field blank. If storing in a subdirectory, enter the subdirectory name followed by a slash, for example, "VWdot16/".

(g) ENABLE: Check to enable. Leave unchecked to disable.

(h) Once the entries are completed, click ‘save’ to finalize the FTP transmission settings.

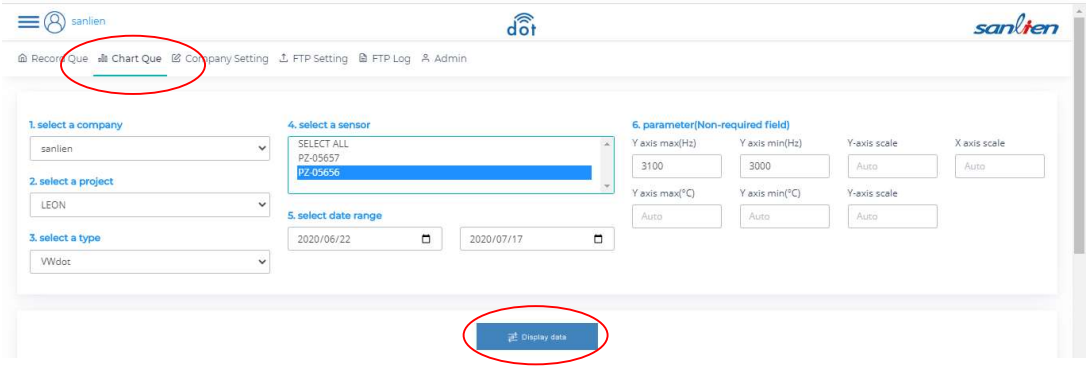


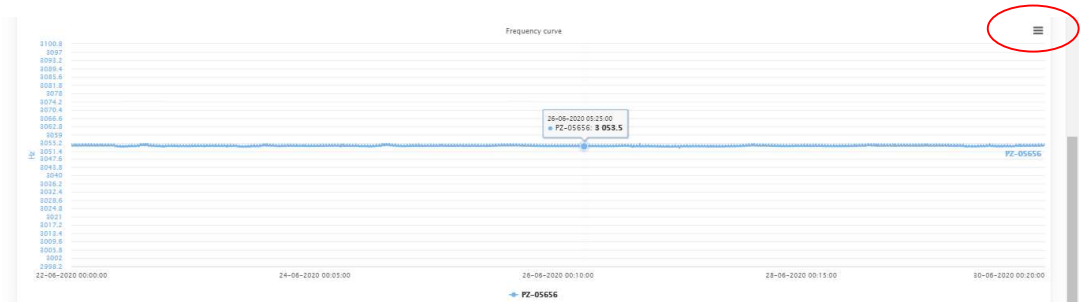
(8) For data query and download, click on the ‘Record Query’ function. Select the company name, project name, instrument name, and query date. Then, click the ‘Display data’ button. The queried data will appear below, and users can export the data using the “Export Excel’ function.



(9) For curve query and download, click on the ‘Chart Query’ function. Select the company name, project name, instrument name, and query date. Then, click the

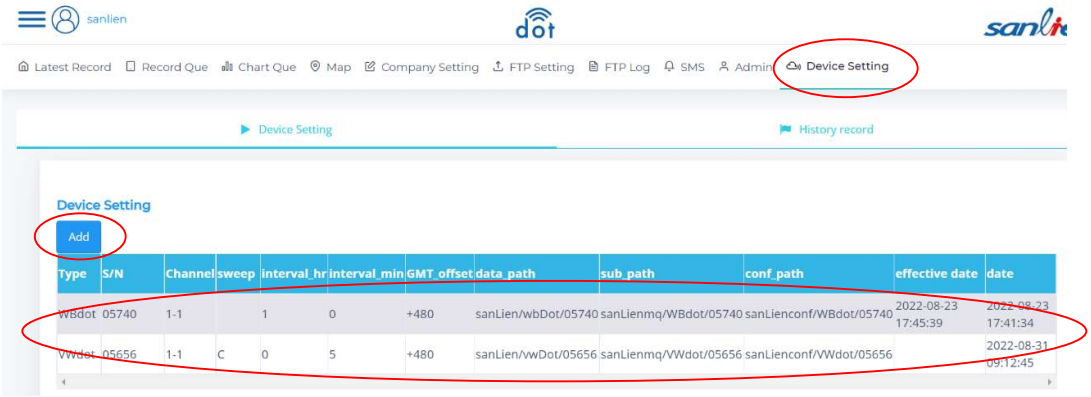
'Display data' button. The queried data will appear below. Users can also use the functionality in the upper right corner of the graph to save it as various image files.

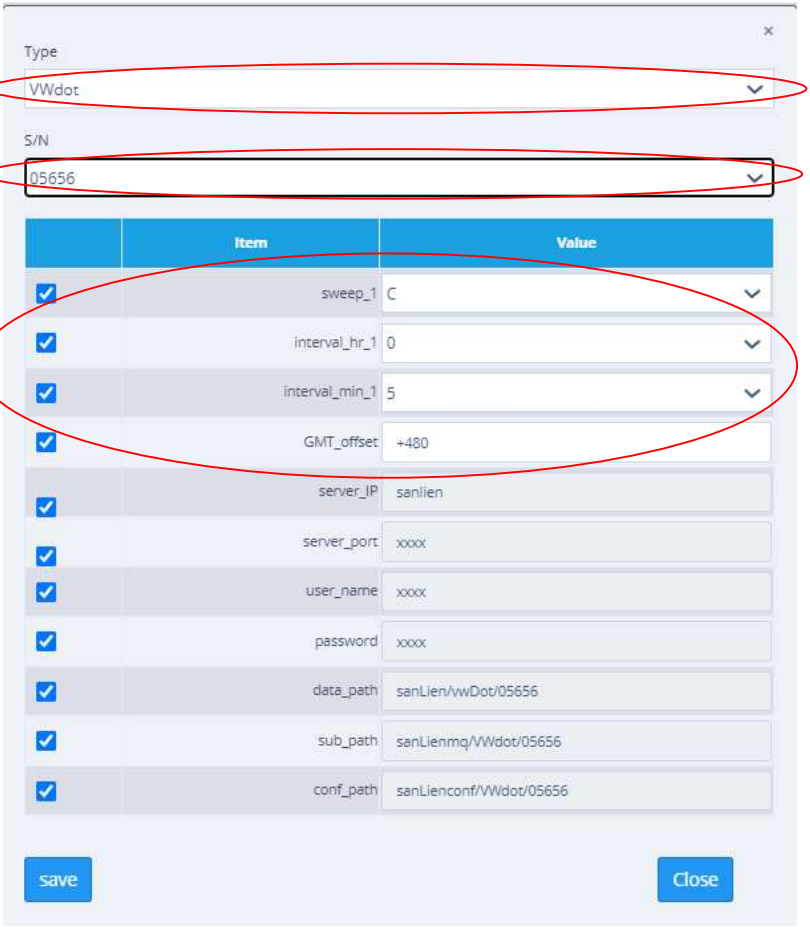




(10) To modify device settings from the cloud, access the "Device Setting" function. Click on 'Add', then select the instrument serial number to be modified. Users can adjust settings such as sweep, interval, and GMT_offset. After entering the details, click 'Save' to complete the process. Users can view the setting information and the effective modification time in the "Device Setting" screen.

Note: All modified settings will take effect after the next measurement by the device.

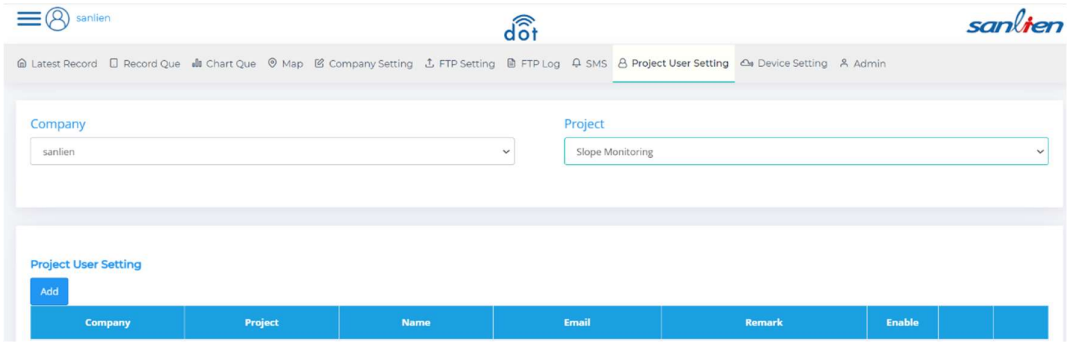


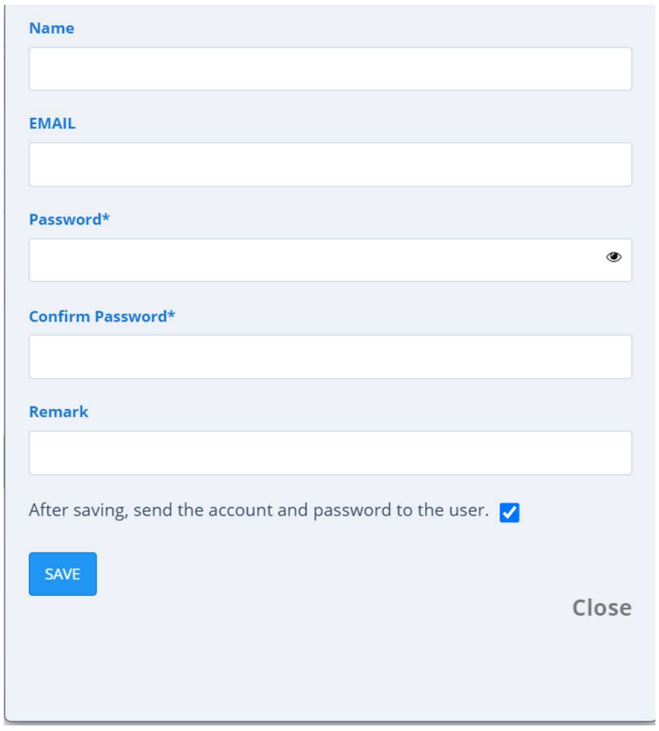


(11) To add a client for remote login, access the "Project User Setting" function. Select the Company and Project wanted to be shared, then click on ‘Add’. Fill in the required information and click ‘SAVE’. The system will send the link to the Sanlien dot client platform to the specified email address. Upon receiving the email, clients can use the provided link.

Note: The remote connection URL is
https://wms.sanlien.com.tw/dot/index.php?item=client

Please be aware that this remote connection URL is different from the original Sanlien dot management web service platform URL.


sanlien
Latest Record
Record Que
Chart Que
Map
Company Setting
FTP Setting
FTP Log
SMS
Project User Setting
Device Setting
Admin
Company
sanlien
Project
Slope Monitoring
Project User Setting
Add
Company
Project
Name
Email
Remark
Enable


Name
EMAIL
Password*
Confirm Password*
Remark
After saving, send the account and password to the user.
SAVE
Close

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