Internet in the second second

IoT based, Online Energy Monitoring, 4G/WIFi Cloud based, 1-phase&3-phase

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Acrel Co., Ltd.

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

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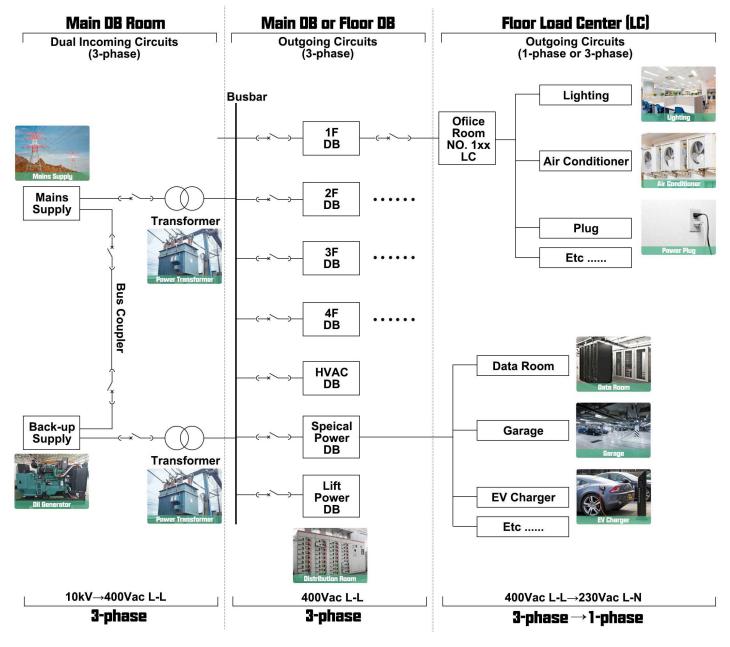
Acrel



0. Application Scenario

(1) A typical building power system is a comprehensive system consisted of 3-phase & 1-phase power system. And 3-phase & 1-phase system are obviously consisted of the 3-phase & 1-phase circuits. And all the loads in this building are powered by all these circuits. Thus, the aim of Building Online Energy Monitoring for all the monitoring loads in a certain building was to first confirm and all the 3-phase & 1-phase circuits' monitoroing point and deploy compatible energy meter and paired CTs if requested on them for energy monitoring. And then select compatible IoT gateway or Wireless energy meter for data uploading to a Online IoT Energy Monitoring System.

(2) The key of whether select the combination for IoT Gateway + Energy Meter or Wireless Energy Meter, was whether the energy meter could be of centralized installation or separate installation. This will decide which plan will be more economic and convinient to deploy.





0. Basic Solution Selection Logic

Three key factor will influence our solution on dicisiong of hardware module selection.

(1) Type of monitoring circuit. [Either 1-phase or 3-phase monitoring circuit]

(2) Centralized monitoring or separate monitoring [Energy meter will be of centralized or separate installation]

(3) Network Comms. which more stable and convenient to acquire. [4G or WiFi]

And judging by these 3 factor, there will be 9 basic solution branches in total for guiding us to use the compatible solutions for the different situation of Building Online Energy Monitoring:

3-phase, Centralized, 4G based Solution [3-phase Energy Meter plus 4G Gateway Plan]

3-phase, Centralized, WiFi based Solution [3-phase Energy Meter plus WiFi Gateway Plan]

3-phase, Separate, 4G based Solution [3-phase 4G Wireless Energy Meter Plan]

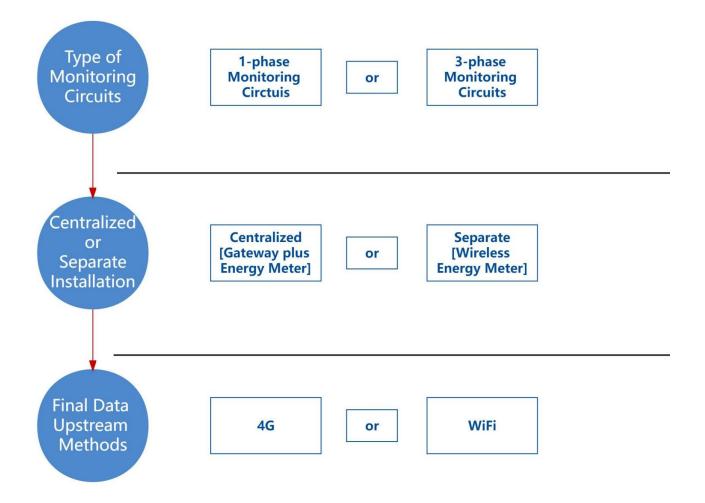
3-phase, Separate, WiFi based Solution [3-phase WiFi Wireless Energy Meter Plan]

1-phase, Centralized, 4G based Solution [1-phase Energy Meter plus 4G Gateway Plan]

1-phase, Centralized, WiFi based Solution [1-phase Energy Meter plus WiFi Gateway Plan]

1-phase, Separate, 4G based Solution [1-phase 4G Wireless Energy Meter Plan]

1-phase, Separate, WiFi based Solution [1-phase WiFi Wireless Energy Meter Plan]





3-phase, Centralized, 4G based Solution] 1. Scenario Preset [

(1) There are 10 Areas with 3-phase Power System needed to be monitored

(2) Each area has 20 circuits 3-phase needed to be monitored, circuits' rated voltage is 3x400Vac L-L

and 3x230Vac L-N, circuit's rated current is 100A AC.

(3) For the place that we gonna install energy meter and 4G gateway, it was covered by stable 4G signal.

(4) All 3-phase energy meter will be of partial centralized installation in each area, which make it possbile for 1 AWT100-4GHW 4G IoT gateway to support 20 (max 25, recommend 20) ADL400/C

3-phase Energy Meters using RS485 wired communication in a close range within 300m.

2. Devices Deployment Plan [3-phase, Centralized, 4G based Solution]

Area #1 - Power Circuit [3-phase] #1-1 ~ #1-20:

- 1* AWT100-4GHW IoT 4G Gateway [Support energy meter in Area #1 for 4G Data Upstream]

- 1* AWT100-POW Power Supply Module [For 85~265Vac/Vdc power supply of AWT100-4GHW]

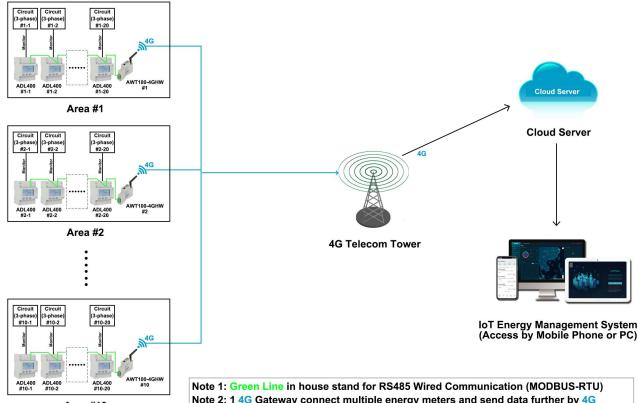
- 20* ADL400/C 3-phase DIN-rail Energy Meter [For monitoring Power Circuit #1-1 ~ #1-20]

- 60* AKH-0.66/K K- 24 150/5 Split-core Current Transformer [Paired with ADL400/C for current input]

Area #10 - Power Circuit [3-phase] #10-1 ~ #10-20:

- 1* AWT100-4GHW IoT 4G Gateway [Support energy meter in Area #10 for 4G Data Upstream]

- 1* AWT100-POW Power Supply Module [For 85~265Vac/Vdc power supply of AWT100-4GHW]
- 20* ADL400/C 3-phase DIN-rail Energy Meter [For monitoring Power Circuit #10-1 ~ #10-20]
- 60* AKH-0.66/K K- 24 150/5 Split-core Current Transformer [Paired with ADL400/C for current input]



Area #10

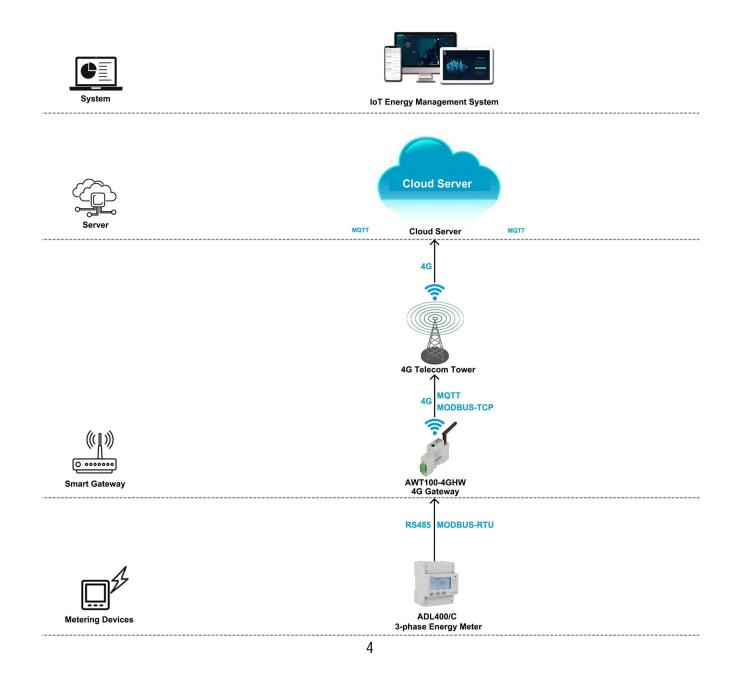
Note 2: 1 4G Gateway connect multiple energy meters and send data further by 4G



2. Communication Structure&Logic - [3-phase, Centralized, 4G based Solution]

(1) 4G Communication could be served as one of the final data upstream methods by sending the data to cloud server deployed in Internet so that Acrel IoT System could be interact with these data collected by bottom metering devices like Energy Meter

(2) AWT100-4GHW gateway support upstream of 4G communication with MQTT and MODBUS-protocol and downstream of RS485 communication based on MODBUS-RTU protocol. ADL400/C support upstream communication of RS485 communication based on MODBUS-RTU protocol.
(3) Based on the communication described in item (2), Acrel AWT100-4GHW gateway could receive the data from ADL400/C energy meter using RS485 communication while sending the data further to cloud server using 4G upstream communication. Thus accomplish a complete communication from bottom metering devices to top system software.





4. Hardware Devices Overview - [3-phase, Centralized, 4G based Solution]

Model 1: AWT1000-4GHW IoT 4G Smart Gateway

- Upstream Comms.: 4G LTE [MQTT, MODBUS Protocol]
- Downstream Comms.: RS485 [MODBUS-RTU Protocol]
- Support: Up to 25 Downstream Devices via RS485.
- Auxiliary Power Supply: 85~265Vac [via AWT100-POW]
- Certificate&Standard: CE; CE-RED; IEC

Model 2: AWT100-POW Power Supply Module

- Input: 85~265Vac
- Output: 12Vdc
- Application: Paired with AWT100-4GHW for 85~265Vac

Power Supply Input [via PIN L & PIN N]

- Certificate&Standard: CE







Model 2: ADL400 3-phase AC DIN-rail Energy Meter

- Monitoring: Up 1 circuits 3-phase [AC Metering]
- Rated Voltage: 3x380~456Vac L-L & 220~264Vac L-N
- Rated Current: 3x1(6)A AC (via paired CT)
- Wired Comms: RS485 Interface, MODBUS-RTU Protocol
- Certificate&Standard: CE; CE-MID; EAC





3. Hardware Devices Overview - [3-phase, Centralized, 4G based Solution]

Model 2: AKH-0.66/K K- 24 150/5 Split-core Current Transformer

- Current Ratio: 150A/5A
- Primary Current: 150A
- Secondary Current: 5A
- Accuracy: Class 0.5 or 1.0
- Certificate&Standard: CE





4. Overall Model Selection&Quoation - [3-phase, Centralized, 4G based Solution]

			System Software					
Name	Name			System Price		Remark (Choose Host Service or Buy-out Service month Free Trial of Cloud IoT Syste		
	been sent to cloud se		I the meters across the country whose data has erver through 4G,WiFi or Ethernet . Iding and data collection.	\$0 (recommended in pilot pro	ojtect)	3-m	onth Free Trail ed to rent a cloud server))	
		3.Provide IoT APP 4.Generate energy operiod with year-on-	for mobile phone side and IoT WEB for PC side. lata report of daily, monthly and annually yeay and period-on-period energy analysis.	\$xxxx/Year (For 200 Po (Price for Host Service 0 recommended in pilot pro	Only,	connected	Service for 1 monitoring poin to the system 1 year ed to rent a cloud server)	
Acrel Cloud IoT Energy Manager	ment System	of the system and p	larm function to ensure a stable operation rotect your property. e trial of system with full technical support or pilot project.	\$xxxxPermanent (Limitless (Price for Buy-out Serv Only,recommended in late p	vice	permanent use (Lim	\$xxxx for Buy-out Service of itless monitoring points and eed to be rent by users)	
			Cloud Server			1		
Name			Description	Server Renting Price (For Reference Only			Remark	
Cloud Server Cloud Server		Cloud. 2.Users of Cloud lo cloud server when th System . And if they our Cloud IoT Syste rent on Amazon so t	d be rent on the cloud server provider like Amazon T Energy Management System only need to rent hey choose buy-out service of our Cloud IoT are using hosting service or 3-month free trial of im, we will use our own cloud server which has been that users don't need to rent a cloud server. Sloud Server is only a reference price that we have ud.	According to Specs of Rente Server	ed Cloud	1000~2000 monito (Serv	elow cloud server specs could support ~2000 monitoings points connected to the system (Server: 8 core 16G eration System: windows server 2016)	
			4G Smart Gateway					
Overview Picture	USAGE&MOD	ULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)		AMOUNT (USD)	
	4G Smart (AWT100-		Upstream: 4G (MQTT&MODBUS-TCP Protocol) Downstream: RS485 (MODBUS-RTU) Support: up to 20–25 Energy Meters within 400m using RS485 Wired Communication Power Supply: 85~265Vac/Vdc	10 pcs	1		I	
	Power Supp AWT100		Input: 85~265Vac/Vdc Output: 24Vdc Application: paired with AWT100 Series gateway for 85~265Vac/Vdc power supply input	10 pcs		1	I	
	1		3-phase Energy Meter		1			
Overview Picture	USAGE&MOD	ULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	NIT PRICE (USD)	AMOUNT (USD)	
	3-phase DIN-rail ADL4		Communication: RS485 (MODBUS-RTU) Harmonic: Total and 2nd-31st harmonic Multi-rates(Optional): 4 Tariff Rates and etc. Rated Voltage: 3x380-456Vac L-L & 3x220~264Vac L-N (45~65Hz) Rated Current: or 3x1(6)A AC (via CTs)	200 pcs	/		I	
			Paired CTs					
	Split-core Currer AKH-0.66//		Current Ratio: 150/5A AC Aperture: φ24mm (diameter) Accuracy: Class 1.0 Application: Paired with ADL400/C for current input, suitable for primary current below 150A AC.	600 pcs		1	Į	



1. Scenario Preset - [3-phase, Centralized, WIFi based Solution]

- (1) There are 10 Areas with 3-phase Power System needed to be monitored
- (2) Each MDB has 20 circuits 3-phase needed to be monitored, circuits' rated voltage is 3x400Vac
- L-L and 3x230Vac L-N, circuit's rated current is 100A AC.

(3) For the place that we gonna install energy meter and WiFi gateway, it was covered by stable WiFi signal.

(4) All 3-phase energy meter will be of partial centralized installation in each MDB, which make it possbile for 1 AWT100-WiFiHW WiFi IoT gateway to support 20 (max 25, recommend 20) ADL400/

C 3-phase Energy Meters using RS485 wired communication in a close range within 300m.

2. Devices Deployment Plan - [3-phase, Centralized, WIFi based Solution]

Area #1 - Power Circuit [3-phase] #1-1 ~ #1-20:

- 1* AWT100-WiFiHW IoT WiFi Gateway [Support energy meter in Area #1 for WiFi Data Upstream]

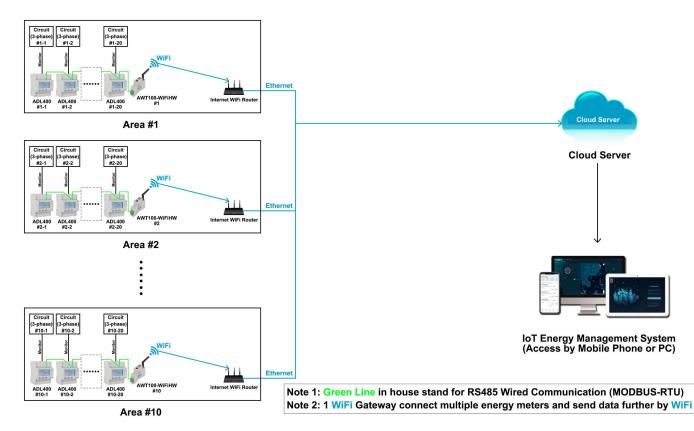
- 1* AWT100-POW Power Supply Module [For 85~265Vac/Vdc power supply of AWT100-WiFiHW]

- 20* ADL400/C 3-phase DIN-rail Energy Meter [For monitoring Power Circuit #1-1 ~ #1-20]

- 60* AKH-0.66/K K- 24 150/5 Split-core Current Transformer [Paired with ADL400/C for current input]

Area #10 - Power Circuit [3-phase] #10-1 ~ #10-20:

- 1* AWT100-WiFiHW IoT WiFi Gateway [Support energy meter in Area #10 for WiFi Data Upstream]
- 1* AWT100-POW Power Supply Module [For 85~265Vac/Vdc power supply of AWT100-WiFIHW]
- 20* ADL400/C 3-phase DIN-rail Energy Meter [For monitoring Power Circuit #10-1 ~ #10-20]
- 60* AKH-0.66/K K- 24 150/5 Split-core Current Transformer [Paired with ADL400/C for current input]

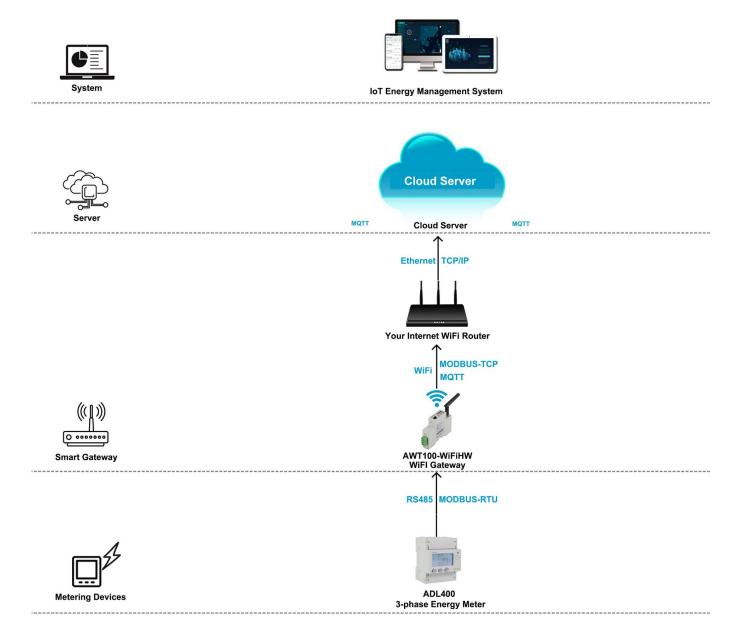




3. Communication Structure&Logic - [3-phase, Centralized, WIFi based Solution]

(1) WiFi Communication could be served as one of the final data upstream methods by sending the data to cloud server deployed in Internet so that Acrel IoT System could be interact with these data collected by bottom metering devices like Energy Meter

(2) AWT100-WiFiHW gateway support upstream of WiFi communication with MQTT and MODBUS-protocol and downstream of RS485 communication based on MODBUS-RTU protocol. ADL400/C support upstream communication of RS485 communication based on MODBUS-RTU protocol.
(3) Based on the communication described in item (2), Acrel AWT100-WiFiHW gateway could receive the data from ADL400/C energy meter using RS485 communication while sending the data further to cloud server using WiFi upstream communication. Thus accomplish a complete communication from bottom metering devices to top system software.





4. Hardware Devices Overview - [3-phase, Centralized, WIFi based Solution]

Model 1: AWT100-WiFiHW IoT WiFi Smart Gateway

- Upstream Comms.: WiFi [MQTT, MODBUS Protocol]-Downstream Comms.: RS485 [MODBUS-RTU Protocol]-Support: Up to 25 Downstream Devices via RS485.

- Auxiliary Power Supply: 85~265Vac [via AWT100-POW]
- Certificate&Standard: CE; CE-RED; IEC

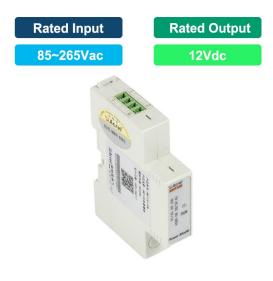
Model 2: AWT100-POW Power Supply Module

- Input: 85~265Vac
- Output: 12Vdc
- Application: Paired with AWT100-4GHW for 85~265Vac

Power Supply Input [via PIN L & PIN N]

- Certificate&Standard: CE





3-phase 35mm DIN Rail Direct or via CTs MODBUS-RTU

Model 2: ADL400 3-phase AC DIN-rail Energy Meter

- Monitoring: Up 1 circuits 3-phase [AC Metering]
- Rated Voltage: 3x380~456Vac L-L & 3x220~264Vac L-N
- Rated Current: 3x1(6)A AC (via paired CT)
- Wired Comms: RS485 Interface, MODBUS-RTU Protocol
- Certificate&Standard: CE; CE-MID; EAC





3. Hardware Devices Overview - [3-phase, Centralized, WIFi based Solution]

Model 2: AKH-0.66/K K- 24 150/5 Split-core Current Transformer

- Current Ratio: 150A/5A
- Primary Current: 150A
- Secondary Current: 5A
- Accuracy: Class 0.5 or 1.0
- Certificate&Standard: CE





4. Overall Model Selection&Quoation - [3-phase, Centralized, WIFi based Solution]

			System Software				
			Description				Remark
Name	Name 1.System support all			System Price		(Choose Host Service or Buy-out Service aft month Free Trial of Cloud IoT System)	
	2.Remote meter real			\$0 (recommended in pilot pro	<u> </u>	(Users don't ne	onth Free Trail ed to rent a cloud server))
		4.Generate energy period with year-on-	for mobile phone side and IoT WEB for PC side. data report of daily, monthly and annually yeay and period-on-period energy analysis.	\$xxxx/Year (For 200 Po (Price for Host Service of recommended in pilot pro	Only,	connected	Service for 1 monitoring point to the system 1 year ed to rent a cloud server)
Acrel Cloud IoT Energy Manager	ment System	of the system and p	larm function to ensure a stable operation rotect your property. e trial of system with full technical support or pilot project.	\$xxxxPermanent (Limitless (Price for Buy-out Serv Only,recommended in late p	ice	permanent use (Lim	\$xxxx for Buy-out Service of hitless monitoring points and a need to be rent by users)
			Cloud Server				
Name			Description	Server Renting Price (For Reference Only			Remark
Cloud Server Cloud Server	Cloud. 2. Users or cloud Server System. A our Cloud rent on An 2. The sum		Id be rent on the cloud server provider like Amazon T Energy Management System only need to rent hey choose buy-out service of our Cloud IoT are using hosting service or 3-month free trial of em, we will use our own cloud server which has been that users don't need to rent a cloud server. Cloud Server is only a reference price that we have rud.	According to Specs of Rented Cloud		Below cloud server specs could su 1000-2000 monitoings points connect system (Server: 8 core 16G Operation System: windows server	
			WiFi Smart Gateway				
Overview Picture	USAGE&MO	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)		AMOUNT (USD)
		irt Gateway D- WiFiHW	Upstream: WiFi (2.4&5GHz, support MQTT&MODBUS-TCP Protocol) Downstream: RS485 (MODBUS-RTU) Support: up to 20–25 Energy Meters within 400m using RS485 Wired Communication Power Supply: 85~265Vac/Vdc	10 pcs	1		1
		pply Module 90 -POW	Input: 85~265Vac/Vdc Output: 24Vdc Application: paired with AWT100 Series gateway for 85~265Vac/Vdc power supply input	10 pcs	I		Ţ
			3-phase Energy Meter				
Overview Picture	USAGE&MO	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	NIT PRICE (USD)	AMOUNT (USD)
		ail Energy Meter L400	Communication: RS485 (MODBUS-RTU) Harmonic: Total and 2nd-31st harmonic Multi-rates(Optional): 4 Tariff Rates and etc. Rated Voltage: 3x380-456Vac L-L & 3x220~264Vac L-N (45~65Hz) Rated Current: or 3x1(6)A AC (via CTs)	200 pcs	1		Ţ
			Paired CTs				
		ent Trasnformer 6/Κ Κ-φ24	Current Ratio: 150/5A AC Aperture: φ24mm (diameter) Accuracy: Class 1.0 Application: Paired with ADL400/C for current input, suitable for primary current below 150A AC.	600 pcs		1	Ţ



0. Scenario Preset - [3-phase, Separate, 4G based Solution]

(1) There are 10 Areas which are far from each other or are hard for RS485 Comms. wiring.

(2) Each Area has 1 circuit 3-phase that needed to be monitored.

(3) Each circuit are with rated voltage of 400Vac L-L&230Vac L-N, and with rated current of 150A AC.

(4) Circuits' current are carried by cable, of which the size was suitable for 24mm aperture. (diameter)

(5) For the places that we gonna install the wireless energy meter, it's covered by stable 4G signal for

4G communications. All the 4G energy meters will be of separate installation and directly send data to IoT system.

1. Devices Deployment Plan - [3-phase, Separate,4G based Solution]

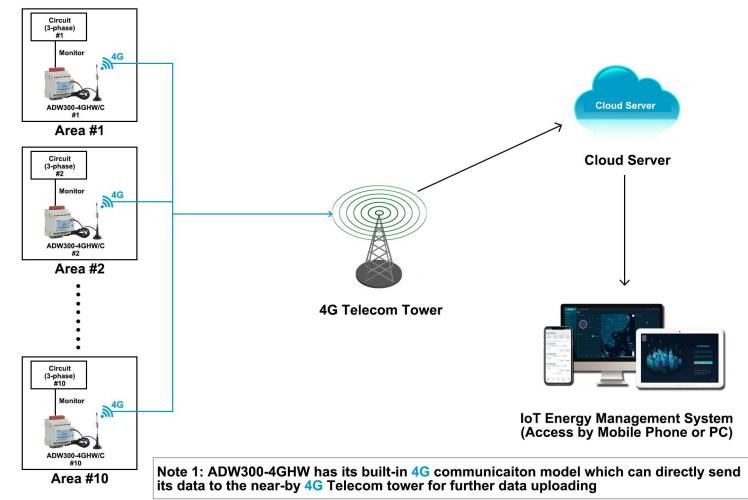
Area #1 - Power Circuit [3-phsae] #1:

- 1* ADW300-4GHW/C 4G 3-phase Energy Meter [For monitoring Power Circuit #1 and 4G Upstream] - 3* AKH-0.66/K K- 24 150/5 Split-core Current Transformer [For current input of ADW300-4GHW/C]

Area #10 - Power Circuit [3-phsae] #10:

- 1* ADW300-4GHW/C 4G 3-phase Energy Meter [For monitoring Power Circuit #10 and 4G Upstream]

- 3* AKH-0.66/K K- 24 150/5 Split-core Current Transformer [For current input of ADW300-4GHW/C]





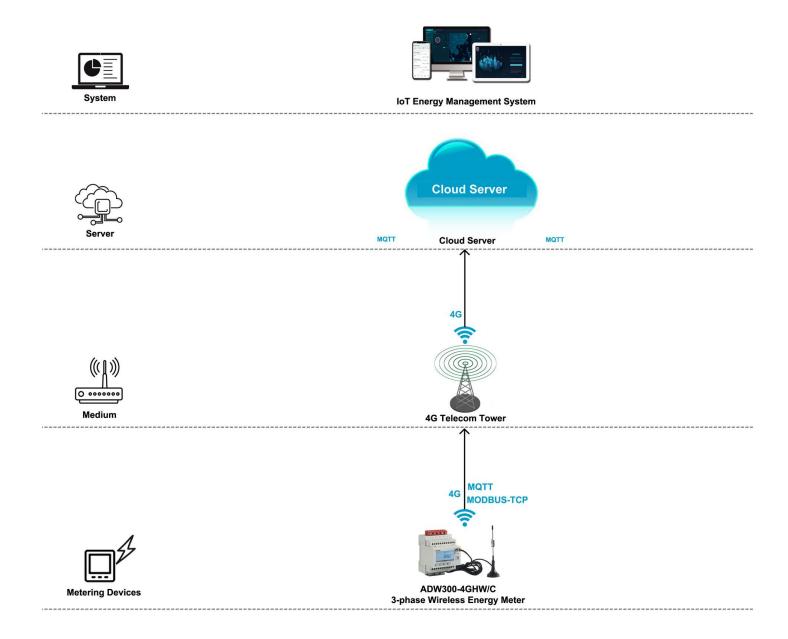
2. Communication Structure&Logic - [3-phase, Separate,4G based Solution]

(1) 4G Communication could be served as one of the final data upstream methods by sending the data to cloud server deployed in Internet so that Acrel IoT System could be interact with these data collected by bottom metering devices like Energy Meter

(2) ADW300-4GHW/C Wireless 4G 3-phase Energy Meter has a built-in 4G communication module which allow it to directly send data to local 4G telecom tower through 4G signal based on MQTT and MODBUS-TCP protocol without using a extra 4G IoT Gateway.

(3) Each ADW300-4GHW/C has a 4G card tray for installing the 4G sim card which could be bought from your local 4G service provider.

(4) ADW300-4GHW/C also have a RS485 communication normally used for devices adjustment with Acrel ADW300 adjustment softare.





3. Hardware Devices Overview - [3-phase, Separate, 4G based Solution]

Model 1: ADW300-4GHW/C 4G 3-phase IoT Energy Meter

- Monitoring: Up to 1 circuits 3-phase [AC Metering]
- Wireless Comms.: 4G LTE [MQTT, MODBUS Protocol]
- Wired Comms.: RS485 [MODBUS-RTU Protocol]
- Rated Current: 3x1(6)A AC [via -/5A CTs.]
- Rated Voltage: Up to 3x660Vac L-L
- Certificate&Standard: CE, CE-RED



	AC	60~400A
Model 2: AKH-0.66/K K- 24 150/5 Split-core Current Transformer	Split Core	Class 0.5
- Current Ratio: 150A/5A		
- Primary Current: 150A		
- Secondary Current: 5A	Ster	

- Accuracy: Class 0.5 or 1.0
- Certificate&Standard: CE





4. Overall Model Selection&Quoation - [3-phase, Separate, 4G based Solution]

			System Software				
Name			Description	System Price			Remark ice or Buy-out Service after 3- ial of Cloud IoT System)
	·)	been sent to cloud s	I the meters across the country whose data has erver through 4G,WiFi or Ethernet . Iding and data collection.	\$0 (recommended in pilot pro	ojtect)	3-month Free Trail	
		3.Provide IoT APP 4.Generate energy of period with year-on-	for mobile phone side and IoT WEB for PC side. data report of daily, monthly and annually yeay and period-on-period energy analysis.	\$xxx/Year (For 10 Poin (Price for Host Service 0 recommended in pilot pro	Only,	connected	Service for 1 monitoring points to the system 1 year eed to rent a cloud server)
Acrel Cloud IoT Energy Manager	ment System	of the system and p	larm function to ensure a stable operation rotect your property. e trial of system with full technical support or pilot project.	\$xxxxPermanent (Limitless (Price for Buy-out Serv Only,recommended in late p	vice	permanent use (Lin	\$xxxx for Buy-out Service of hitless monitoring points and a need to be rent by users)
			Cloud Server				
Name			Description	Server Renting Price (For Reference Only			Remark
Cloud Server Cloud Server	Cloud Server Cloud Server System. J our Cloud rent on Ar 2 The sur		d be rent on the cloud server provider like Amazon T Energy Management System only need to rent hey choose buy-out service of our Cloud IoT are using hosting service or 3-month free trial of im, we will use our own cloud server which has been that users don't need to rent a cloud server. Cloud Server is only a reference price that we have ud.	According to Specs of Rented Cloud		Below cloud server specs could suppo 1000~2000 monitoings points connected f system (Server: 8 core 16G Operation System: windows server 20	
		1	4G Wireless Energy Mete	er		1	
Overview Picture	USAGE&MC	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	NIT PRICE (USD)	AMOUNT (USD)
		less Energy Meter -4GHW/C	Communication: 4G Wireless Communication (with 4G SIM card)&RS485 (MODBUS-RTU) Rated Voltage: 3x380~456Vac L-L or 3x660Vac L-L (45~65Hz) Rated Current: 3x1(6)A AC (via CTs) Auxiliary Power Supply: 85~265Vac	10pcs	1		1
			Paired Split-core CT				
Overview Picture	USAGE&MC	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)		AMOUNT (USD)
		ent Trasnformer 6/ К К-φ24	Current Ratio: 150Α/5Α AC Aperture: φ24mm (diameter) Accuracy: Class 1.0	30pcs	/		1



1. Scenario Preset - [3-phase, Separate, WiFi based Solution]

- (1) There are 10 Area which are far from each other or are hard for RS485 wiring.
- (2) Each Area has only 1 circuit 3-phase that needed to be monitored online.
- (3) Each circuit are with rated voltage of 400Vac L-L&230Vac L-N, and with rated current of 150A AC.

(4) Circuits' current are carried by cable, of which the size was suitable for 24mm aperture. (diameter)

(5) For the places that we gonna install the wireless energy meter, it's covered by stable WiFi signal

for WiFi communications. All the WiFi energy meters will be of separate installation and directly send data to IoT system.

2. Devices Deployment Plan - [3-phase, Separate, WiFi based Solution]

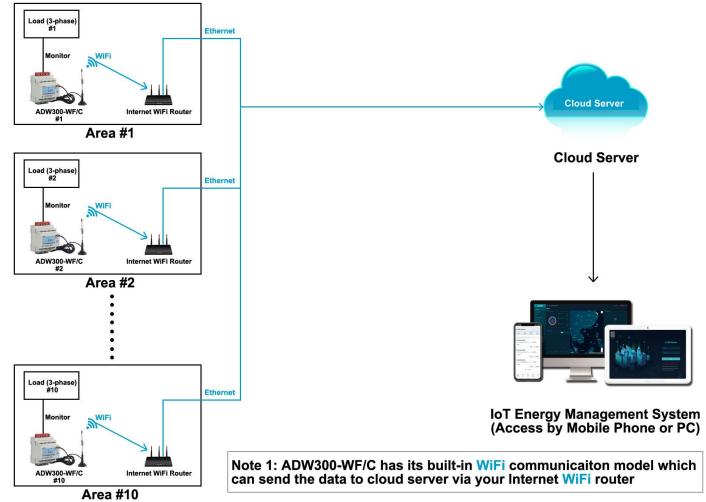
Area #1 - Power Circuit [3-phase] #1:

- 1* ADW300-WF/C WiFi 3-phase Energy Meter [For monitoring Power Circuit #1 & WiFi Data Upstream]
 - 3* AKH-0.66/K K- 24 150/5 Split-core Current Transformer [For current input of ADW300-WF/C]
 .

Area #10 - Power Circuit [3-phase] #10:

- 1* ADW300-WF/C WiFi 3-phase Energy Meter [For monitoring Power Circuit #10 & WiFi Data Upstream]

- 3* AKH-0.66/K K- 24 150/5 Split-core Current Transformer [For current input of ADW300-WF/C]



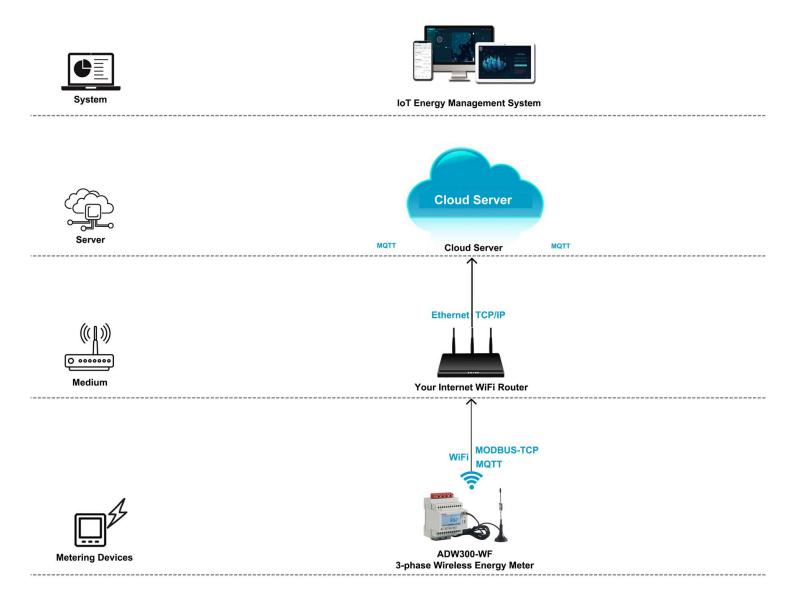


2. Communication Structure&Logic - [3-phase, Separate, WiFi based Solution]

WiFi Communication could be served as one of the final data upstream methods by sending the data to cloud server deployed in Internet via your WiFi Internet Router so that Acrel IoT System could be interact with these data collected by bottom metering devices like Energy Meter
 ADW300-WF/C Wireless WiFi 3-phase Energy Meter has a built-in WiFi communication module which allow it to directly send data to your Internet WiFi Router using MQTT and MODBUS-TCP protocol without using a extra WiFi IoT Gateway. Then your WiFi router will send the data further to internet for a final data upstreaming.

(3) In the factory manufacturing stage, we can set the WiFi configuration (WiFi SSID and password) in ADW300-WF/C so that users don't need to set WiFi configuration again.

(4) ADW300-WF/C also have a RS485 communication normally used for devices adjustment with Acrel ADW300 adjustment softare. For example, setting like WiFi configuration could be done.





3. Hardware Devices Overview - [3-phase, Separate, WiFi based Solution]

Model 1: ADW300-WF/C WiFi 3-phase IoT Energy Meter

- Monitoring: Up to 1 circuits 3-phase [AC Metering]
- Wireless Comms.: WiFi [MQTT, MODBUS Protocol]
- Wired Comms.: RS485 [MODBUS-RTU Protocol]
- Rated Current: 3x1(6)A AC [via -/5A CTs.]
- Rated Voltage: Up to 3x660Vac L-L
- Certificate&Standard: CE, CE-RED



	AC	60~400A
Model 2: AKH-0.66/K K- 24 150/5 Split-core Current Transformer	Split Core	Class 0.5
- Current Ratio: 150A/5A		
- Primary Current: 150A		
- Secondary Current: 5A	Sec.	

- Accuracy: Class 0.5 or 1.0
- Certificate&Standard: CE





3. Overall Model Selection&Quoation - [3-phase, Separate, WiFi based Solution]

			System Software				
Name			Description	System Price			Remark ice or Buy-out Service after 3- ial of Cloud IoT System)
			II the meters across the country whose data has server through 4G,WiFi or Ethernet . ading and data collection.	\$0 (recommended in pilot pro	ojtect)	3-m	onth Free Trail ed to rent a cloud server))
		4.Generate energy of period with year-on-	for mobile phone side and IoT WEB for PC side. data report of daily, monthly and annually yeay and period-on-period energy analysis.	\$xxx/Year (For 10 Poir (Price for Host Service 0 recommended in pilot pro	Dnly,	connected	Service for 1 monitoring points to the system 1 year eed to rent a cloud server)
Acrel Cloud IoT Energy Manage	ment System	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		\$xxxxPermanent (Limitless (Price for Buy-out Serv Only,recommended in late p	ice	1-time charging of \$xxxx for Buy-out Service permanent use (Limitless monitoring points ar cloud server need to be rent by users)	
			Cloud Server				
Name			Description	Server Renting Price (For Reference Only			Remark
Cloud Server Cloud Server	Cloud Server Cloud Server Cloud Server Cloud Server Cloud Server Cloud Server		 Cloud Server could be rent on the cloud server provider like Amazon Cloud. 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. The quotation of Cloud Server is only a reference price that we have rent on Amazon Cloud. 		ed Cloud	Below cloud server specs could support 1000~2000 monitoings points connected to system (Server: 8 core 16G Operation System: windows server 2016	
			WiFi Wireless Energy Met	er			
Overview Picture	USAGE&MC	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	NIT PRICE (USD)	AMOUNT (USD)
	ADW300-WF/C		Communication: WiFi Wireless Communication (2.4GHz)&RS485 (MODBUS-RTU) Rated Voltage: 3x380~456Vac L-L or 3x660Vac L-L (45~65Hz) Rated Current: 3x1(6)A AC (via CTs) Auxiliary Power Supply: 85~265Vac	10 pcs	1		I
			Paired Split-core CT				
Overview Picture	USAGE&MC	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	NIT PRICE (USD)	AMOUNT (USD)
		ent Trasnformer 6/Κ Κ-φ24	Current Ratio: 150/5A AC Aperture: ¢24mm (diameter) Accuracy: Class 1.0 Application: For current input of ADW300-WF/C	30 pcs	1		1



0. Scenario Preset - [1-phase, Centralized, 4G based Solution]

- (1) There are 10 Area with 1-phase Power System needed to be monitored.
- (2) Each area has 20 monitoring circuits 1-phase needed to be monitored online.
- (3) Rated voltage of monitoring circuit is 230Vac L-N, rated current of monitoring circuit is 80A AC.
- (4) All 1-phase energy meter will be of partial centralized installation in each area, which make it possbile for 1 AWT100-4GHW 4G IoT gateway to support 20 ADL200/C 1-phase Energy Meters using RS485 wired communication in a close range. (1 AWT100-4GHW can support max 25 ADL200/C energy meters if distance allowed (within 400m) and all 25 Energy Meters were of centralized installation along with this 1 AWT100-4GHW)

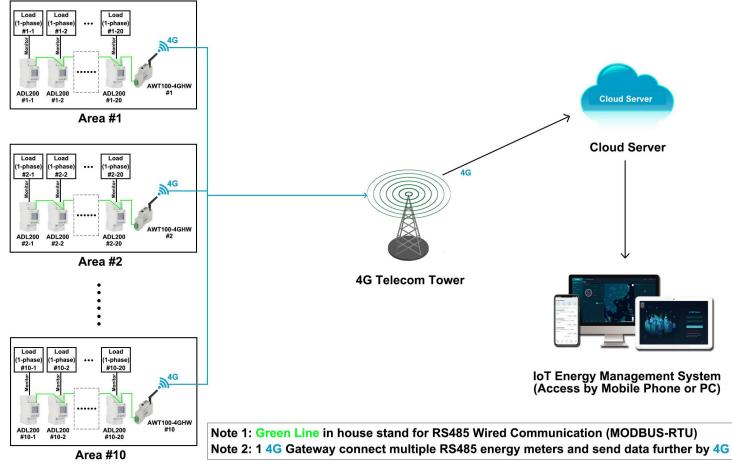
1. Devices Deployment Plan - [1-phase, Centralized, 4G based Solution]

Area #1 - Power Circuit [1-phase] #1-1 ~ #1-20:

- 1* AWT100-4GHW IoT 4G Gateway [Support 20* Energy Meters in Area #1 for 4G Data Upstream]
- 1* AWT100-POW Power Supply Module [For 85~265Vac/Vdc power supply of AWT100-4GHW]
- 20* ADL200/C 1-phase DIN-rail Energy Meter [For monitoring Power Circuit #1-1 ~ #1-20]

Area #10 - Power Circuit [1-phase] #10-1 ~ #10-20:

- 1* AWT100-4GHW IoT 4G Gateway [Support 20* Energy Meters in Area #10 for 4G Data Upstream]
 - 1* AWT100-POW Power Supply Module [For 85~265Vac/Vdc power supply of AWT100-4GHW]
 - 20* ADL200/C 1-phase DIN-rail Energy Meter [For monitoring Power Circuit #10-1 ~ #10-20]

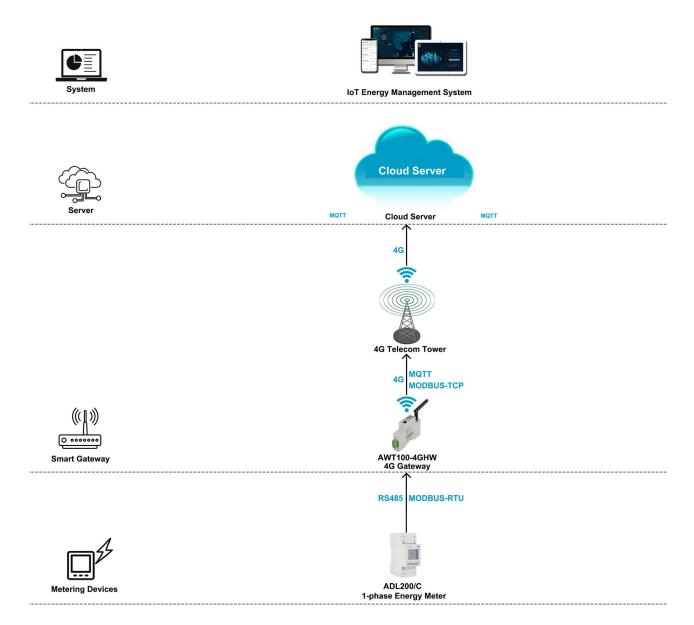




2. Communication Structure&Logic - [1-phase, Centralized, 4G based Solution]

(1) 4G Communication could be served as one of the final data upstream methods by sending the data to cloud server deployed in Internet so that Acrel IoT System could be interact with these data collected by bottom metering devices like Energy Meter

(2) AWT100-4GHW gateway support upstream of 4G communication with MQTT and MODBUS-protocol and downstream of RS485 communication based on MODBUS-RTU protocol. ADL200/C support upstream communication of RS485 communication based on MODBUS-RTU protocol.
(3) Based on the communication described in item (2), Acrel AWT100-4GHW gateway could receive the data from ADL200/C energy meter using RS485 communication while sending the data further to cloud server using 4G upstream communication. Thus accomplish a complete communication from bottom metering devices to top system software.





3. Hardware Devices Overview - [1-phase, Centralized, 4G based Solution]

Model 1: AWT1000-4GHW IoT 4G Smart Gateway

- Upstream Comms.: 4G LTE [MQTT, MODBUS Protocol]
- Downstream Comms.: RS485 [MODBUS-RTU Protocol]
- Support: Up to 25 Downstream Devices via RS485.
- Auxiliary Power Supply: 85~265Vac [via AWT100-POW]
- Certificate&Standard: CE; CE-RED; IEC

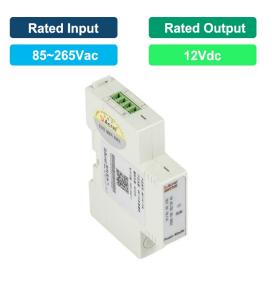
Model 2: AWT100-POW Power Supply Module

- Input: 85~265Vac
- Output: 12Vdc
- Application: Paired with AWT100-4GHW for 85~265Vac

Power Supply Input [via PIN L & PIN N]

- Certificate&Standard: CE

IoT Gateway MQTT&MODBUS RS485 Downstream



1-phase 2-wire Direct Connect RS485 MODBUS-RTU

- Monitoring: Up 1 circuits 1-phase [AC Metering] - Rated Voltage: 220~264Vac L-N

- Rated Current: 10(80)A AC (via direct connect)

Model 2: ADL200 1-phase AC DIN-rail Energy Meter

- Wired Comms: RS485 Interface, MODBUS-RTU Protocol
- Certificate&Standard: CE; CE-MID; EAC



4. Overall Model Selection&Quoation - [1-phase, Centralized, 4G based Solution]

		System Software				
Name		Description			Remark vice or Buy-out Service after 'rial of Cloud IoT System)	
	been sent to c	oort all the meters across the country whose data has loud server through 4G,WiFi or Ethernet .	\$0 (recommended in pilot pro	3-г	nonth Free Trail leed to rent a cloud server))	
	3.Provide IoT 4.Generate er	er reading and data collection. APP for mobile phone side and IoT WEB for PC side. ergy data report of daily, monthly and annually ar-on-yeay and period-on-period energy analysis.	\$xxxx/Year (For 200 Poi (Price for Host Service 0 recommended in pilot pro	ints) \$xx to buy Hosting Only, connecte	Service for 1 monitoring poi d to the system 1 year need to rent a cloud server)	
Acrel Cloud IoT Energy Manager	nent System of the system 6.Offer 3-mor	ous alarm function to ensure a stable operation and protect your property. th free trial of system with full technical support nase or pilot project.	\$xxxx/Permanent (Limitless (Price for Buy-out Serv Only,recommended in late p	rice permanent use (Li	1-time charging of \$xxxx for Buy-out Service of permanent use (Limitless monitoring points and cloud server need to be rent by users)	
		Cloud Server				
Name		Description	Server Renting Price (For Reference Only		Remark	
Cloud Server Cloud Server	Cloud. 2.Users of Cl cloud server v System . And our Cloud IoT rent on Amaz 3.The quotatic	 Cloud Server could be rent on the cloud server provider like Amazon Cloud. 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. The quotation of Cloud Server is only a reference price that we have rent on Amazon Cloud. 		ed Cloud 1000~2000 moni	server specs could support toings points connected to th system ver: 8 core 16G tem: windows server 2016)	
Overview Picture	USAGE&MODULE NAME	4G Smart Gateway	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)	
	4G Smart Gateway AWT100-4GHW	Upstream: 4G (use 4G SIM card, support MQTT&MODBUS-TCP Protocol) Downstream: RS485 (MODBUS-RTU) Support: up to 20~25 Energy Meters within 400m using RS485 Wired Communication Power Supply: 85~265Vac/Vdc	10 pcs	1	1	
	Power Supply Module AWT100-POW	Input: 85~265Vac/Vdc Output: 24Vdc Application: paired with AWT100 Series gateway for 85~265Vac/Vdc power supply input	10 pcs	1	1	
		1-phase Energy Meter				
Overview Picture	USAGE&MODULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)	AMOUNT (USD)	
	1-phase RS485 Energy Mete ADL200/C	Communication: RS485 (MODBUS-RTU) Multi-rates: 4 Tariff Rates and etc. Rated Voltage: 220-264Vac L-N (45~65Hz) Rated Current: 10(80)A AC (via direct connect)	200 pcs			



1. Scenario Preset - [1-phase, Centralized, WiFi based Solution]

- (1) There are 10 Area with 1-phase Power System needed to be monitored.
- (2) Each area has 20 monitoring circuits 1-phase needed to be monitored online.
- (2) Rated voltage of monitoring circuit is 230Vac L-N, rated current of monitoring circuit is 80A AC.
- (3) All 1-phase energy meter will be of partial centralized installation in each area, which make it
- possbile for 1 AWT100-WiFiHW WiFi IoT gateway to support 20 ADL200/C 1-phase Energy Meters

using RS485 wired communication in a close range. (1 AWT100-WiFiHW can support max 25

ADL200/C energy meters if distance allowed (within 400m) and all 25 Energy Meters were of centralized installation along with this 1 AWT100-WiFiHW)

2. Devices Deployment Plan - [1-phase, Centralized, WiFi based Solution]

Area #1 - Power Circuit [1-phase] #1-1 ~ #1-20:

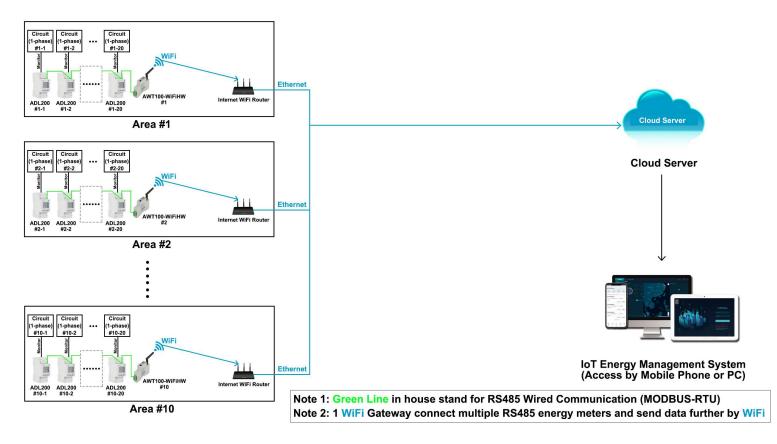
- 1* AWT100-WiFiHW WiFi Gateway [Support 20* Energy Meters in Area #1 for WiFi Data Upstream]
 - 1* AWT100-POW Power Supply Module [For 85~265Vac/Vdc power supply of AWT100-WiFiHW]
 - 20* ADL200/C 1-phase DIN-rail Energy Meter [For monitoring Power Circuit #1-1 ~ #1-20]

Area #10 - Power Circuit [1-phase] #10-1 ~ #10-20:

- 1* AWT100-WiFiHW WiFi Gateway [Support 20* Energy Meters in Area #10 for WiFi Data Upstream]

- 1* AWT100-POW Power Supply Module [For 85~265Vac/Vdc power supply of AWT100-WiFiHW]

- 20* ADL200/C 1-phase DIN-rail Energy Meter [For monitoring Power Circuit #10-1 ~ #10-20]

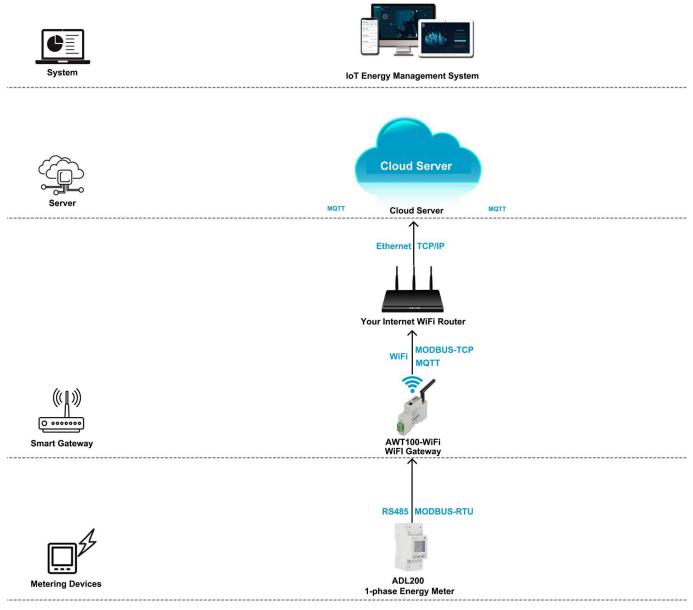




3. Communication Structure&Logic - [1-phase, Centralized, WiFi based Solution]

(1) WiFi Communication could be served as one of the final data upstream methods by sending the data to cloud server deployed in Internet so that Acrel IoT System could be interact with these data collected by bottom metering devices like Energy Meter

(2) AWT100-WiFiHW gateway support upstream of WiFi communication with MQTT and MODBUS-protocol and downstream of RS485 communication based on MODBUS-RTU protocol. ADL200/C support upstream communication of RS485 communication based on MODBUS-RTU protocol.
(3) Based on the communication described in item (2), Acrel AWT100-WiFiHW gateway could receive the data from ADL200/C energy meter using RS485 communication while sending the data further to cloud server using WiFi upstream communication. Thus accomplish a complete communication from bottom metering devices to top system software.





4. Hardware Devices Overview - [1-phase, Centralized, WiFi based Solution]

Model 1: AWT1000-WiFiHW IoT WiFi Smart Gateway

- Upstream Comms.: WiFi [MQTT, MODBUS Protocol]
- Downstream Comms.: RS485 [MODBUS-RTU Protocol]
- Support: Up to 25 Downstream Devices via RS485.
- Auxiliary Power Supply: 85~265Vac [via AWT100-POW]
- Certificate&Standard: CE; CE-RED; IEC

Model 2: AWT100-POW Power Supply Module

- Input: 85~265Vac
- Output: 12Vdc
- Application: Paired with AWT100-4GHW for 85~265Vac

Power Supply Input [via PIN L & PIN N]

- Certificate&Standard: CE



- Monitoring: Up 1 circuits 1-phase [AC Metering]
- Rated Voltage: 220~264Vac L-N
- Rated Current: 10(80)A AC (via direct connect)
- Wired Comms: RS485 Interface, MODBUS-RTU Protocol
- Certificate&Standard: CE; CE-MID; EAC









5. Overall Model Selection&Quoation - [1-phase, Centralized, WiFi based Solution]

			System Software				
Name			Description	System Price		(Choose Host Servi	Remark ce or Buy-out Service after 3-
			all the meters across the country whose data has server through 4G,WiFi or Ethernet .	\$0			al of Cloud loT System) onth Free Trail
		2.Remote meter re	ading and data collection. for mobile phone side and IoT WEB for PC side.	(recommended in pilot pro \$xxxx/Year (For 200 Poi	· · ·	,	ed to rent a cloud server)) Service for 1 monitoring points
		period with year-or	data report of daily, monthly and annually -yeay and period-on-period energy analysis. alarm function to ensure a stable operation	(Price for Host Service (recommended in pilot pro			to the system 1 year ed to rent a cloud server)
Acrel Cloud IoT Energy Managen	nent System	of the system and	protect your property. e trial of system with full technical support	\$xxxxPermanent (Limitless (Price for Buy-out Serv Only,recommended in late p	ice	permanent use (Lim	\$xxxx for Buy-out Service of itless monitoring points and a eed 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.				ud Below cloud server specs could supp 1000~2000 monitoings points connected system (Server: 8 core 16G Operation System: windows server 20	
			WiFi Smart Gateway			1	
Overview Picture	USAGE&MOI	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)
	WiFi Smar AWT100		Upstream: WiFi (2.4GHz, support MQTT&MODBUS-TCP Protocol) Downstream: RS485 (MODBUS-RTU) Support: up to 20–25 Energy Meters within 400m using RS485 Wired Communication Power Supply: 85-265Vac/Vdc	10 pcs	I		I
	Power Sup AWT10		Input: 85~265Vac/Vdc Output: 24Vdc Application: paired with AWT100 Series gateway for 85~265Vac/Vdc power supply input	10 pcs	1		I
			1-phase Energy Meter				
Overview Picture	USAGE&MOI	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)
	1-phase RS485 ADL2		Communication: RS485 (MODBUS-RTU) Multi-rates: 4 Tariff Rates and etc. Rated Voltage: 220~264Vac L-N (45~65Hz) Rated Current: 10(80)A AC (via direct connect)	200 pcs			



1. Scenario Preset - [1-phase, Separate,4G based Solution]

(1) There are 10 Areas power by 1-phase power system, each area is far from each other so impossible for centralized installation of energy meters.

(2) For each area, we need to monitor 1 circuit 1-phase of it for monitoring the overall area's load power consumption.

(3) Rated voltage of this main incoming circuit 1-phase is 230Vac L-N, and rated/max current was no more than 100A AC.

(4) For the places that we gonna install the energy meter, they are covered by stable 4G signal.

(5) Eventually, for each area we only need 1 pcs ADW310-D16-4GHW/C 1-phase 4G Energy Meter

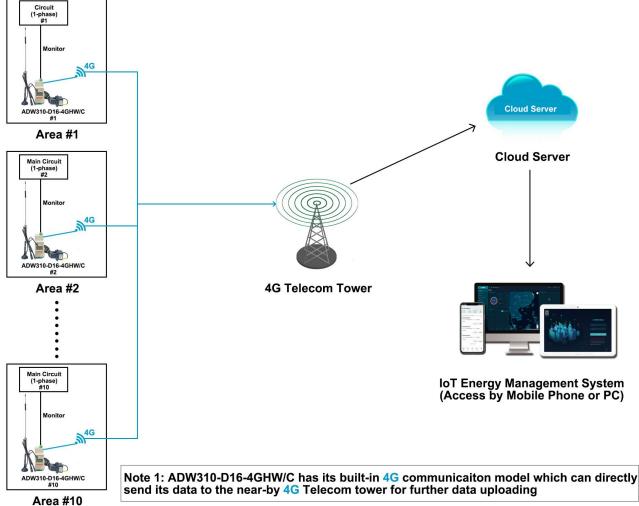
2. Devices Deployment Plan - [1-phase, Separate, 4G based Solution]

Area - Power Circuit (1-phase) #1:

- 1* ADW310-D16-4GHW/C 4G 1-phase Energy Meter [For monitoring Power Circuit #1 & 4G Upstream]

Area - Power Circuit (1-phase) #10:

- 1* ADW310-D16-4GHW/C 4G 1-phase Energy Meter [For monitoring Power Circuit #10 & 4G Upstream]





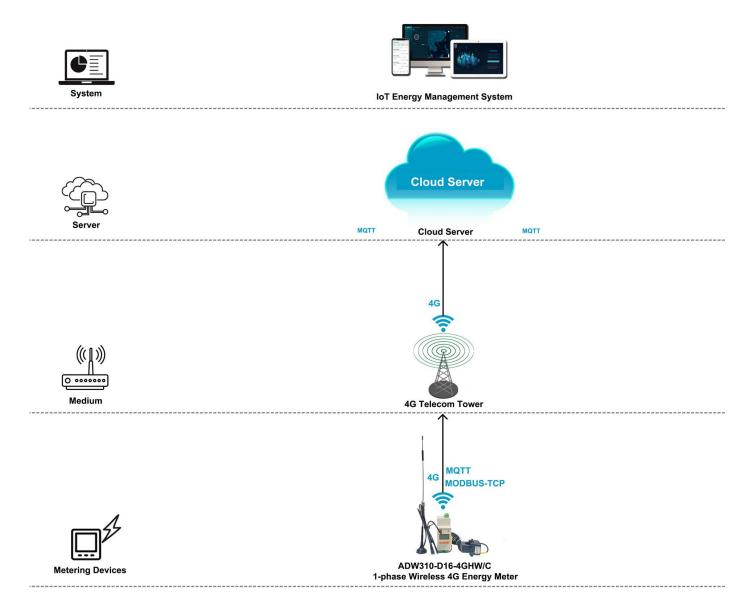
3. Communication Structure&Logic - [1-phase, Separate,4G based Solution]

(1) 4G Communication could be served as one of the final data upstream methods by sending the data to cloud server deployed in Internet so that Acrel IoT System could be interact with these data collected by bottom metering devices like Energy Meter

(2) ADW310-D16-4GHW/C Wireless 4G 1-phase Energy Meter has a built-in 4G communication module which allow it to directly send data to local 4G telecom tower through 4G signal based on MQTT and MODBUS-TCP protocol without using a extra 4G IoT Gateway.

(3) Each ADW310-D16-4GHW/C has a 4G card tray for installing the 4G sim card which could be bought from your local 4G service provider.

(4) ADW310-D16-4GHW/C also have a RS485 communication normally used for devices adjustment with Acrel ADW310 adjustment softare.





4. Hardware Devices Overview - [1-phase, Separate, 4G based Solution]

Model 1: ADW310-Dxx-4GHW/C 4G 1-phase IoT Energy Meter

- Monitoring: Up to 1 circuits 3-phase [AC Metering]
- Wireless Comms.: 4G LTE [MQTT, MODBUS Protocol]
- Wired Comms.: RS485 [MODBUS-RTU Protocol]
- Rated Current: 3x1(6)A AC [via -/5A CTs.]
- Rated Voltage: Up to 220~264Vac L-N
- Certificate&Standard: CE





5. Overall Model Selection&Quoation - [1-phase, Separate, 4G based Solution]

			System Software				
Name			Description	System Price			Remark ice or Buy-out Service after 3 ial of Cloud IoT System)
		been sent to cloud s	II the meters across the country whose data has server through 4G,WiFi or Ethernet . ading and data collection.	\$0 (recommended in pilot pr	ojtect)	3-month Free Trail	
		4.Generate energy	for mobile phone side and IoT WEB for PC side. data report of daily, monthly and annually yeay and period-on-period energy analysis.	\$xxx/Year (For 10 Poi (Price for Host Service recommended in pilot pr	Only,	connected	Service for 1 monitoring point to the system 1 year eed to rent a cloud server)
Acrel Cloud IoT Energy Manager	ment System	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		\$xxxxPermanent (Limitless Points) (Price for Buy-out Service Only,recommended in late projtect)		1-time charging of \$xxxx for Buy-out Service permanent use (Limitless monitoring points an cloud server need to be rent by users)	
			Cloud Server				
Name	Name		Description		Server Renting Price (For Reference Only)		Remark
Cloud Server Cloud Server	Cloud Server Cloud Server Cloud Server Cloud Server Cloud Server Cloud Server Cloud Server System. And if t our Cloud IoT Sy rent on Amazon 3.The quotation		Cloud Server could be rent on the cloud server provider like Amazon rud. Sers of Cloud IoT Energy Management System only need to rent ud server when they choose buy-out service of our Cloud IoT stem . And if they are using hosting service or 3-month free trial of Cloud IoT System, we will use our own cloud server which has been to n Amazon so that users don't need to rent a cloud server. The quotation of Cloud Server is only a reference price that we have t on Amazon Cloud.				erver specs could support bings points connected to the system rer: 8 core 16G m: windows server 2016)
			4G Wireless Energy Met	er			
Overview Picture	USAGE&MOI	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)
	1-phase 4G Wirele ADW310-D1		Communication: 4G (MODBUS-TCP, MQTT) & RS485 (MODBUS-RTU) Rated Voltage: 220~264Vac L-N Rated Current: 20(100)A AC (via paired external CTs)	10 pcs	\$\$_		
	Paired 1* External Trasnfe		Current Ratio: 100A/25mA AC Aperture: φ16mm Appliaction: Paired with ADW310-D16-WF/C for current input	10 pcs		g both Energy meter d External CTs)	



1. Scenario Preset - [1-phase, Separate, WiFi based Solution]

(1) There are 10 Areas power by 1-phase power system, each area is far from each other so impossible for centralized installation of energy meters.

(2) For each area, we need to monitor 1 circuit 1-phase of it for monitoring the overall area's load power consumption.

(3) Rated voltage of this main incoming circuit 1-phase is 230Vac L-N, and rated/max current was no more than 100A AC.

(4) For the places that we gonna install the energy meter, they are covered by stable WiFi signal.

(5) Eventually, for each area we only need 1 pcs ADW310-D16-WF/C WiFi 1-phase Energy Meter.

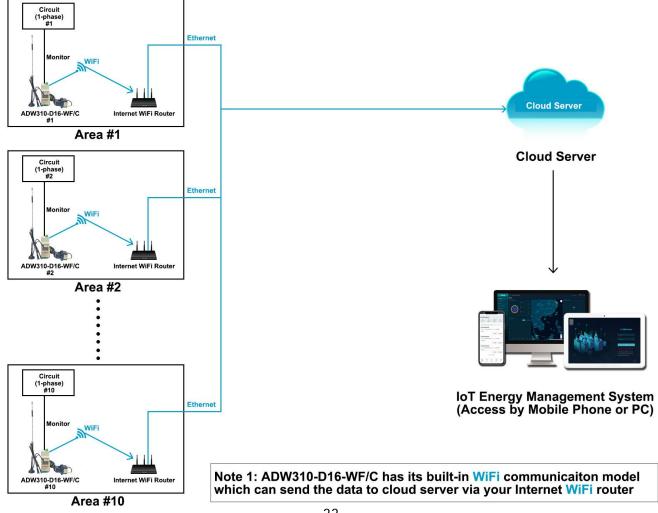
2. Devices Deployment Plan - [1-phase, Separate, WiFi based Solution]

Area #1- Power Circuit (1-phase) #1:

- 1* ADW310-D16-WF/C WiFi 1-phase Energy Meter [For monitoring Power Circuit #1 & WiFi Upstream]

Area #10 - Power Circuit (1-phase) #10:

- 1* ADW310-D16-WF/C Wireless WiFi Energy Meter [For monitoring Power Circuit #10 & WiFi Upstream]

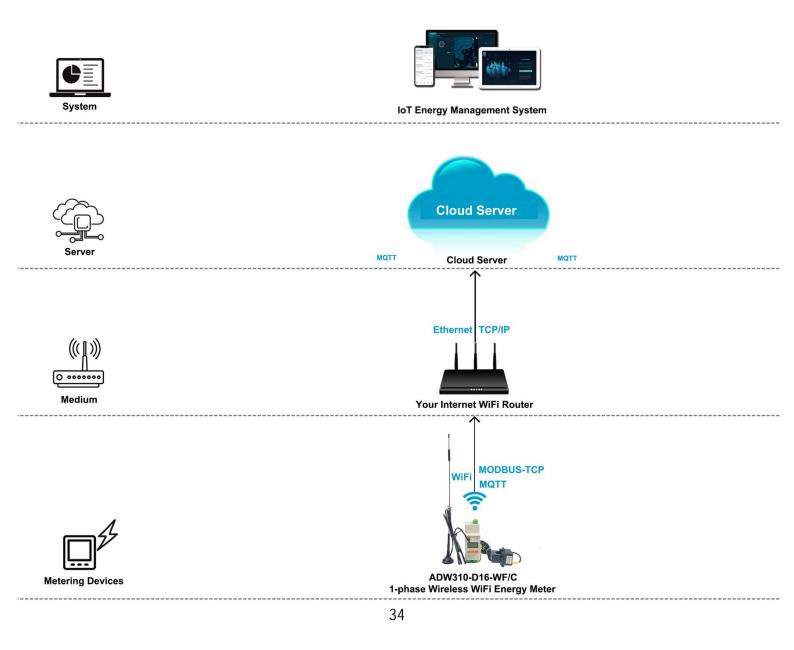




3. Communication Structure&Logic - [1-phase, Separate, WiFi based Solution]

WiFi Communication could be served as one of the final data upstream methods by sending the data to cloud server deployed in Internet via your WiFi Internet Router so that Acrel IoT System could be interact with these data collected by bottom metering devices like Energy Meter
 ADW310-D16-WF/C Wireless WiFi 1-phase Energy Meter has a built-in WiFi communication module which allow it to directly send data to your Internet WiFi Router using MQTT and MODBUS-TCP protocol without using a extra WiFi IoT Gateway. Then your WiFi router will send the data further to internet for a final data upstreaming.

(3) In the factory manufacturing stage, we can set the WiFi configuration (WiFi account and password) in ADW310-D16-WF/C so that users normally don't need to set WiFi configuration again.
(4) ADW310-D16-WF/C also have a RS485 communication normally used for devices adjustment with Acrel ADW310 adjustment softare. For example, setting like WiFi configuration could be done.





4. Hardware Devices Overview - [1-phase, Separate, WiFi based Solution]

Model 1: ADW310-Dxx-WF/C WiFi 1-phase IoT Energy Meter

- Monitoring: Up to 1 circuits 3-phase [AC Metering]
- Wireless Comms.: WiFi [MQTT, MODBUS Protocol]
- Wired Comms.: RS485 [MODBUS-RTU Protocol]
- Rated Current: 3x1(6)A AC [via -/5A CTs.]
- Rated Voltage: Up to 220~264Vac L-N
- Certificate&Standard: CE





4. Overall Model Selection&Quoation - [1-phase, Separate, WiFi based Solution]

			System Software					
Name			Description	System Price			Remark ce or Buy-out Service after 3- al of Cloud IoT System)	
	<u> </u>	been sent to cloud s	Il the meters across the country whose data has erver through 4G,WiFi or Ethernet . ading and data collection.	\$0 (recommended in pilot pr	ojtect)		onth Free Trail ed to rent a cloud server))	
	A REAL PROPERTY OF A REAL PROPER	4.Generate energy of period with year-on-	for mobile phone side and IoT WEB for PC side. data report of daily, monthly and annually yeay and period-on-period energy analysis.	\$xxx/Year (For 10 Poi (Price for Host Service recommended in pilot pr	Only,	connected	Service for 1 monitoring points to the system 1 year ed to rent a cloud server)	
Acrel Cloud IoT Energy Manager	5.Pro Acrel Cloud IoT Energy Management System 6.Off		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.		\$xxxxPermanent (Limitless Points) (Price for Buy-out Service Only,recommended in late projtect)		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	Name		Description		Server Renting Price (For Reference Only)		Remark	
Cloud Server Cloud Server	Cloud. 2.Users of Cloud I cloud server when i System. And if the our Cloud I Syst rent on Amazon so 3.The quotation of 3.The quotation of		Cloud Server could be rent on the cloud server provider like Amazon loud. Users of Cloud IoT Energy Management System only need to rent loud server when they choose buy-out service of our Cloud IoT iystem . And if they are using hosting service or 3-month free trial of ur Cloud IoT System, we will use our own cloud server which has been ant on Amazon so that users don't need to rent a cloud server. The quotation of Cloud Server is only a reference price that we have ant on Amazon Cloud.				river specs could support ings points connected to the system er: 8 core 16G m: windows server 2016)	
		1	WiFi Wireless Energy Me	ter		1		
Overview Picture	USAGE&MO	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)	
		eless Energy Meter D16-WF/C	Communication: WiFi (MODBUS-TCP, MQTT) & RS485 (MODBUS-RTU) Rated Voltage: 220~264Vac L-N Rated Current: 20(100)A AC (via paired external CTs)	10 pcs	\$			
	Paired 1* External Split-core Current Trasnformer		Current Ratio: 100A/25mA AC Aperture: φ16mm Appliaction: Paired with ADW310-D16-WF/C for current input	10 pcs	 (Including both Energy meter and External CTs) 			