

A worker in a dark uniform and a yellow hard hat is seen from behind, walking down a long aisle in a control room. The room is filled with rows of white electrical control panels and cabinets. A door with the number "6" is visible in the distance.

Wireless Ambient Temperature & Humidity Cloud Monitoring Solution

Wireless Temperature&Humidity Monitoring, for distribution cabinet/board/
panel,switchgear, IoT cloud & local display & alarm.

Ver. Date: Jan, 5th 2024

Acrel Co., Ltd.

No.253 Yulv Road, Jiading
District, Shanghai, China

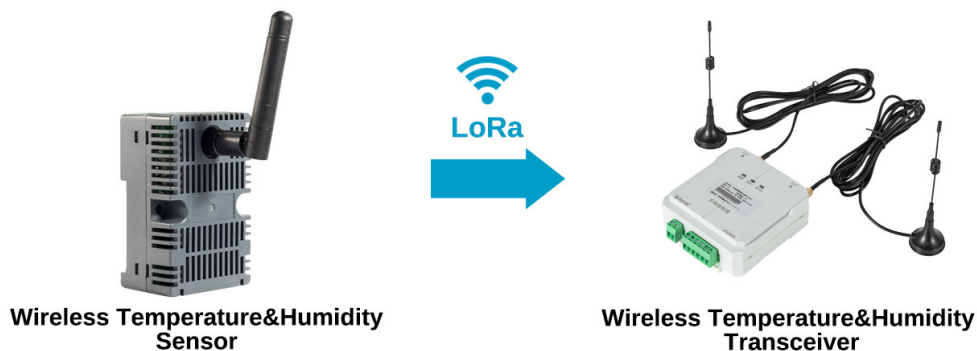


0. Application Scenario

- (1) This wireless temperature&Humidity monitoring solution was majorly designed for monitoring and alarming the **ambient temperature&humidity** of **switchgear, distribution cabinet/board, control panel**, and etc.
- (2) Such place have the potential threat of fire hazard due to the aging of material, slackness of connection, high ambient humidity and etc. Thus a real-time temperature&humidity monitoring and alarm system will be necessary to prevent it from potential fire hazard caused by the rising of temperature or humidity.
- (3) Solution here was major designed for **both cloud & local temperature&humidity display and alarm**. Distinguish from other Acrel wireless temperature&humidity monitoring solution which has **only local temperature&humidity display and alarm**.
- (4) Unlike the traditional wired temperature&humidity monitoring solution, wireless temperature&humidity monitoring solution **make the connection between temperature&humidity sensor and transceiver wireless**. This will largely ease the installation and make the overall solution more flexible.



(1) Major Temperature&Humidity Monitoring Scenario Showcase

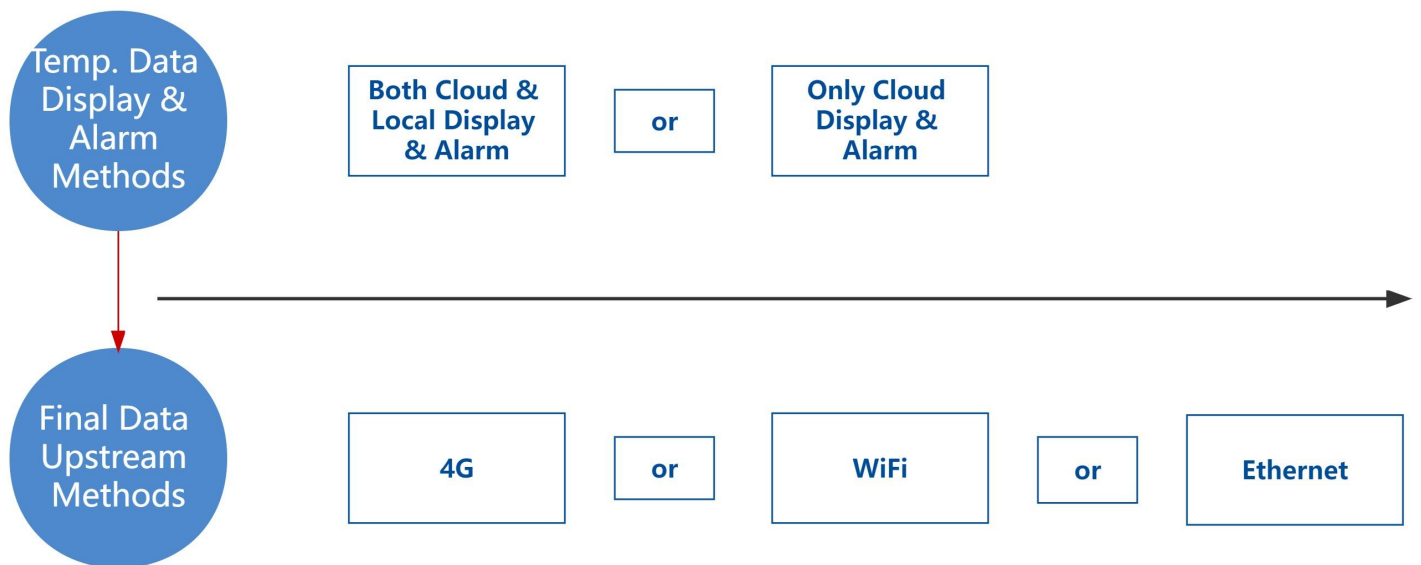


(4) Wireless Connection for easy installation

0. Solution Selection Logic

Judging by 2 factors. (I) **Final data upstream methods** which was decided by site network condition [4G, WiFi, Ethernet]. (II) The request for temperature&humidity data display&alarm methods - either **both Cloud&Local** Temp.&Humidity Display&Alarm or just **only Cloud** Temp.& Humidity Display&Alarm. The standard solutions could be divided into 5 basic solutions [Cloud display&alarm here means computer or mobile accessed IoT system platform for temperature&humidity data display and alarm]:

- (1) **Switchgear 4G IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution** [both Cloud&Local display&alarm, 4G final data upstream]
- (2) **Switchgear WiFi IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution** [both Cloud&Local display&alarm, WiFi final data upstream]
- (3) **Switchgear Ethernet IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution** [both Cloud&Local display&alarm, Ethernet final data upstream]
- (4) **Switchgear 4G IoT Cloud Wireless Temperature&Humidity Monitoring Solution** [only Cloud display&alarm, 4G final data upstream]
- (5) **Switchgear WiFi&Ethernet IoT Cloud Wireless Temperature&Humidity Monitoring Solution** [only Cloud display&alarm, WiFi/Ethernet final data upstream]



(1) Solution Selection Logic

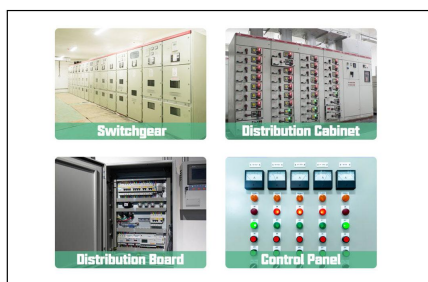
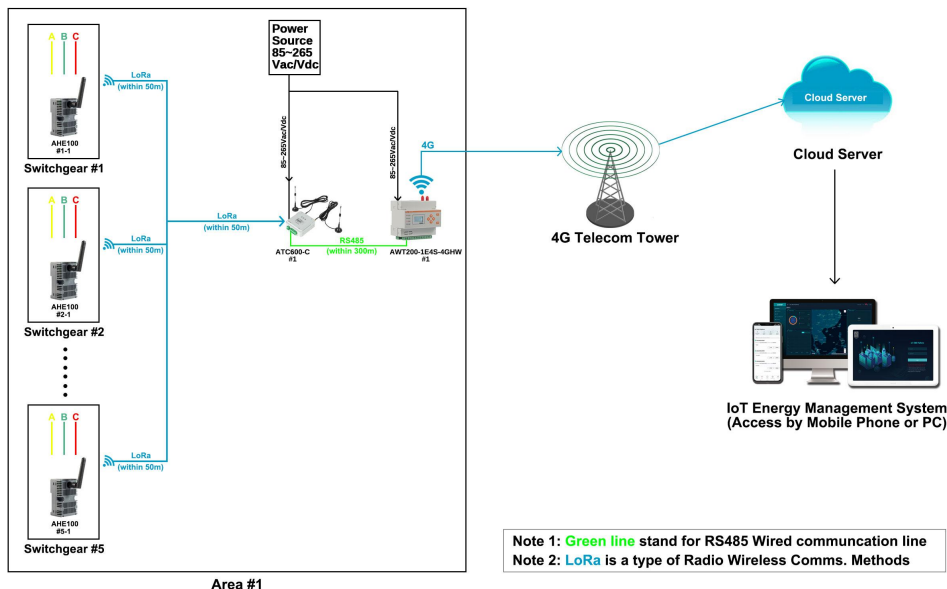
1. Scenario Preset [Switchgear 4G IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

- (1) The target was to monitor and alarm ambient temperature&humidity of 5 switchgears deployed in a single area. Both IoT cloud & local display and alarm of temperature& Humidity was requested.
- (2) Each switchgear require 1 pcs AHE100 for temperature&humidity monitoring.
- (3) Network with stable 4G Comms.

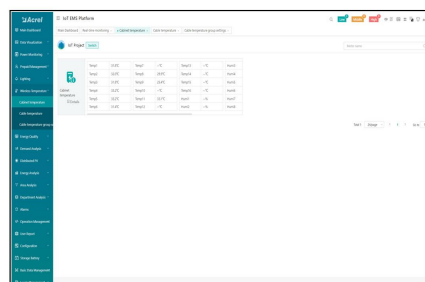
1. Devices Deployment [Switchgear 4G IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

Area #1 - Switchgear #1 ~ #5:

- 1* AWT200-1E4S-4GHW IoT Gateway [For further uploading the data from ATP007 to Acrel IoT Cloud System via 4G Comms.]
- 1* ATP007 Smart Touch Screen [For collecting, displaying and alarming for all temperature& humidity data collected by ATC600-C and further upload to AWT200-1E4S-4GHW gateway]
- 1* ATC600-C Wireless Temperature&Humidity Transceiver [For receiving the temperature& humidity data collected by AHE100 via LoRa and further upload to ATP007]
- 5* AHE100 Seires Wireless Temperature&Humidity Sensor [For monitoring the ambient temperature&humidity of switchgear and further upload the data to ATC600-C via LoRa]
- 1* KDYA-DG30-24K Power Supply Module [Paired with ATP007 for 85~265Vac/Vdc Power Supply]



Common Application Scenario Showcase

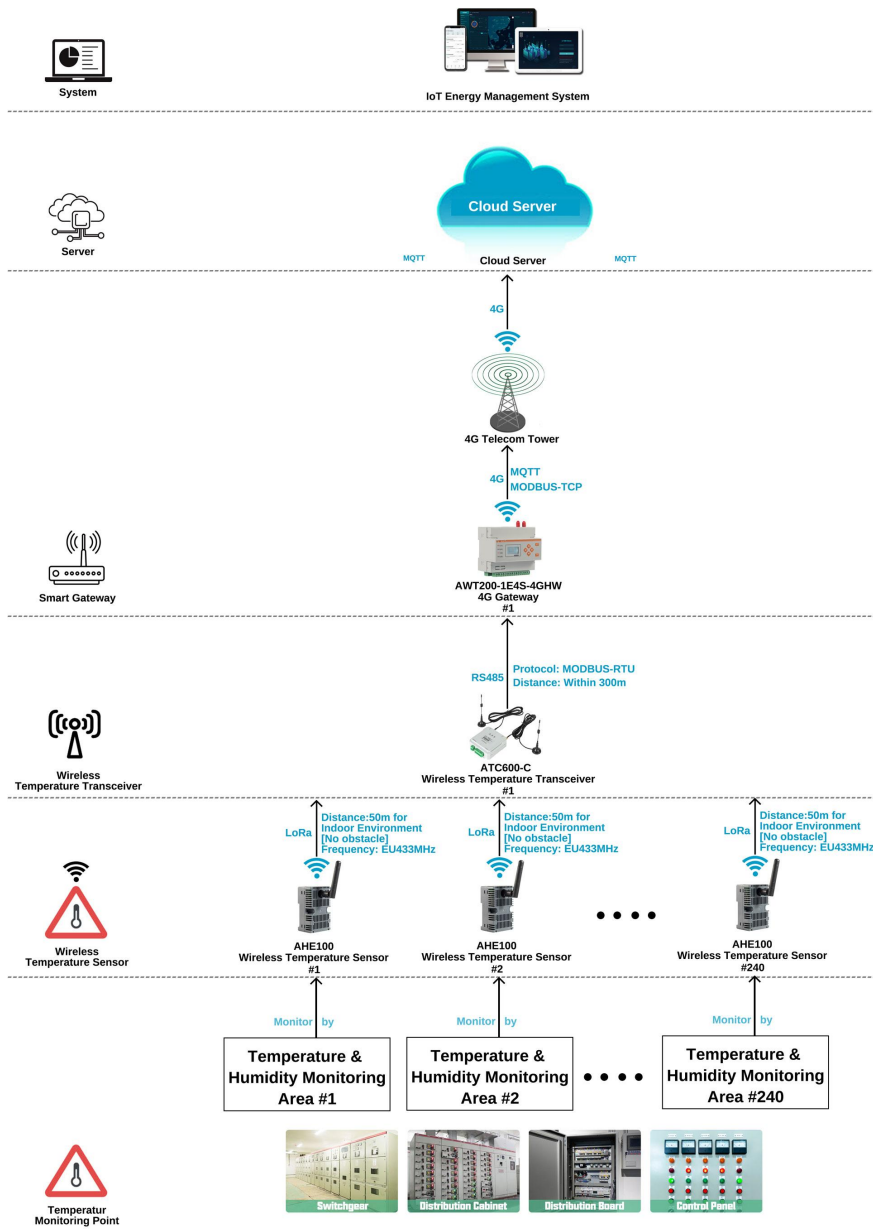


Acrel IoT Temperature&Humidity Monitoring System Showcase

(1) Devices deployment plan Illustraton

1. Comm. Structure & Logic [Switchgear 4G IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

- (1) Between **AHE100** wireless temperature&humidity sensor and **ATC600-C** wireless temperature transceiver, we are using a radio wireless communications called **LoRa**. The communication distance is within 50m [when in indoor environment with no obstacle]. The communication protocol is self defined protocol. [1 pcs **ATC600-C** can support up to 240 pcs **AHE100** if comms. distance allowed.]
- (2) Between **AWT200-1E4S-4GHW** IoT Gateway and **ATP007** touch screen, and between **ATP007** and **ATC600-C** wireless temperature&humidity transceiver, the communication will be **RS485** wired Comms. based on MODBUS-RTU protocol. The RS485 Comms. distance between these 2 devices was recommend to be within 300m when we are using 2x1.5mm² RVSP cable for RS485 connection wiring.
- (3) Between **AWT200-1E4S-4GHW** IoT gateway and **Acrel IoT system**, we are using 4G comms. methods based on either MQTT or MODBUS-TCP protocol.



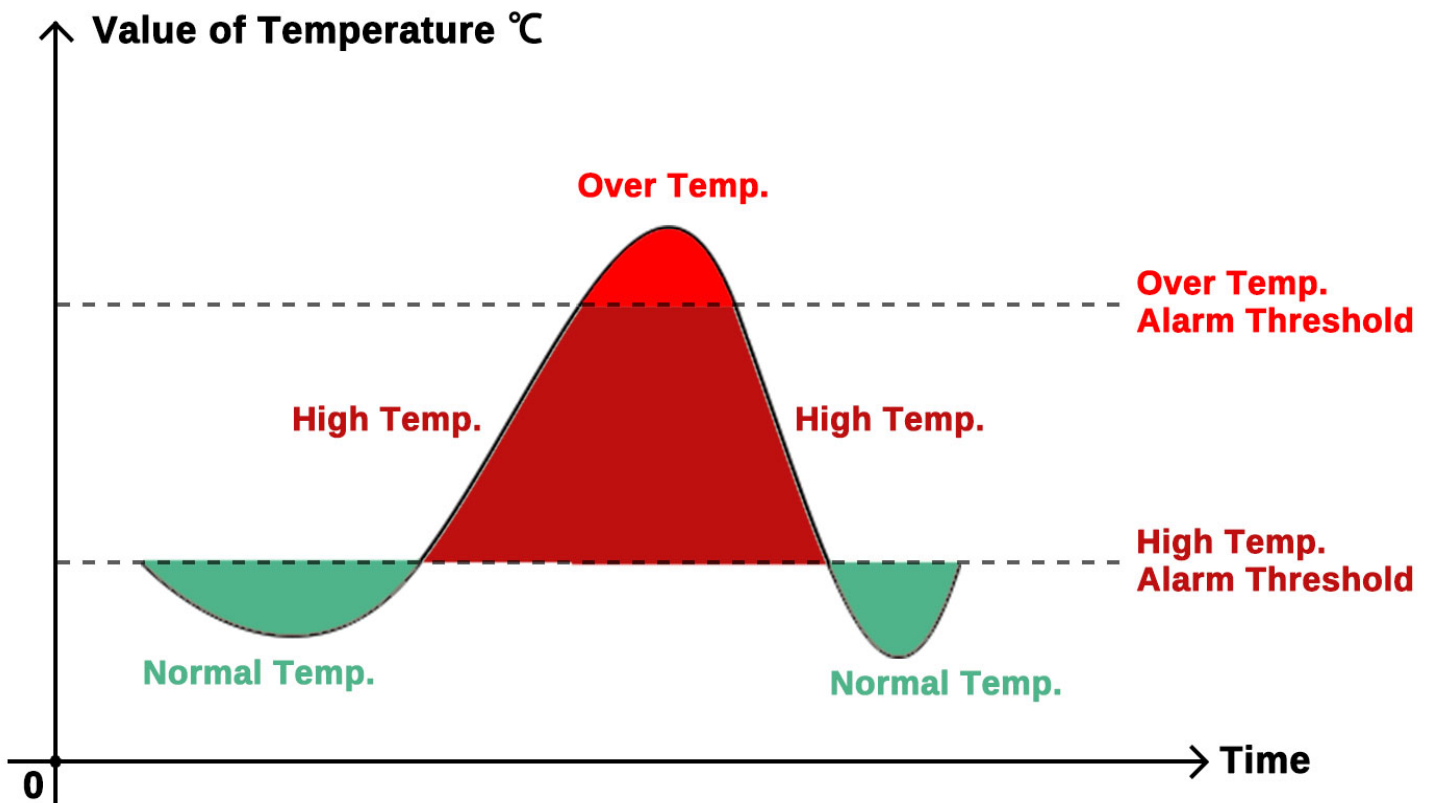
(1&2) Communication Structure

1. Local Device Temperature Alarm Function&Logic [Switchgear 4G IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

ATP Seires Temperature Display Devices support 2 types of major temperature alarm logic. When any of the below alarm logic was set and triggered, it will alarm the buzzer up.

(1) **High Temperature Alarm:** When temperature of certain monitoring node was higher than a certain preset threshold value, this will trigger high temperature alarm. [Normally used as a pre-alarm for mentioning related person to take care of temperature rising issue in monitoring places]

(2) **Over Temperature Alarm:** Similar like high temperature alarm, but over temperature alarm normally will be preset a higher alarm threshold. [Normally used for alarming the related person that there are severe temperature rising issue happened and need to be solved immediately]

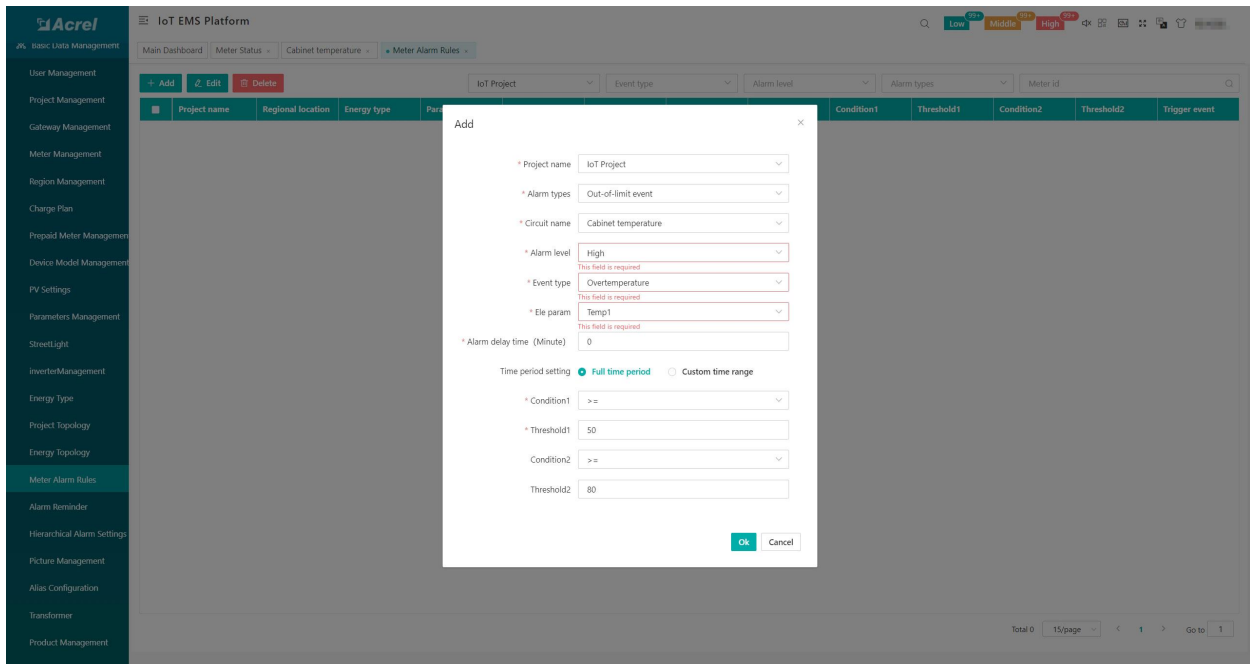


(1&2) High&Over Temperature Alarm

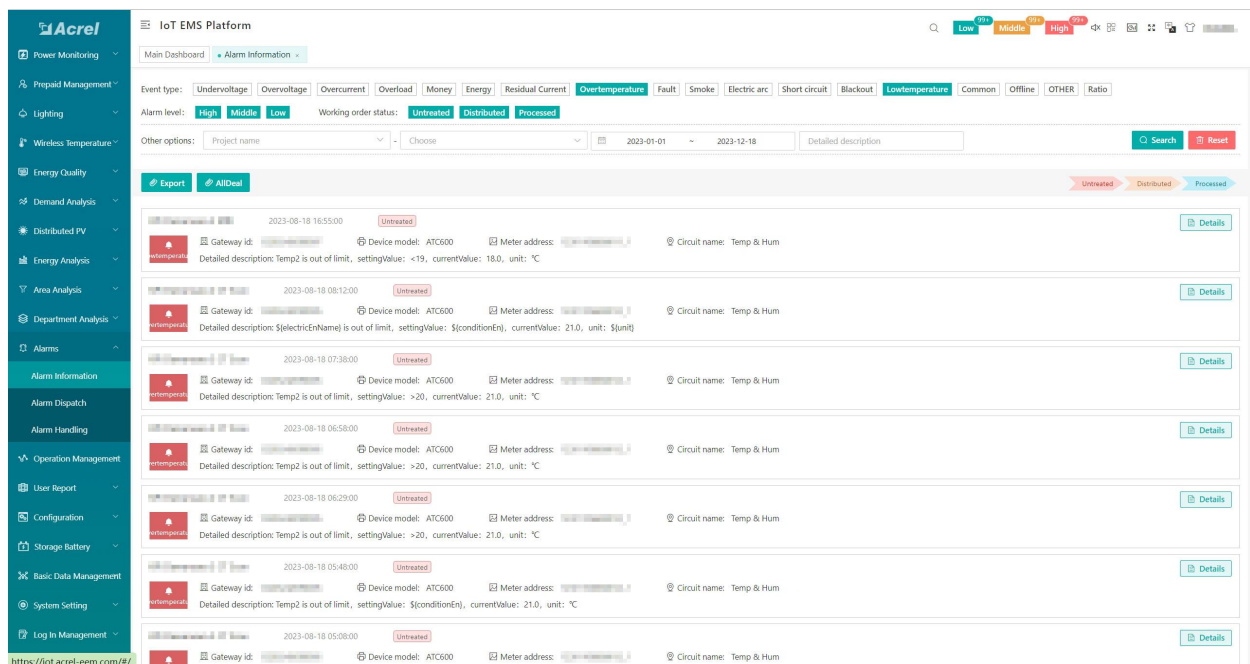
1. Cloud IoT Platform Temperature Alarm Function&Logic [Switchgear 4G IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

Once temperature&humidity data was collected by Acrel IoT Cloud System Platform. We could also do high/over temperature&humidity alarm rule setting on cloud system and receive alarm warning information via **WEB/APP/SMS/E-mail**. [SMS/E-mail warning will be only supported when using buy-out service of Acrel IoT System.]

(1) High/Over Temperature&Humidity Alarm: First we set the high/over temperature& humidity alarm rule on platform, then once the monitoring temperature&humidity was higher/lower than a certain preset threshold value, this will trigger the alarm and send the alarm warning information via assigned **WEB/APP/SMS/E-mail**.



(1) Set the over/high temperature alarm rule



(2) Receive and check alarm information

1. Hardware Devices Overview [Switchgear 4G IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

Model 1: AHE100 Wireless Ambient Temperature& Humidity Sensor

- Temperature Measuring Range: -30°C~85°C [±1°C]
- Humidity Measuring Range: 0~100%RH [±3%RH]
- Wireless Comms: LoRa Radio Comms. [433~510MHz, self-defined protocol]
- LoRa Comms. Distance: within 50m [when in indoor environment without obstacle]
- Power Supply: Built-in replacable battery [battery module CR2450, 3 years life span, when main body under 25°C operating temperature]
- Installation: DIN-rail



Model 2: ATC600-C Wireless Temperature Transceiver

- Wireless Comms. [Downstream]: LoRa Radio Comms. [433~510MHz, self-defined protocol]
- LoRa Comms. Distance: within 50m [when in indoor environment]
- Wired Comms. [Upstream]: 1-way RS485 [MODBUS-RTU protocol]
- Support: up to 240 pcs ATE300P Wireless Temperature Sensors based on LoRa
- Power Supply: 100~265Vac/Vdc
- Working Temperature: -20 ~ +55
- Working Humidity: <=95%



Model 3: ATP007 Temp. Display&Alarm Touch Screen

- Comms.: 2-way RS485 [one for upstream, one for downstream, MODBUS-RTU]; 1-way Ethernet [for upstream, MODBUS-TCP]
- Support: Display the temperature data of up to 240 pcs temperature monitoring points.
- Alarm: High-temperature alarm, over-temperature alarm.
- Power Supply: 24Vdc [±10%]; consumption 15W
- Screen Size: 7 inches [10 inches option available, module ATP010]
- Working Temperature: -10 ~ +55
- Working Humidity: <=95%



1. Hardware Devices Overview [Switchgear 4G IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

Input Range
100~240Vac/Vdc

Output Range
24Vdc

Model 4: KDYA-DG30-24K Power Supply Module

- Rated Input Range: 100~240Vac/Vdc
- Rated Output Range: 24Vdc
- Application: paired with ATP007 for power supply input



IoT Gateway
MQTT&MODBUS

4G Upstream
RS485 Downstream


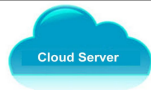





Model 5: AWT200-1E4S-4GHW IoT Smart Gateway

- Upstream Comms.: 4G&Ethernet Comms. [MQTT&MODBUS-TCP protocol]
- Downstream Comms.: 4-way RS485 [MODBUS-RTU protocol]
- Power Supply: 85~265Vac/Vdc
- Working Temperature: -20 ~ +55
- Working Humidity: <=95%



1. Overall Model Selection&Quotation [Switchgear 4G IoT Cloud&Local Wireless Temperature& Humidity Monitoring Solution]

(1) This Quotation doesn't include freight charge. To gain a complete quotation, please refer the actual quantity that you want to request for the actual order, once we receiving it. We will issue a Official Proforma Invoice with Acrel Stamps on it for later procedure.

System Software					
Name	Description	System Price	Remark (Choose Host Service or Buy-out Service after 3-month Free Trial of Cloud IoT System)		
 Acrel Cloud IoT Energy Management System	1.System support all the meters across the country whose data has been sent to cloud server through 4G,WiFi or Ethernet . 2.Remote meter reading and data collection. 3.Provide IoT APP for mobile phone side and IoT WEB for PC side. 4.Generate energy data report of daily, monthly and annually period with year-on-year and period-on-period energy analysis. 5.Provide various alarm function to ensure a stable operation of the system and protect your property. 6.Offer 3-month free trial of system with full technical support as for a test phase or pilot project.	\$0 (recommended in pilot project) \$xxx/Year (For 5 Points) (Price for Host Service Only, recommended in pilot project) \$xxxx/Permanent (Limitless Points) (Price for Buy-out Service Only,recommended in late project)	3-month Free Trail (Users don't need to rent a cloud server) \$xx to buy Hosting Service for 1 monitoring points connected to the system 1 year (Users don't need to rent a cloud server) 1-time charging of \$xxxx for Buy-out Service of permanent use (Limitless monitoring points and a cloud server need to be rent by users)		
Cloud Server					
Name	Description	Server Renting Price (For Reference Only)	Remark		
 Cloud Server	1.Cloud Server could be rent on the cloud server provider like Amazon Cloud. 2.Users of Cloud IoT Energy Management System only need to rent cloud server when they choose buy-out service of our Cloud IoT System . And if they are using hosting service or 3-month free trial of our Cloud IoT System, we will use our own cloud server which has been rent on Amazon so that users don't need to rent a cloud server. 3.The quotation of Cloud Server is only a reference price that we have rent on Amazon Cloud.	According to Specs of Rented Cloud Server	Below cloud server specs could support 1000-2000 monitorings points connected to the system (Server: 8 core 16G Operation System: windows server 2016)		
Smart IoT Gateway					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Smart Gateway AWT200-1E4S-4GHW	Upstream: 4G, Ethernet [MQTT, MODBUS, etc] Downstream: RS485 (MODBUS-RTU) Support: up to 80-100 RS485 Devices within 400m using RS485 Wired Communication Adjustment: Via RJ45 or RS485 Port. Power Supply: 85-265Vac/Vdc (via power adapter) HS Code: 8517699000	1 pcs	/	/
Local Temperature Display&Alarm Device					
	Touch Screen ATP007	Comms.: 2-way RS485 (MODBUS-RTU); 1-way Ethernet [MODBUS-TCP] Support: Up to 240 ATE series Transceiver. Auxiliary Power Supply: 24Vdc HS Code: 8471609000	1 pcs	/	/
	Power Supply Module KDYA-DG30-24K	Application: Paired with ATP007Kt for 85-265Vac Power Supply Input Input: 85-265Vac Output: 24Vdc HS Code: 8504409999	1 pcs	/	/
Wireless Temperature Transceiver					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Temperature Transceiver ATC600-C	Upstream: RS485 (MODBUS-RTU) Downstream: LoRa (433-510 MHz) Support: Up to 240 ATE300P series wireless temperature sensors using LoRa communication. Power Supply: 100-265Vac HS Code: 9025191010	1 pcs	/	/
Wireless Temperature Sensor					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Temperature&Humidity Sensor AHE100	Temperature Measuring Range: -30℃~85℃ [±1℃] Humidity Measuring Range: 0~100%RH [±3%RH] Communication: LoRa (EU433 MHz) Power Supply: Built-in replaceable battery HS Code: 9025800090	5 pcs	/	/

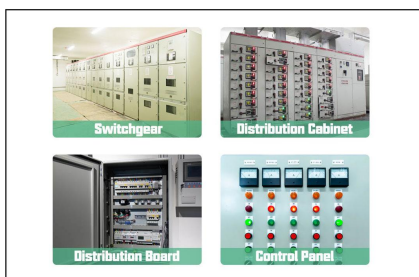
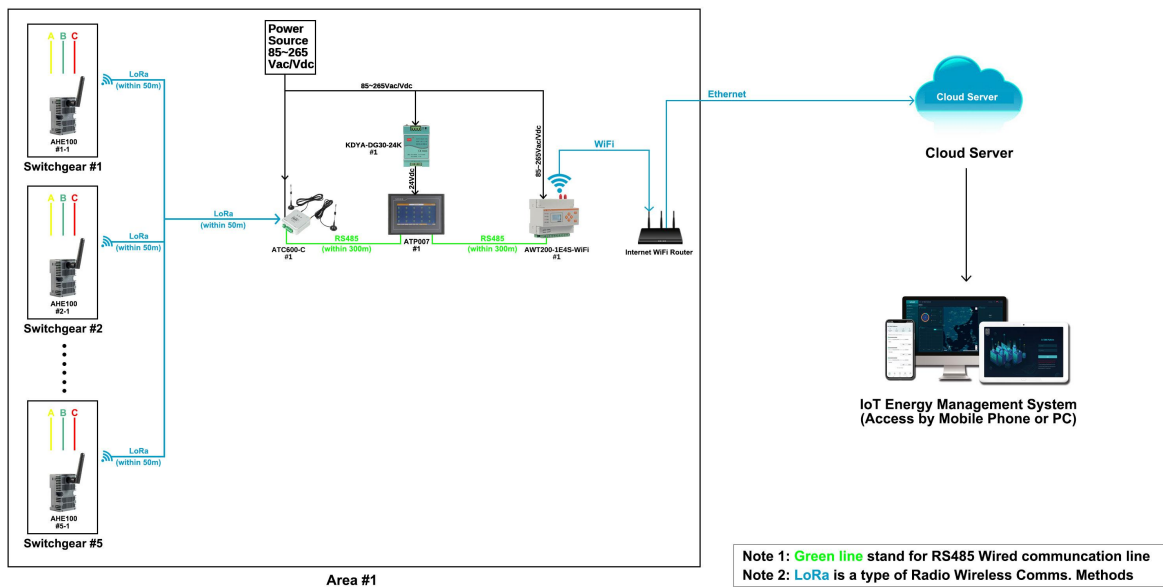
2. Scenario Preset [Switchgear WiFi IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

- (1) The target was to monitor and alarm ambient temperature&humidity of 5 switchgears deployed in a single room. Both IoT cloud & local display and alarm of temperature&Humidity was requested.
- (2) Each switchgear require 1 pcs AHE100 for temperature&humidity monitoring.
- (3) Network with stable WiFi Comms.

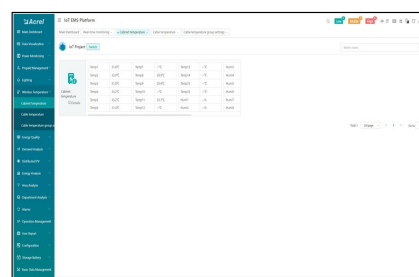
2. Devices Deployment [Switchgear WiFi IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

Area #1 - Switchgear #1 ~ #5:

- 1* AWT200-1E4S-WiFi IoT Gateway [For further uploading the data from ATP007 to Acrel IoT Cloud System via WiFi Comms.]
- 1* ATP007 Smart Touch Screen [For collecting, displaying and alarming for all temperature& humidity data collected by ATC600-C and further upload to AWT200-1E4S-4GHW gateway]
- 1* ATC600-C Wilress Temperature&Humidity Transceiver [For receiving the temperature& humidity data collected by AHE100 via LoRa and furture upload to ATP007]
- 5* AHE100 Seires Wireless Temperature&Humidity Sensor [For monitoring the ambient temperature&humidity of switchgear and further upload the data to ATC600-C via LoRa]
- 1* KDYA-DG30-24K Power Supply Module [Paired with ATP007 for 85~265Vac/Vdc Power Supply]



Common Application Scenario Showcase

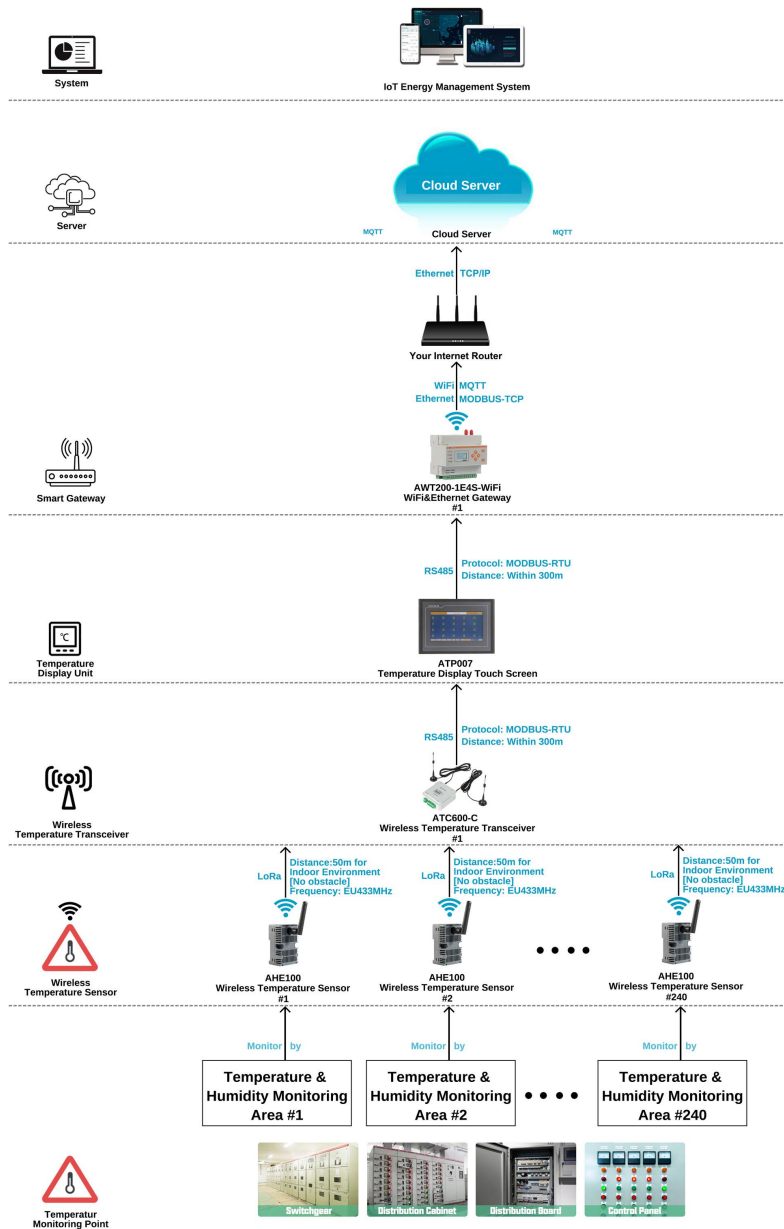


Acrel IoT Temperature&Humidity Monitoring System Showcase

(1) Devices deployment plan Illustraton

2. Comm. Structure & Logic [Switchgear WiFi IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

- (1) Between **AHE100** wireless temperature&humidity sensor and **ATC600-C** wireless temperature transceiver, we are using a radio wireless communications called **LoRa**. The communication distance is within 50m [when in indoor environment with no obstacle]. The communication protocol is self defined protocol. [1 pcs **ATC600-C** can support up to 240 pcs **AHE100** if comms. distance allowed.]
- (2) Between **AWT200-1E4S-WiFi** IoT Gateway and **ATP007** touch screen, and between **ATP007** and **ATC600-C** wireless temperature&humidity transceiver, the communication will be **RS485** wired Comms. based on **MODBUS-RTU** protocol. The RS485 Comms. distance between these 2 devices was recommend to be within 300m when we are using 2x1.5mm² RVSP cable for RS485 connection wiring.
- (3) Between **AWT200-1E4S-WiFi** IoT gateway and **Acrel IoT system**, we are using **WiFi** comms. methods based on either **MQTT** or **MODBUS-TCP** protocol.



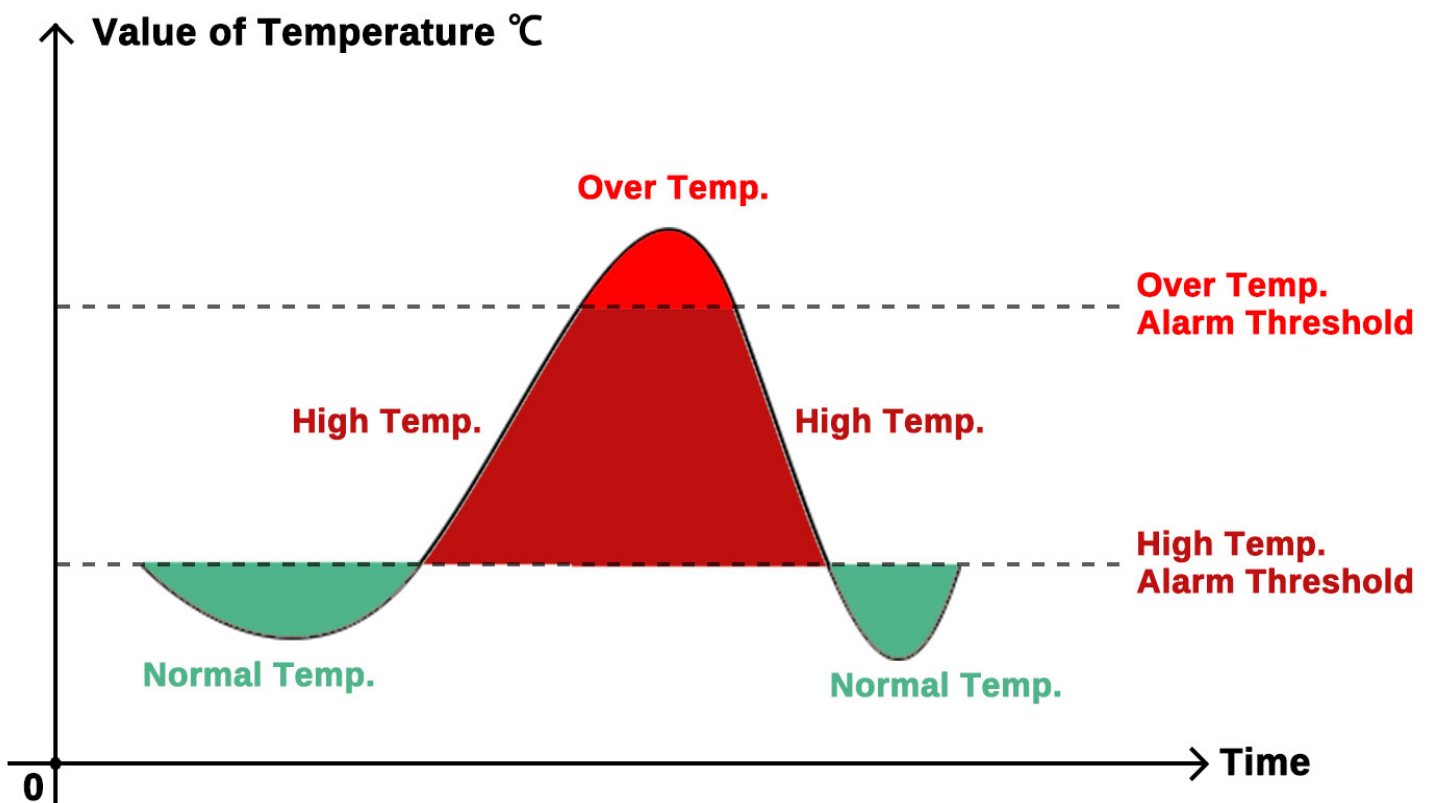
(1&2) Communication Structure

2. Local Device Temperature Alarm Function&Logic [Switchgear WiFi IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

ATP Seires Temperature Display Devices support 2 types of major temperature alarm logic. When any of the below alarm logic was set and triggered, it will alarm the buzzer up.

(1) High Temperature Alarm: When temperature of certain monitoring node was higher than a certain preset threshold value, this will trigger high temperature alarm. [Normally used as a pre-alarm for mentioning related person to take care of temperature rising issue in monitoring places]

(2) Over Temperature Alarm: Similar like high temperature alarm, but over temperature alarm normally will be preset a higher alarm threshold. [Normally used for alarming the related person that there are severe temperature rising issue happened and need to be solved immediately]

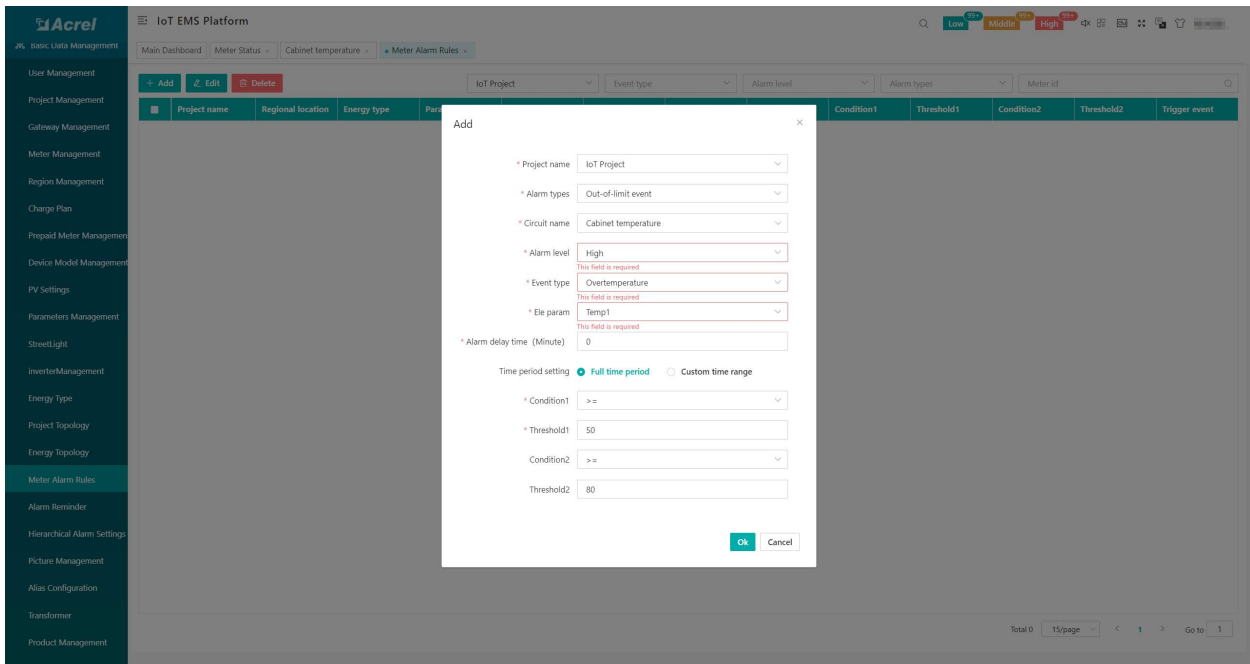


(1&2) High&Over Temperature Alarm

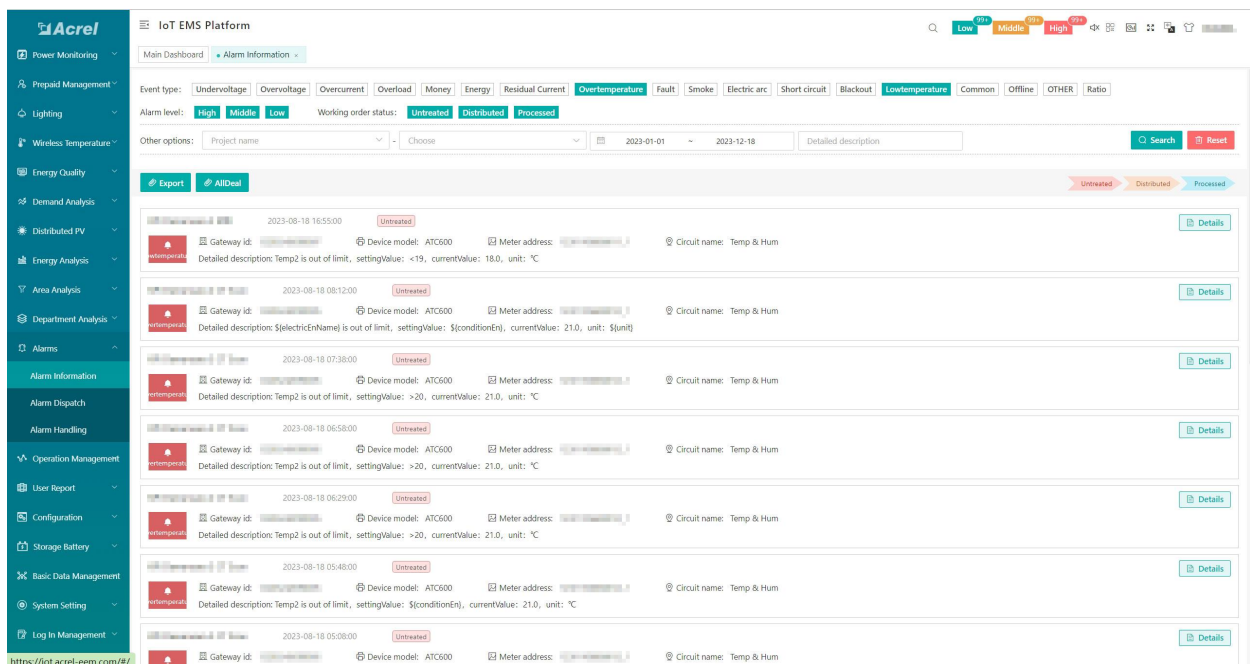
2. Cloud IoT Platform Temperature Alarm Function&Logic [Switchgear WiFi IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

Once the temperature&humidity data was collected by Acrel IoT Cloud System Platform. We could also do high/over temperature&humidity alarm rule setting on cloud system and receive high/over temperature alarm warning information via **WEB/APP/SMS/E-mail**. [SMS/E-mail warning will be only supported when using buy-out service of Acrel IoT System.]

(1) High/Over Temperature&Humidity Alarm: First we set the high/over temperature& humidity alarm rule on platform, then once the monitoring temperature&humidity was higher/lower than a certain preset threshold value, this will trigger the alarm and send the alarm warning information via assigned **WEB/APP/SMS/E-mail**.



(1) Set the over/high temperature alarm rule



(2) Receive and check alarm information

1. Hardware Devices Overview [Switchgear WiFi IoT Cloud&Local Wireless Temperature& Humidity Monitoring Solution]

Model 1: AHE100 Wireless Ambient Temperature& Humidity Sensor

- Temperature Measuring Range: -30°C~85°C [±1°C]
- Humidity Measuring Range: 0~100%RH [±3%RH]
- Wireless Comms: LoRa Radio Comms. [433~510MHz, self-defined protocol]
- LoRa Comms. Distance: within 50m [when in indoor environment without obstacle]
- Power Supply: Built-in replacable battery [battery module CR2450, 3 years life span, when main body under 25°C operating temperature]
- Installation: DIN-rail



Model 2: ATC600-C Wireless Temperature Transceiver

- Wireless Comms. [Downstream]: LoRa Radio Comms. [433~510MHz, self-defined protocol]
- LoRa Comms. Distance: within 50m [when in indoor environment]
- Wired Comms. [Upstream]: 1-way RS485 [MODBUS-RTU protocol]
- Support: up to 240 pcs ATE300P Wireless Temperature Sensors based on LoRa
- Power Supply: 100~265Vac/Vdc
- Working Temperature: -20 ~ +55
- Working Humidity: <=95%



Model 3: ATP007 Temp. Display&Alarm Touch Screen

- Comms.: 2-way RS485 [one for upstream, one for downstream, MODBUS-RTU]; 1-way Ethernet [for upstream, MODBUS-TCP]
- Support: Display the temperature data of up to 240 pcs temperature monitoring points.
- Alarm: High-temperature alarm, over-temperature alarm.
- Power Supply: 24Vdc [±10%]; consumption 15W
- Screen Size: 7 inches [10 inches option available, module ATP010]
- Working Temperature: -10 ~ +55
- Working Humidity: <=95%

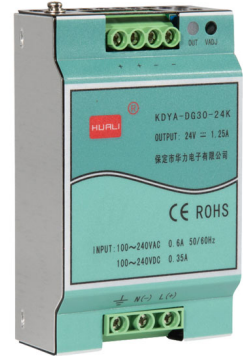


2. Hardware Devices Overview [Switchgear WiFi IoT Cloud&Local Wireless Temperature& Humidity Monitoring Solution]

Model 4: KDYA-DG30-24K Power Supply Module

- Rated Input Range: 100~240Vac/Vdc
- Rated Output Range: 24Vdc
- Application: paired with ATP007 for power supply input

Input Range	Output Range
100~240Vac/Vdc	24Vdc



Model 5: AWT200-1E4S-WiFi IoT Smart Gateway


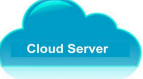





- Upstream Comms.: WiFi&Ethernet Comms. [MQTT& MODBUS-TCP protocol]
- Downstream Comms.: 4-way RS485 [MODBUS-RTU protocol]
- Power Supply: 85~265Vac/Vdc
- Working Temperature: -20 ~ +55
- Working Humidity: <=95%

IoT Gateway	WiFi&Ethernet
MQTT&MODBUS	RS485 Downstream



2. Overall Model Selection&Quotation [Switchgear WiFi IoT Cloud&Local Wireless Temperature& Humidity Monitoring Solution]

(1) This Quotation doesn't include freight charge. To gain a complete quotation, please refer the actual quantity that you want to request for the actual order, once we receiving it. We will issue a Official Proforma Invoice with Acrel Stamps on it for later procedure.

System Software					
Name	Description	System Price	Remark (Choose Host Service or Buy-out Service after 3-month Free Trial of Cloud IoT System)		
 Acrel Cloud IoT Energy Management System	1.System support all the meters across the country whose data has been sent to cloud server through 4G,WiFi or Ethernet . 2.Remote meter reading and data collection. 3.Provide IoT APP for mobile phone side and IoT WEB for PC side. 4.Generate energy data report of daily, monthly and annually period with year-on-yeay and period-on-period energy analysis. 5.Provide various alarm function to ensure a stable operation of the system and protect your property. 6.Offer 3-month free trial of system with full technical support as for a test phase or pilot project.	\$0 (recommended in pilot project)	3-month Free Trail (Users don't need to rent a cloud server)		
		\$xxx/Year (For 5 Points) (Price for Host Service Only, recommended in pilot project)	\$xx to buy Hosting Service for 1 monitoring points connected to the system 1 year (Users don't need to rent a cloud server)		
		\$xxxx/Permanent (Limitless Points) (Price for Buy-out Service Only,recommended in late project)	1-time charging of \$xxxx for Buy-out Service of permanent use (Limitless monitoring points and a cloud server need to be rent by users)		
Cloud Server					
Name	Description	Server Renting Price (For Reference Only)	Remark		
 Cloud Server Cloud Server	1.Cloud Server could be rent on the cloud server provider like Amazon Cloud. 2.Users of Cloud IoT Energy Management System only need to rent cloud server when they choose buy-out service of our Cloud IoT System . And if they are using hosting service or 3-month free trial of our Cloud IoT System , we will use our own cloud server which has been rent on Amazon so that users don't need to rent a cloud server. 3.The quotation of Cloud Server is only a reference price that we have rent on Amazon Cloud.	According to Specs of Rented Cloud Server	Below cloud server specs could support 1000~2000 monitoings points connected to the system (Server: 8 core 16G Operation System: windows server 2016)		
Smart IoT Gateway					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Smart Gateway AWT200-1E4S-WiFi	Upstream: WiFi, Ethernet [MQTT, MODBUS, etc] Downstream: RS485 (MODBUS-RTU) Support: up to 80~100 RS485 Devices within 400m using RS485 Wired Communication Adjustment: Via RJ45 or RS485 Port. Power Supply: 85~265Vac/Vdc (via power adppter) HS Code: 8517699000	1 pcs	/	/
Local Temperature Display&Alarm Device					
	Touch Screen ATP007	Comms.: 2-way RS485 (MODBUS-RTU); 1-way Ethernet [MODBUS-TCP] Support: Up to 240 ATE series Transceiver. Auxiliary Power Suptply: 24Vdc HS Code: 8471609000	1 pcs	/	/
	Power Supply Module KDYA-DG30-24K	Application: Paired with ATP007Kt for 85~265Vac Power Supply Input Input: 85~265Vac Output: 24Vdc HS Code: 8504409999	1 pcs	/	/
Wireless Temperature Transceiver					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Temperature Transceiver ATC600-C	Upstream: RS485 (MODBUS-RTU) Downstream: LoRa (433~510 MHz) Support: Up to 240 ATE300P series wireless temperature sensors using LoRa communication. Power Supply: 100~265Vac HS Code: 9025191010	1 pcs	/	/
Wireless Temperature Sensor					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Temperature&Humidity Sensor AHE100	Temperature Measuring Range: -30℃~85℃ [±1℃] Humidity Measuring Range: 0~100%RH [±3%RH] Communication: LoRa (EU433 MHz) Power Supply: Built-in replaceable battery HS Code: 9025800090	5 pcs	/	/

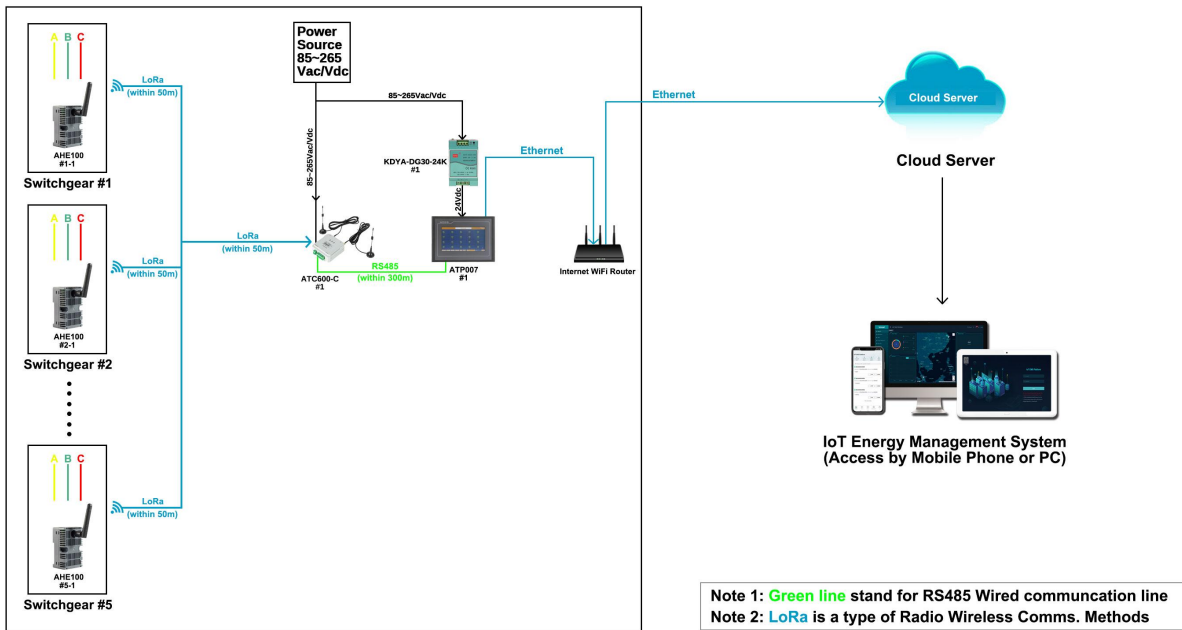
3. Scenario Preset [Switchgear Ethernet IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

- (1) The target was to monitor and alarm ambient temperature&humidity of 5 switchgears deployed in a single room. Both IoT cloud & local display and alarm of temperature&Humidity was requested.
- (2) Each switchgear require 1 pcs AHE100 for temperature&humidity monitoring.
- (3) Network with stable Ethernet Comms.

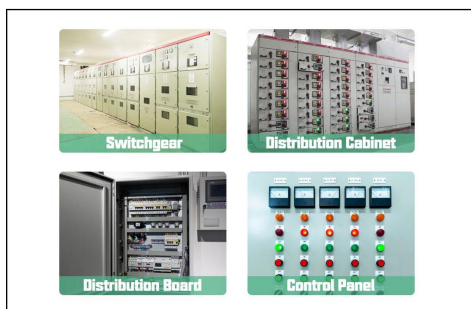
3. Devices Deployment [Switchgear Ethernet IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

Area #1 - Switchgear #1 ~ #5:

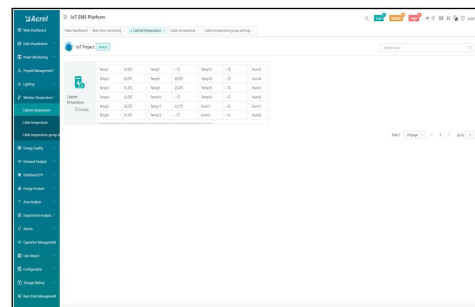
- 1* ATP007 Smart Touch Screen [For collecting, displaying and alarming for all temperature& humidity data collected by ATC600-C and further upload to Acrel IoT System via Ethernet]
- 1* ATC600-C Wireless Temperature&Humidity Transceiver [For receiving the temperature& humidity data collected by AHE100 via LoRa and future upload to ATP007]
- 5* AHE100 Seires Wireless Temperature&Humidity Sensor [For monitoring the ambient temperature&humidity of switchgear and further upload the data to ATC600-C via LoRa]
- 1* KDYA-DG30-24K Power Supply Module [Paired with ATP007 for 85~265Vac/Vdc Power Supply]



Area #1



Common Application Scenario Showcase

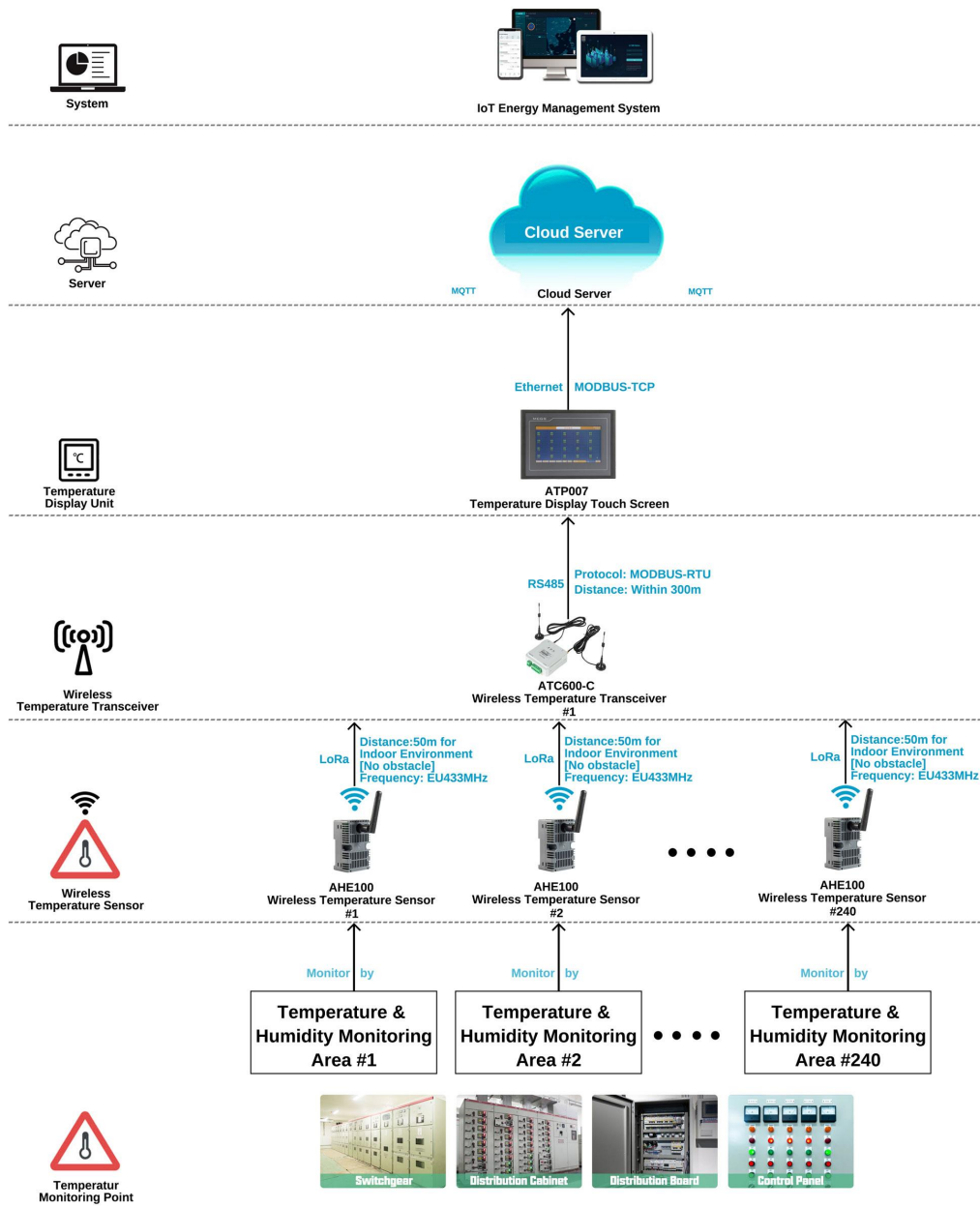


Acrel IoT Temperature&Humidity Monitoring System Showcase

(1) Devices deployment plan Illustraton

3. Comm. Structure & Logic [Switchgear Ethernet IoT Cloud&Local Wireless Temperature&Humidity Monitoring Solution]

- (1) Between **AHE100** wireless temperature&humidity sensor and **ATC600-C** wireless temperature transceiver, we are using a radio wireless communications called **LoRa**. The communication distance is within 50m [when in indoor environment with no obstacle]. The communication protocol is self defined protocol. [1 pcs ATC600-C can support up to 240 pcs AHE100 if comms. distance allowed.]
- (2) Between **ATP007** and **ATC600-C** wireless temperature&humidity transceiver, the communication will be **RS485** wired Comms. based on MODBUS-RTU protocol. The RS485 Comms. distance between these 2 devices was recommend to be within 300m when we are using 2x1.5mm² RVSP cable for RS485 connection wiring.
- (3) Between **ATP007** Smart Touch Screen and **Acrel IoT system**, we are using **WiFi** comms. methods based on MODBUS-TCP protocol.



(1&2) Communication Structure

3. Hardware Devices Overview [Switchgear Ethernet IoT Cloud&Local Wireless Temperature& Humidity Monitoring Solution]

Model 1: AHE100 Wireless Ambient Temperature& Humidity Sensor

- Temperature Measuring Range: -30°C~85°C [±1°C]
- Humidity Measuring Range: 0~100%RH [±3%RH]
- Wireless Comms: LoRa Radio Comms. [433~510MHz, self-defined protocol]
- LoRa Comms. Distance: within 50m [when in indoor environment without obstacle]
- Power Supply: Built-in replacable battery [battery module CR2450, 3 years life span, when main body under 25°C operating temperature]
- Installation: DIN-rail



Model 2: ATC600-C Wireless Temperature Transceiver

- Wireless Comms. [Downstream]: LoRa Radio Comms. [433~510MHz, self-defined protocol]
- LoRa Comms. Distance: within 50m [when in indoor environment]
- Wired Comms. [Upstream]: 1-way RS485 [MODBUS-RTU protocol]
- Support: up to 240 pcs ATE300P Wireless Temperature Sensors based on LoRa
- Power Supply: 100~265Vac/Vdc
- Working Temperature: -20 ~ +55
- Working Humidity: <=95%



Model 3: ATP007 Temp. Display&Alarm Touch Screen

- Comms.: 2-way RS485 [one for upstream, one for downstream, MODBUS-RTU]; 1-way Ethernet [for upstream, MODBUS-TCP]
- Support: Display the temperature data of up to 240 pcs temperature monitoring points.
- Alarm: High-temperature alarm, over-temperature alarm.
- Power Supply: 24Vdc [±10%]; consumption 15W
- Screen Size: 7 inches [10 inches option available, module ATP010]
- Working Temperature: -10 ~ +55
- Working Humidity: <=95%



3. Hardware Devices Overview [Switchgear Ethernet IoT Cloud&Local Wireless Temperature& HumidityMonitoring Solution]

Input Range
100~240Vac/Vdc

Output Range
24Vdc


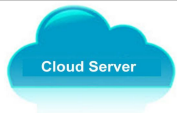




Model 4: KDYA-DG30-24K Power Supply Module

- Rated Input Range: 100~240Vac/Vdc
- Rated Output Range: 24Vdc
- Application: paired with ATP007 for power supply input



3. Overall Model Selection&Quotation [Switchgear Ethernet IoT Cloud&Local Wireless Temperature &Humidity Monitoring Solution]

(1) This Quotation doesn't include freight charge. To gain a complete quotation, please refer the actual quantity that you want to request for the actual order, once we receiving it. We will issue a Official Proforma Invoice with Acrel Stamps on it for later procedure.

System Software					
Name	Description	System Price	Remark (Choose Host Service or Buy-out Service after 3-month Free Trial of Cloud IoT System)		
 Acrel Cloud IoT Energy Management System	1.System support all the meters across the country whose data has been sent to cloud server through 4G,WiFi or Ethernet . 2.Remote meter reading and data collection. 3.Provide IoT APP for mobile phone side and IoT WEB for PC side. 4.Generate energy data report of daily, monthly and annually period with year-on-yeay and period-on-period energy analysis. 5.Provide various alarm function to ensure a stable operation of the system and protect your property. 6.Offer 3-month free trial of system with full technical support as for a test phase or pilot project.	\$0 (recommended in pilot project)	3-month Free Trail (Users don't need to rent a cloud server)		
		\$xxx/Year (For 5 Points) (Price for Host Service Only, recommended in pilot project)	\$xx to buy Hosting Service for 1 monitoring points connected to the system 1 year (Users don't need to rent a cloud server)		
		\$xxxx/Permanent (Limitless Points) (Price for Buy-out Service Only,recommended in late project)	1-time charging of \$xxxx for Buy-out Service of permanent use (Limitless monitoring points and a cloud server need to be rent by users)		
Cloud Server					
Name	Description	Server Renting Price (For Reference Only)	Remark		
 Cloud Server	1.Cloud Server could be rent on the cloud server provider like Amazon Cloud. 2.Users of Cloud IoT Energy Management System only need to rent cloud server when they choose buy-out service of our Cloud IoT System . And if they are using hosting service or 3-month free trial of our Cloud IoT System, we will use our own cloud server which has been rent on Amazon so that users don't need to rent a cloud server. 3.The quotation of Cloud Server is only a reference price that we have rent on Amazon Cloud.	According to Specs of Rented Cloud Server	Below cloud server specs could support 1000~2000 monitoings points connected to the system (Server: 8 core 16G Operation System: windows server 2016)		
Local Temperature Display&Alarm Device					
 Touch Screen ATP007	Comms.: 2-way RS485 (MODBUS-RTU); 1-way Ethernet [MODBUS-TCP] Support: Up to 240 ATE series Transceiver. Auxiliary Power Suppoly: 24Vdc HS Code: 8471609000	1 pcs	/	/	
 Power Supply Module KDYA-DG30-24K	Application: Paired with ATP007Kt for 85~265Vac Power Supply Input Input: 85~265Vac Output: 24Vdc HS Code: 8504409999	1 pcs	/	/	
Wireless Temperature Transceiver					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
 Temperature Transceiver ATC600-C		Upstream: RS485 (MODBUS-RTU) Downstream: LoRa (433~510 MHz) Support: Up to 240 ATE300P series wireless temperature sensors using LoRa communication. Power Supply: 100~265Vac HS Code: 9025191010	1 pcs		
Wireless Temperature Sensor					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
 Temperature&Humidity Sensor AHE100		Temperature Measuring Range: -30℃~85℃ [±1℃] Humidity Measuring Range: 0~100%RH [±3%RH] Communication: LoRa (EU433 MHz) Power Supply: Built-in replaceable battery HS Code: 9025800090	5 pcs		

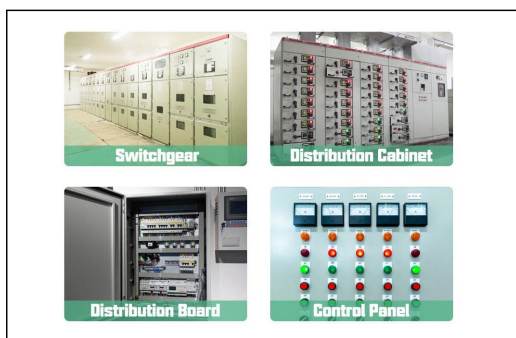
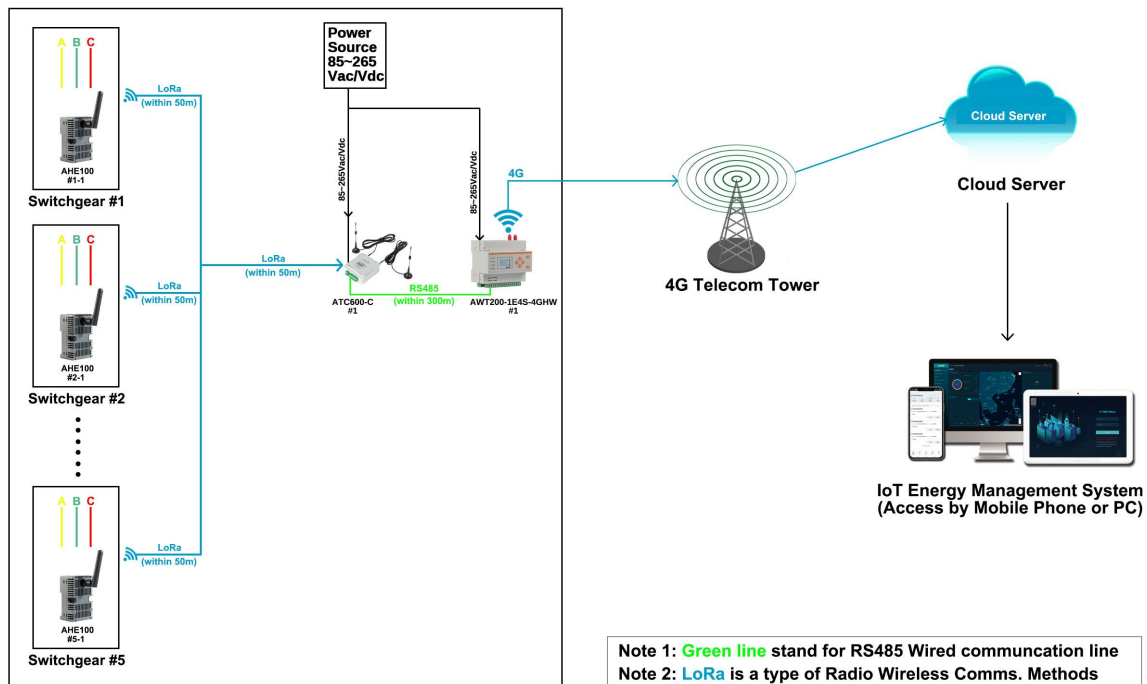
4. Scenario Preset [Switchgear 4G IoT Cloud Wireless Temperature&Humidity Monitoring Solution]

- (1) The target was to monitor and alarm ambient temperature&humidity of 5 switchgears deployed in a single area. Only IoT cloud display and alarm of temperature&humidity was requested.
- (2) Each switchgear require 1 pcs AHE100 for temperature&humidity monitoring.
- (3) Network with stable 4G Comms.

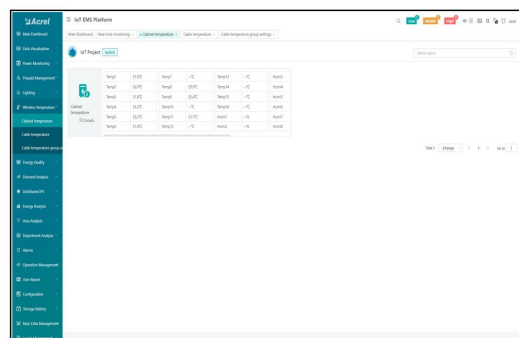
4. Devices Deployment [Switchgear 4G IoT Cloud Wireless Temperature&Humidity Monitoring Solution]

Area #1 - Switchgear #1 ~ #5:

- 1* AWT200-1E4S-4GHW IoT Gateway [For further uploading the data from ATC600-C to Acrel IoT Cloud System via 4G Comms.]
- 1* ATC600-C Wireless Temperature&Humidity Transceiver [For receiving the temperature& humidity data collected by AHE100 via LoRa and future upload to AWT200-1E4S-4GHW]
- 5* AHE100 Series Wireless Temperature&Humidity Sensor [For monitoring the ambient temperature&humidity of switchgear and further upload the data to ATC600-C via LoRa]



Common Application Scenario Showcase

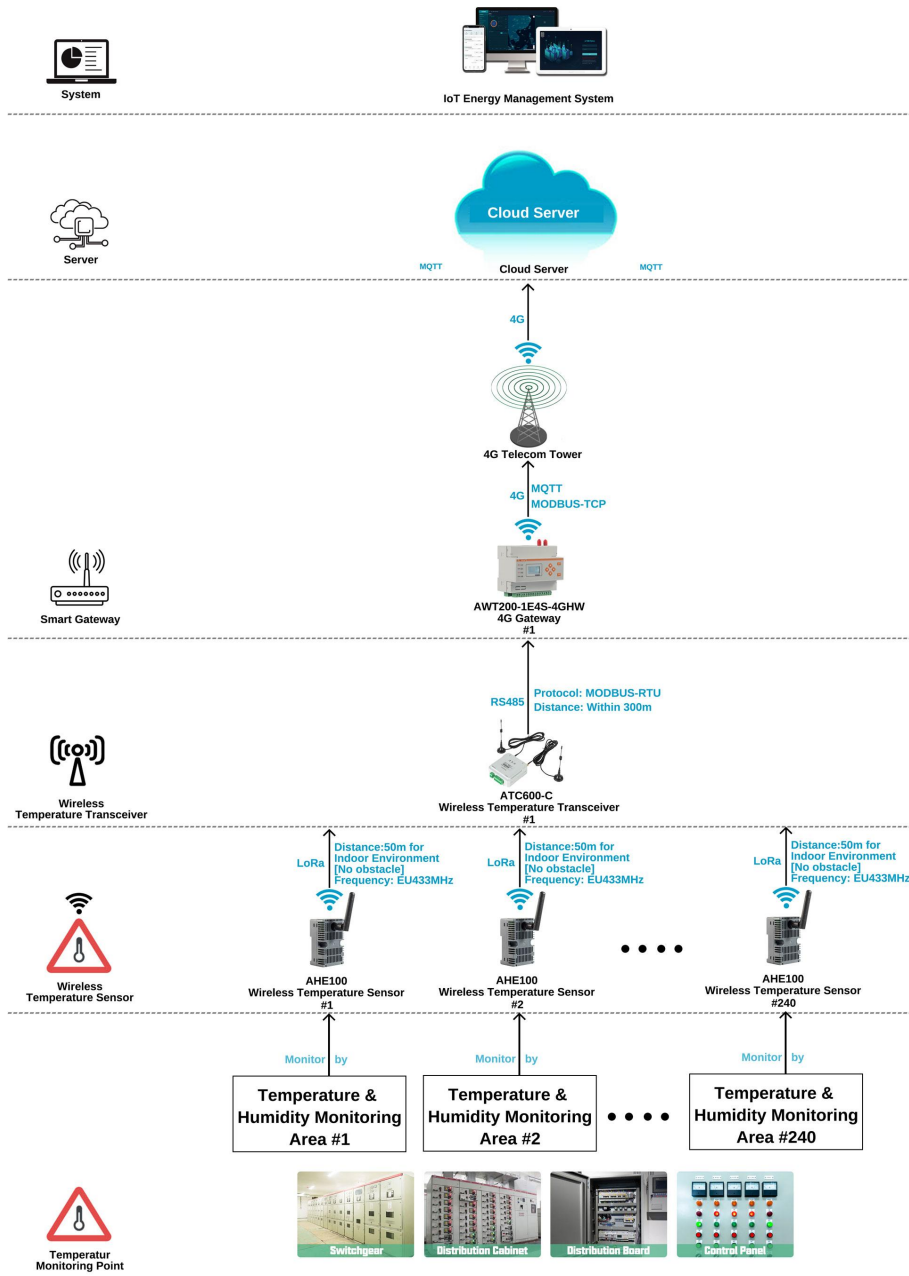


Acrel IoT Temperature&Humidity Monitoring System Showcase

(1) Devices deployment plan Illustraton

4. Comm. Structure & Logic [Switchgear 4G IoT Cloud Wireless Temperature&Humidity Monitoring Solution]

- (1) Between **AHE100** wireless temperature&humidity sensor and **ATC600-C** wireless temperature transceiver, we are using a radio wireless communications called **LoRa**. The communication distance is within 50m [when in indoor environment with no obstacle]. The communication protocol is self defined protocol. [1 pcs **ATC600-C** can support up to 240 pcs **AHE100** if comms. distance allowed.]
- (2) Between **AWT200-1E4S-4GHW** IoT Gateway and **ATC600-C** wireless temperature&humidity transceiver, the communication will be **RS485** wired Comms. based on MODBUS-RTU protocol. The RS485 Comms. distance between these 2 devices was recommend to be within 300m when we are using 2x1.5mm² RVSP cable for RS485 connection wiring.
- (3) Between **AWT200-1E4S-4GHW** IoT gateway and **Acrel IoT system**, we are using 4G comms. methods based on either MQTT or MODBUS-TCP protocol.

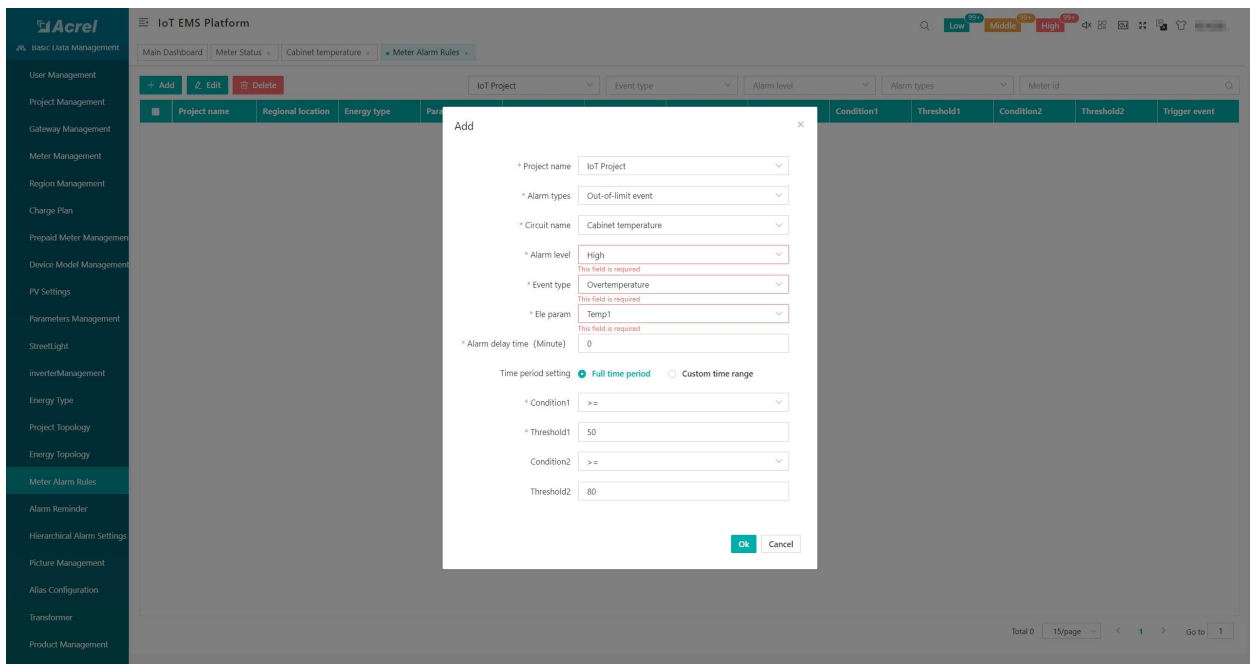


(1&2) Communication Structure

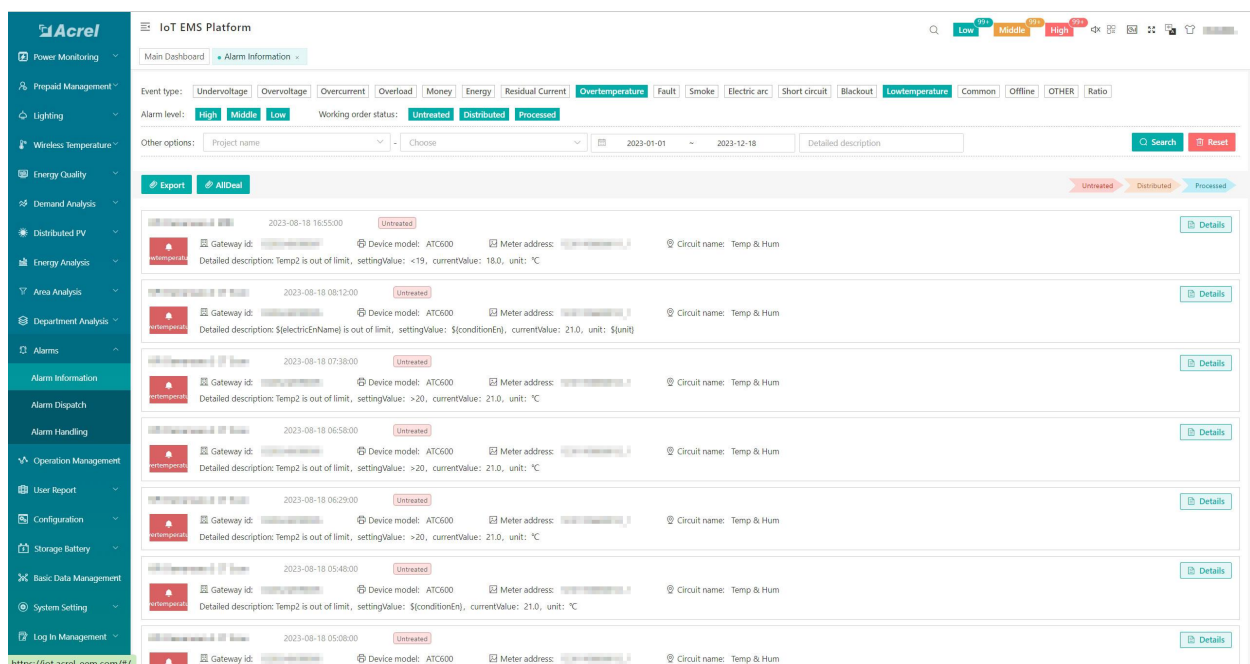
4. Cloud IoT Platform Temperature Alarm Function&Logic [Switchgear 4G IoT Cloud Wireless Temperature&Humidity Monitoring Solution]

Once temperature&humidity data was collected by Acrel IoT Cloud System Platform. We could also do high/over temperature&humidity alarm rule setting on cloud system and receive alarm warning information via **WEB/APP/SMS/E-mail**. [SMS/E-mail warning will be only supported when using buy-out service of Acrel IoT System.]

(1) High/Over Temperature&Humidity Alarm: First we set the high/over temperature& humidity alarm rule on platform, then once the monitoring temperature&humidity was higher/lower than a certain preset threshold value, this will trigger the alarm and send the alarm warning information via assigned **WEB/APP/SMS/E-mail**.



(1) Set the over/high temperature alarm rule



(2) Receive and check alarm information

4. Hardware Devices Overview [Switchgear 4G IoT Cloud Wireless Temperature&Humidity Monitoring Solution]

Model 1: AHE100 Wireless Ambient Temperature& Humidity Sensor

- Temperature Measuring Range: -30°C~85°C [$\pm 1^\circ\text{C}$]
- Humidity Measuring Range: 0~100%RH [$\pm 3\%RH$]
- Wireless Comms: LoRa Radio Comms. [433~510MHz, self-defined protocol]
- LoRa Comms. Distance: within 50m [when in indoor environment without obstacle]
- Power Supply: Built-in replacable battery [battery module CR2450, 3 years life span, when main body under 25°C operating temperature]
- Installation: DIN-rail



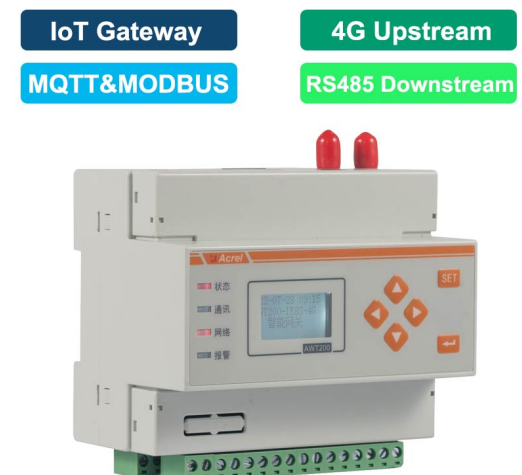
Model 2: ATC600-C Wireless Temperature Transceiver

- Wireless Comms. [Downstream]: LoRa Radio Comms. [433~510MHz, self-defined protocol]
- LoRa Comms. Distance: within 50m [when in indoor environment]
- Wired Comms. [Upstream]: 1-way RS485 [MODBUS-RTU protocol]
- Support: up to 240 pcs ATE300P Wireless Temperature Sensors based on LoRa
- Power Supply: 100~265Vac/Vdc
- Working Temperature: -20 ~ +55
- Working Humidity: $\leq 95\%$




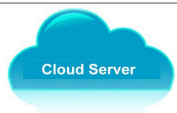



Model 3: AWT200-1E4S-4GHW IoT Smart Gateway

- Upstream Comms.: 4G&Ethernet Comms. [MQTT&MODBUS-TCP protocol]
- Downstream Comms.: 4-way RS485 [MODBUS-RTU protocol]
- Power Supply: 85~265Vac/Vdc
- Working Temperature: -20 ~ +55
- Working Humidity: $\leq 95\%$



4. Overall Model Selection&Quotation [Switchgear 4G IoT Cloud Wireless Temperature&Humidity Monitoring Solution]

(1) This Quotation doesn't include freight charge. To gain a complete quotation, please refer the actual quantity that you want to request for the actual order, once we receiving it. We will issue a Official Proforma Invoice with Acrel Stamps on it for later procedure.

System Software					
Name	Description	System Price	Remark (Choose Host Service or Buy-out Service after 3-month Free Trial of Cloud IoT System)		
 Acrel Cloud IoT Energy Management System	1.System support all the meters across the country whose data has been sent to cloud server through 4G,WIFI or Ethernet . 2.Remote meter reading and data collection. 3.Provide IoT APP for mobile phone side and IoT WEB for PC side. 4.Generate energy data report of daily, monthly and annually period with year-on-yeay and period-on-period energy analysis. 5.Provide various alarm function to ensure a stable operation of the system and protect your property. 6.Offer 3-month free trial of system with full technical support as for a test phase or pilot project.	\$0 (recommended in pilot project)	3-month Free Trail (Users don't need to rent a cloud server)		
		\$xxx/Year (For 5 Points) (Price for Host Service Only, recommended in pilot project)	\$xx to buy Hosting Service for 1 monitoring points connected to the system 1 year (Users don't need to rent a cloud server)		
		\$xxxx/Permanent (Limitless Points) (Price for Buy-out Service Only,recommended in late project)	1-time charging of \$xxxx for Buy-out Service of permanent use (Limitless monitoring points and a cloud server need to be rent by users)		
Cloud Server					
Name	Description	Server Renting Price (For Reference Only)	Remark		
 Cloud Server	1.Cloud Server could be rent on the cloud server provider like Amazon Cloud. 2.Users of Cloud IoT Energy Management System only need to rent cloud server when they choose buy-out service of our Cloud IoT System . And if they are using hosting service or 3-month free trial of our Cloud IoT System, we will use our own cloud server which has been rent on Amazon so that users don't need to rent a cloud server. 3.The quotation of Cloud Server is only a reference price that we have rent on Amazon Cloud.	According to Specs of Rented Cloud Server	Below cloud server specs could support 1000-2000 monitoings points connected to the system (Server: 8 core 16G Operation System: windows server 2016)		
Smart IoT Gateway					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Smart Gateway AWT200-1E4S-4GHW	Upstream: 4G, Ethernet [MQTT, MODBUS, etc] Downstream: RS485 (MODBUS-RTU) Support: up to 80-100 RS485 Devices within 400m using RS485 Wired Communication Adjustment: Via RJ45 or RS485 Port. Power Supply: 85~265Vac/Vdc (via power adpter) HS Code: 8517699000	1 pcs	/	/
Wireless Temperature Transceiver					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Temperature Transceiver ATC600-C	Upstream: RS485 (MODBUS-RTU) Downstream: LoRa (433-510 MHz) Support: Up to 240 ATE300P series wireless temperature sensors using LoRa communication. Power Supply: 100-265VAc HS Code: 9025191010	1 pcs		
Wireless Temperature Sensor					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Temperature&Humidity Sensor AHE100	Temperature Measuring Range: -30℃~85℃ [±1℃] Humidity Measuring Range: 0~100%RH [±3%RH] Communication: LoRa (EU433 MHz) Power Supply: Built-in replaceable battery HS Code: 9025800090	5 pcs		

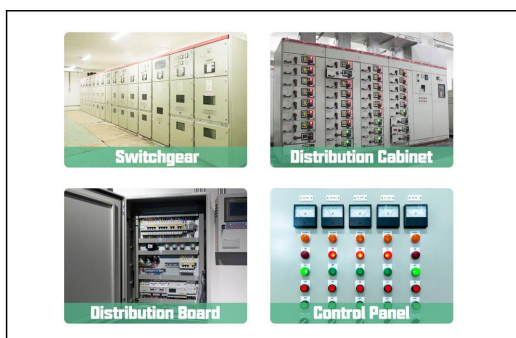
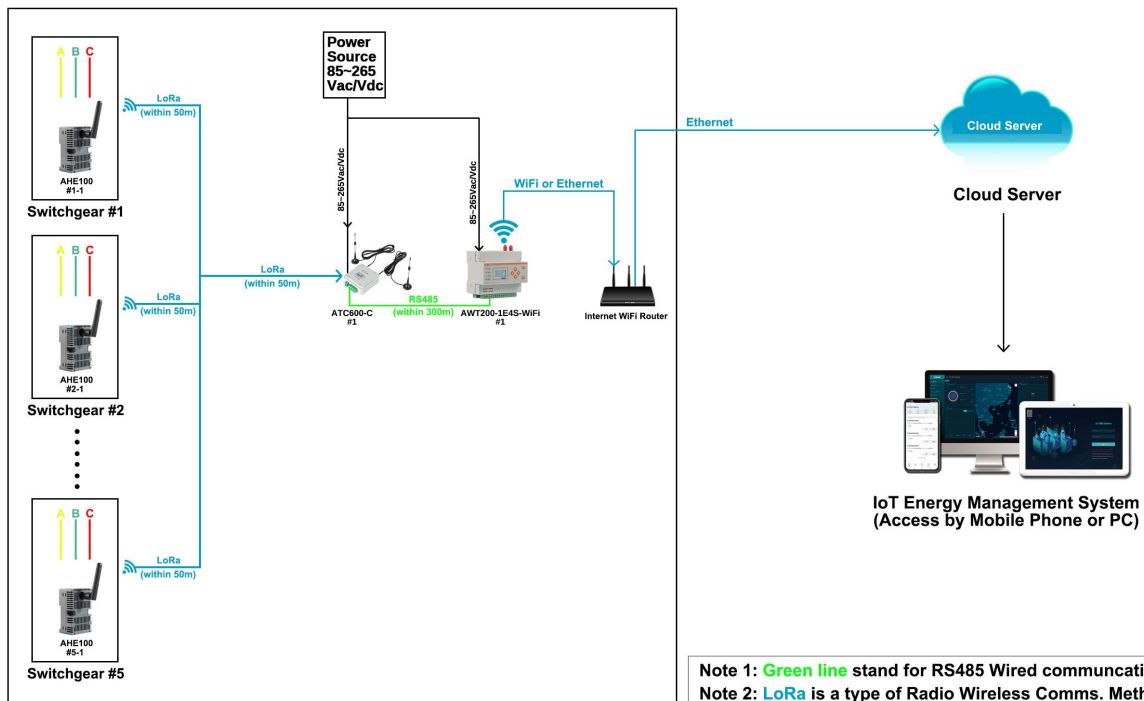
5. Scenario Preset [Switchgear WiFi&Ethernet IoT Cloud Wireless Temperature&Humidity Monitoring Solution]

- (1) The target was to monitor and alarm ambient temperature&humidity of 5 switchgears deployed in a single area. Both IoT cloud & local display and alarm of temperature& humidity was requested.
- (2) Each switchgear require 1 pcs AHE100 for temperature&humidity monitoring.
- (3) Network with stable WiFi or Ethernet Comms.

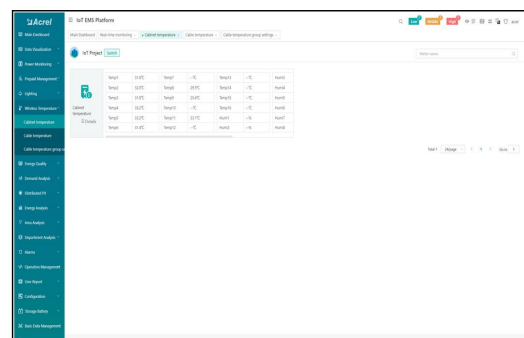
5. Devices Deployment [Switchgear WiFi&Ethernet IoT Cloud Wireless Temperature&Humidity Monitoring Solution]

Area #1 - Switchgear #1 ~ #5:

- 1* AWT200-1E4S-WiFi IoT Gateway [For further uploading the data from ATC600-C to Acrel IoT Cloud System via WiFi or Ethernet Comms.]
- 1* ATC600-C Wireless Temperature&Humidity Transceiver [For receiving the temperature& humidity data collected by AHE100 via LoRa and future upload to AWT200-1E4S-WiFi]
- 5* AHE100 Series Wireless Temperature&Humidity Sensor [For monitoring the ambient temperature&humidity of switchgear and further upload the data to ATC600-C via LoRa]



Common Application Scenario Showcase

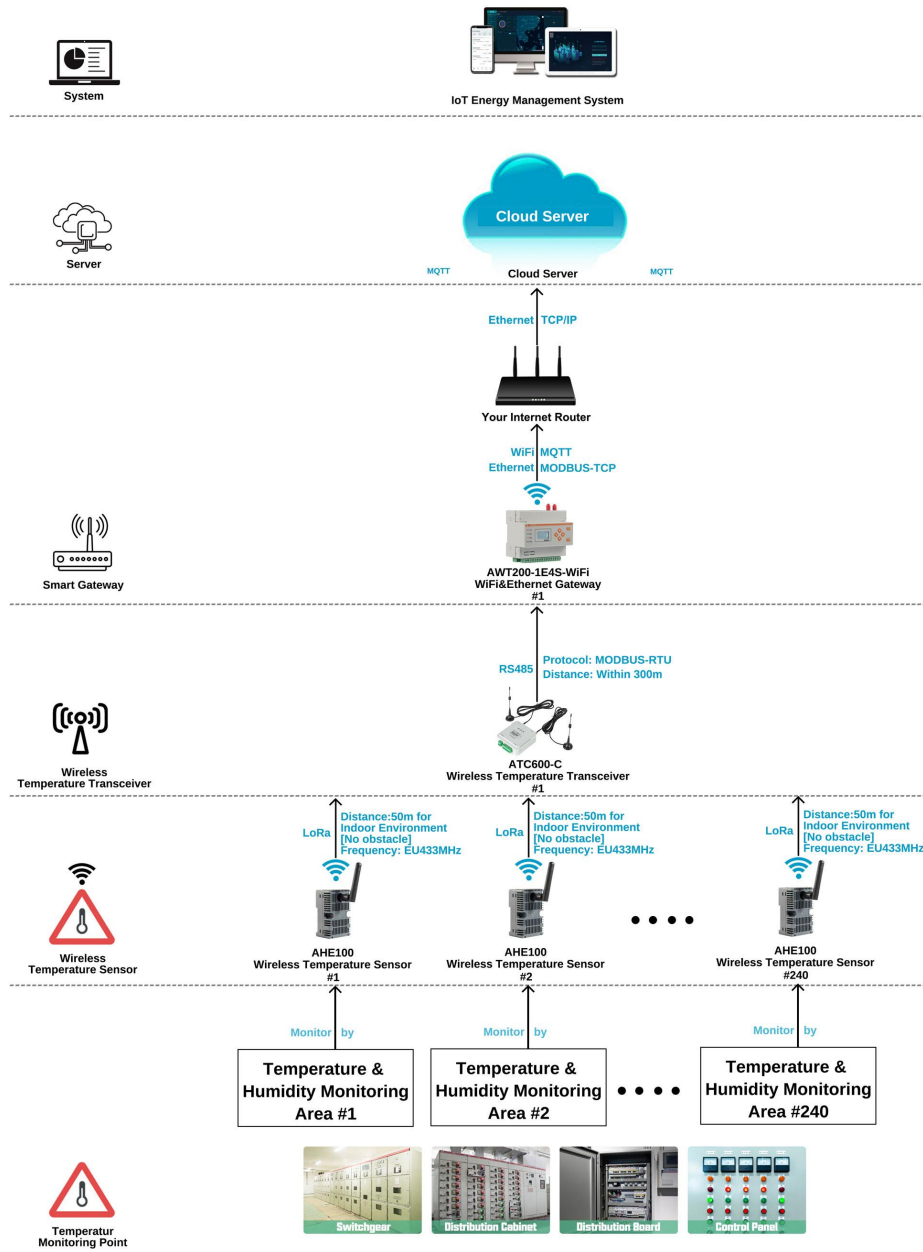


Acrel IoT Temperature&Humidity Monitoring System Showcase

(1) Devices deployment plan Illustration

5. Comm. Structure & Logic [Switchgear WiFi&Ethernet IoT Cloud Wireless Temperature&Humidity Monitoring Solution]

- (1) Between **AHE100** wireless temperature&humidity sensor and **ATC600-C** wireless temperature transceiver, we are using a radio wireless communications called **LoRa**. The communication distance is within 50m [when in indoor environment with no obstacle]. The communication protocol is self defined protocol. [1 pcs ATC600-C can support up to 240 pcs AHE100 if comms. distance allowed.]
- (2) Between **AWT200-1E4S-WiFi** IoT Gateway and **ATC600-C** wireless temperature&humidity transceiver, the communication will be **RS485** wired Comms. based on MODBUS-RTU protocol. The RS485 Comms. distance between these 2 devices was recommend to be within 300m when we are using 2x1.5mm² RVSP cable for RS485 connection wiring.
- (3) Between **AWT200-1E4S-WiFi** IoT gateway and **Acrel IoT system**, we are using either **WiFi** or **Ethernet** comms. methods based on either MQTT or MODBUS-TCP protocol.

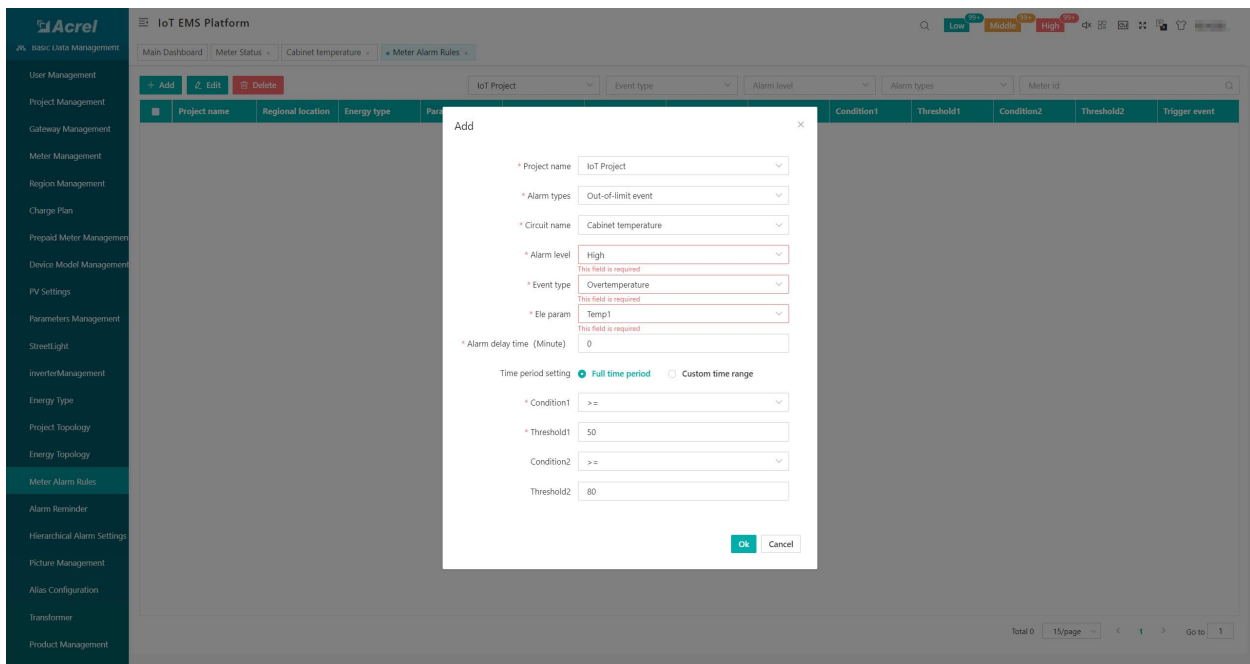


(1&2) Communication Structure

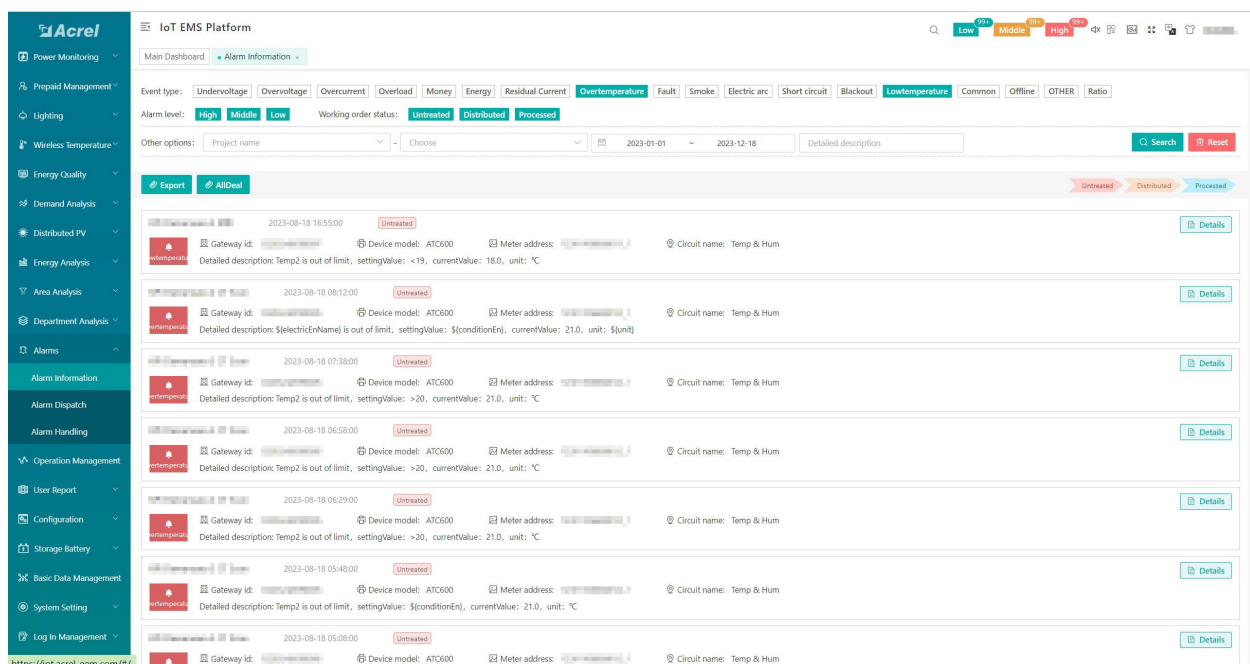
4. Cloud IoT Platform Temperature Alarm Function&Logic [Switchgear WiFi&Ethernet IoT Cloud Wireless Temperature&Humidity Monitoring Solution]

Once temperature&humidity data was collected by Acrel IoT Cloud System Platform. We could also do high/over temperature&humidity alarm rule setting on cloud system and receive alarm warning information via **WEB/APP/SMS/E-mail**. [SMS/E-mail warning will be only supported when using buy-out service of Acrel IoT System.]

(1) High/Over Temperature&Humidity Alarm: First we set the high/over temperature& humidity alarm rule on platform, then once the monitoring temperature&humidity was higher/lower than a certain preset threshold value, this will trigger the alarm and send the alarm warning information via assigned **WEB/APP/SMS/E-mail**.



(1) Set the over/high temperature alarm rule



(2) Receive and check alarm information

4. Hardware Devices Overview [Switchgear WiFi&Ethernet IoT Cloud Wireless Temperature& Humidity Monitoring Solution]

Model 1: AHE100 Wireless Ambient Temperature& Humidity Sensor

- Temperature Measuring Range: -30°C~85°C [$\pm 1^\circ\text{C}$]
- Humidity Measuring Range: 0~100%RH [$\pm 3\%RH$]
- Wireless Comms: LoRa Radio Comms. [433~510MHz, self-defined protocol]
- LoRa Comms. Distance: within 50m [when in indoor environment without obstacle]
- Power Supply: Built-in replacable battery [battery module CR2450, 3 years life span, when main body under 25°C operating temperature]
- Installation: DIN-rail



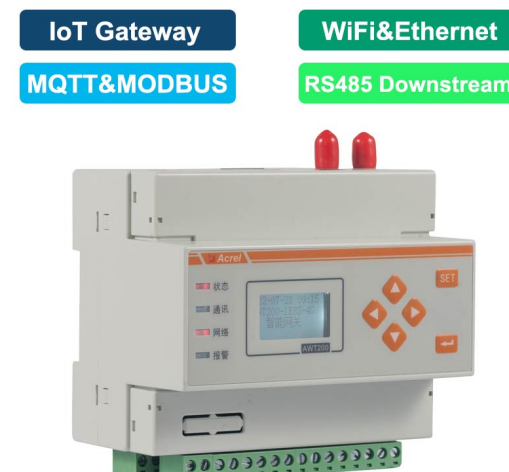
Model 2: ATC600-C Wireless Temperature Transceiver

- Wireless Comms. [Downstream]: LoRa Radio Comms. [433~510MHz, self-defined protocol]
- LoRa Comms. Distance: within 50m [when in indoor environment]
- Wired Comms. [Upstream]: 1-way RS485 [MODBUS-RTU protocol]
- Support: up to 240 pcs ATE300P Wireless Temperature Sensors based on LoRa
- Power Supply: 100~265Vac/Vdc
- Working Temperature: -20 ~ +55
- Working Humidity: $\leq 95\%$








Model 3: AWT200-1E4S-WiFi IoT Smart Gateway

- Upstream Comms.: WiFi&Ethernet Comms. [MQTT& MODBUS-TCP protocol]
- Downstream Comms.: 4-way RS485 [MODBUS-RTU protocol]
- Power Supply: 85~265Vac/Vdc
- Working Temperature: -20 ~ +55
- Working Humidity: $\leq 95\%$



5. Overall Model Selection&Quotation [Switchgear WiFi&Ethernet IoT Cloud Wireless Temperature& Humidity Monitoring Solution]

(1) This Quotation doesn't include freight charge. To gain a complete quotation, please refer the actual quantity that you want to request for the actual order, once we receiving it. We will issue a Official Proforma Invoice with Acrel Stamps on it for later procedure.

System Software					
Name	Description	System Price	Remark (Choose Host Service or Buy-out Service after 3-month Free Trial of Cloud IoT System)		
 Acrel Cloud IoT Energy Management System	1.System support all the meters across the country whose data has been sent to cloud server through 4G,WiFi or Ethernet . 2.Remote meter reading and data collection. 3.Provide IoT APP for mobile phone side and IoT WEB for PC side. 4.Generate energy data report of daily, monthly and annually period with year-on-year and period-on-period energy analysis. 5.Provide various alarm function to ensure a stable operation of the system and protect your property. 6.Offer 3-month free trial of system with full technical support as for a test phase or pilot project.	\$0 (recommended in pilot project)	3-month Free Trail (Users don't need to rent a cloud server)		
		\$xxx/Year (For 5 Points) (Price for Host Service Only, recommended in pilot project)	\$xx to buy Hosting Service for 1 monitoring points connected to the system 1 year (Users don't need to rent a cloud server)		
		\$xxxx/Permanent (Limitless Points) (Price for Buy-out Service Only, recommended in late project)	1-time charging of \$xxxx for Buy-out Service of permanent use (Limitless monitoring points and a cloud server need to be rent by users)		
Cloud Server					
Name	Description	Server Renting Price (For Reference Only)	Remark		
 Cloud Server	1.Cloud Server could be rent on the cloud server provider like Amazon Cloud. 2.Users of Cloud IoT Energy Management System only need to rent cloud server when they choose buy-out service of our Cloud IoT System . And if they are using hosting service or 3-month free trial of our Cloud IoT System, we will use our own cloud server which has been rent on Amazon so that users don't need to rent a cloud server. 3.The quotation of Cloud Server is only a reference price that we have rent on Amazon Cloud.	According to Specs of Rented Cloud Server	Below cloud server specs could support 1000~2000 monitoings points connected to the system (Server: 8 core 16G Operation System: windows server 2016)		
Smart IoT Gateway					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Smart Gateway AWT200-1E4S-WiFi	Upstream: WiFi, Ethernet [MQTT, MODBUS, etc] Downstream: RS485 (MODBUS-RTU) Support: up to 80~100 RS485 Devices within 400m using RS485 Wired Communication Adjustment: Via RJ45 or RS485 Port. Power Supply: 85~265Vac/Vdc (via power adppter) HS Code: 8517699000	1 pcs	/	/
Wireless Temperature Transceiver					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Temperature Transceiver ATC600-C	Upstream: RS485 (MODBUS-RTU) Downstream: LoRa (433~510 MHz) Support: Up to 240 ATE300P series wireless temperature sensors using LoRa communication. Power Supply: 100~265Vac HS Code: 9025191010	1 pcs		
Wireless Temperature Sensor					
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)
	Temperature&Humidity Sensor AHE100	Temperature Measuring Range: -30℃~85℃ [±1℃] Humidity Measuring Range: 0~100%RH [±3%RH] Communication: LoRa (EU433 MHz) Power Supply: Built-in replaceable battery HS Code: 9025800090	5 pcs		

6. Project Sample #1 - Italy Enel Green Power Project

(1) Project Overview:

- Customer: SEL S.P.A [Switchgear Complete set factory]
- Country: Italy
- Project Aim: Integrate Acrel wireless temperature monitoring devices with switchgear s produced by SEL S.P.A for adding safety feature to their switchgear products.
- Project Amount: About 400.000 USD



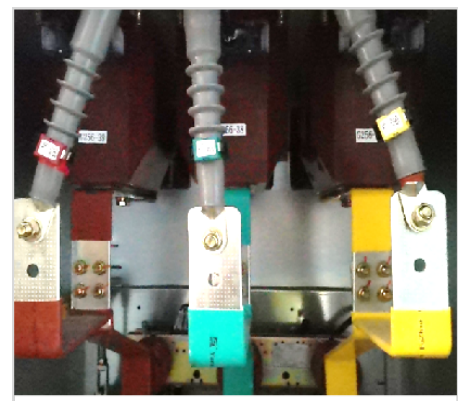
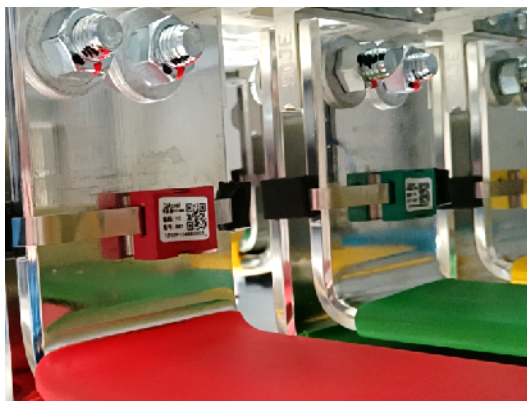
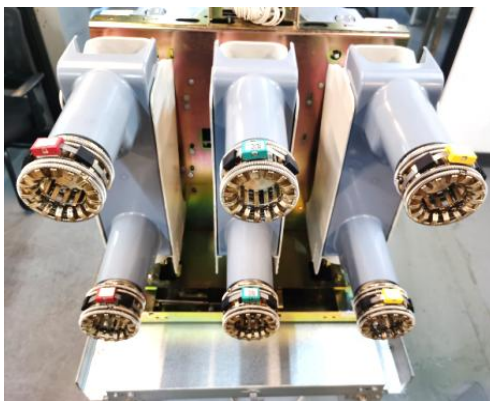
(1) Customer: SEL S.P.A
[Switchgear Complete set
factory]



(1) Project Aim:
Switchgear Wireless
Temperature Monitoring

(2) Applied Product Combination:

- ARTM-P30-400 Wireless Temperature Transceiver and Display Unit
[For collecting, displaying and alarming for all temperature data collected from ATE400]
- ATE400 Wireless Temperature Sensor
[For monitoring the temperature of electrical connection nodes and send the data to ARTM -P30-400 via GFSK wireless Comms.]



(2) Site Installation Picture

6. Project Sample #2 - Vietnam Lotte Mart Project

(1) Project Overview:

- Customer: V.T.E.C.H Electrical Technology Co., Ltd , EPC [Party A]
- Country: Vietnam
- Project Aim: Client use Acrel complete Cloud Wireless Temperature Monitoring Solution for monitoring and alarming electric cabinet in Lotte Mart to ensure electricity safety.
- Project Amount: About 100.000 USD



(1) Customer: V.T.E.C.H
Electrical Technology Co.,
Ltd , EPC [Party A]



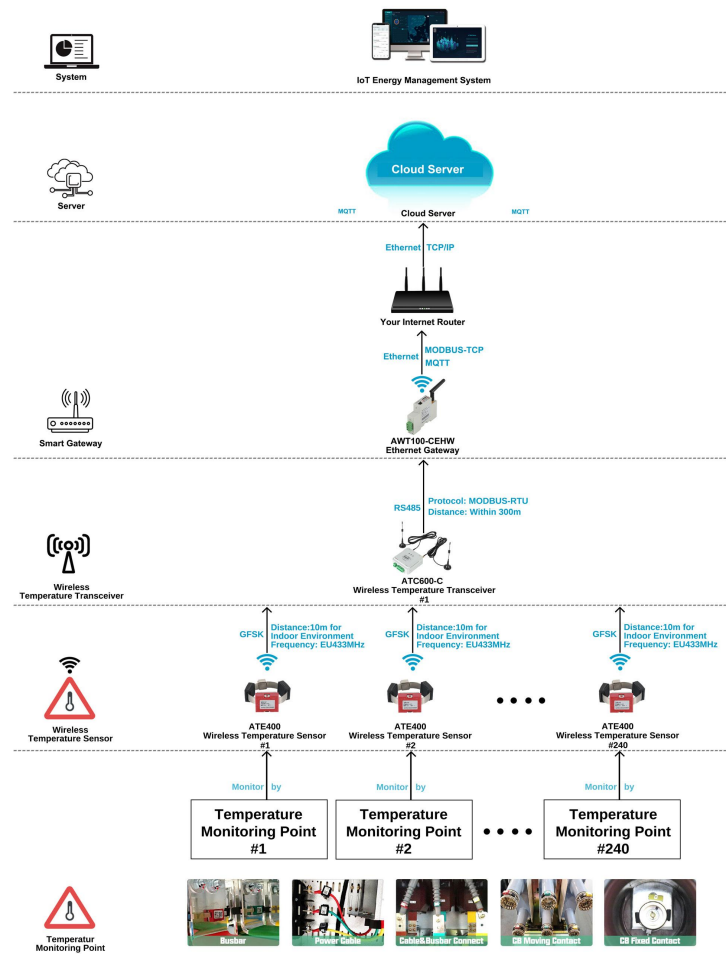
(1) Project Aim:
Online IoT based Wireless
Temperature Monitoring&Alarming

(2) Applied Product Combination:

- AWT100-CEHW Ethernet IoT Gateway
- AWT100-POW Power Supply Module
- ATC600-C Wireless Temperature Transceiver
- ATE400 Wireless Temperature Sensor



(2) Site Picture Gallery



(2) Solution Overall Structure