

Ver. Date: Nov,2nd 2023

Acrel Co., Ltd.

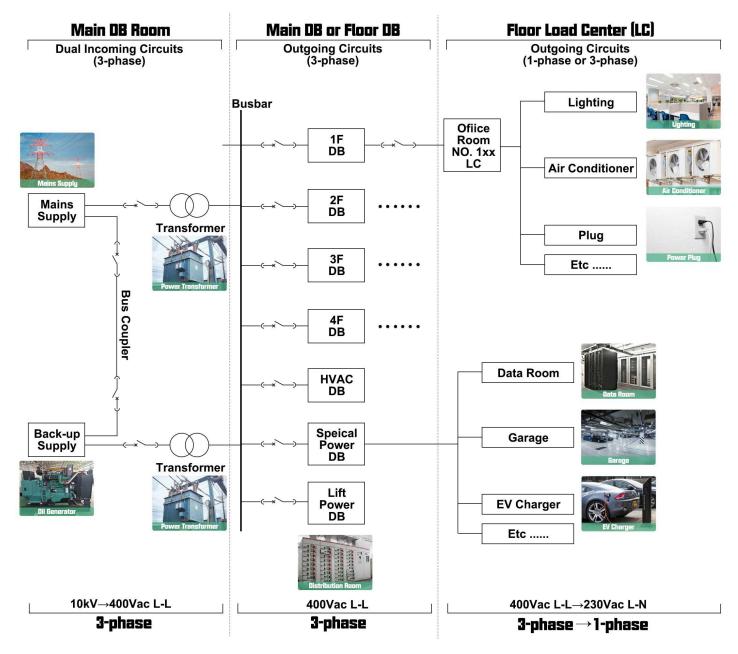
No.253 Yulv Road, Jiading District, Shanghai, China



Author: Loki Elfin E-mail: loki@acrel.cn Website: www.acrel-electric.fr

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' monitoring point and deploy compatible energy meter and paired CTs if requested on them for energy monitoring. And then select compatible loT 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.

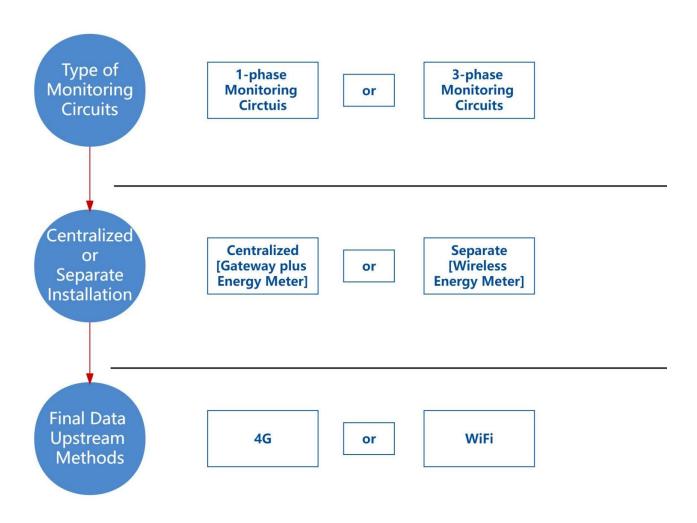


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0. Basic Solution Selection Logic

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 or Ethernet]
 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]





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

- (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 possible 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.

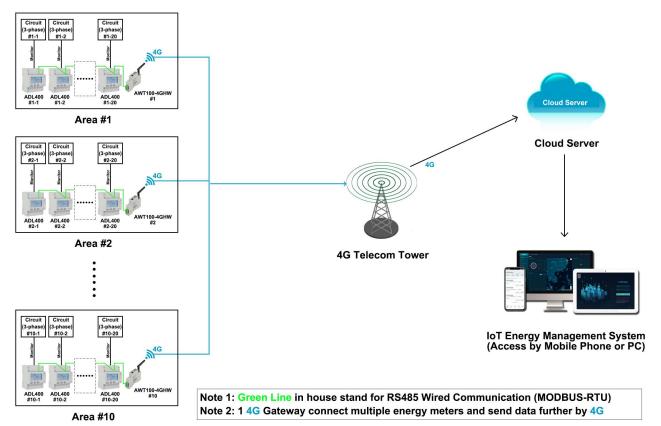
2. Devices Deployment Plan [3-phase, Centralized, 4G based Solution]

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]

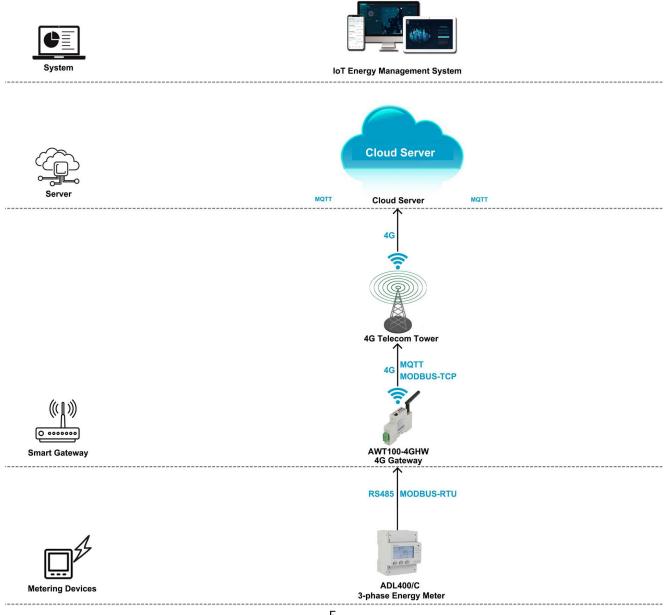




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2. Communication Structure&Logic - [3-phase, Centralized, 4G based Solution]

- (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.



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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
- More Introduciton: https://www.acrel-electric.fr/product/

awt100_4ghw_iot_smart_4g_gateway



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

Rated Input

Rated Output

85~265Vac 12Vdc



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

More Introduction: https://www.acrel-electric.fr/product/

adl400_three_phase_din_rail_energy_meter

3-phase

35mm DIN Rail

Direct or via CTs MODBUS-RTU





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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 1.0Certificate&Standard: CE

- More Introduction: https://www.acrel-electric.fr/product/split_core

_current_transformer_akh_0_66_k_24





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4. Overall Model Selection&Quoation - [3-phase, Centralized, 4G based 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 month Free Trial of Cloud IoT System)		
	·)	been sent to cloud	System support all the meters across the country whose data has been sent to cloud server through 4G,WiFi or Ethernet. Remote meter reading and data collection.		\$0 (recommended in pilot projtect)		onth Free Trail ed to rent a cloud server))	
		3.Provide IoT APP 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.	\$xxxx/Year (For 200 Po (Price for Host Service of recommended in pilot pro	Only,	connected	Service for 1 monitoring points to the system 1 year ed to rent a cloud server)	
Acrel Cloud IoT Energy Manager	Acrel Cloud IoT Energy Management System		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	Points)	permanent use (Lim	\$xxxx for Buy-out Service of itless monitoring points and a leed to be rent by users)	
		us for a test phase	Cloud Server					
Name			Description	Server Renting Price (For Reference Only			Remark	
			ld be rent on the cloud server provider like Amazon	(For Notice City	,			
Cloud Server Cloud Server	Cloud Server		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 (Server		erver specs could support oings points connected to the system ver: 8 core 16G em: windows server 2016)	
			4G Smart Gateway					
Overview Picture	USAGE&MO	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB UNIT PRICE (USD)		AMOUNT (USD)	
		t Gateway 0-4GHW	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		1	
The same of the sa		oply Module 00-POW	Input: 85~265Vac/Vdc Output: 24Vdc Application: paired with AWT100 Series gateway for 85~265Vac/Vdc power supply input	10 pcs	1		ı	
			3-phase Energy Meter					
Overview Picture	USAGE&MO	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)	
EP 884		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	ı		1	
			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	I	



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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.

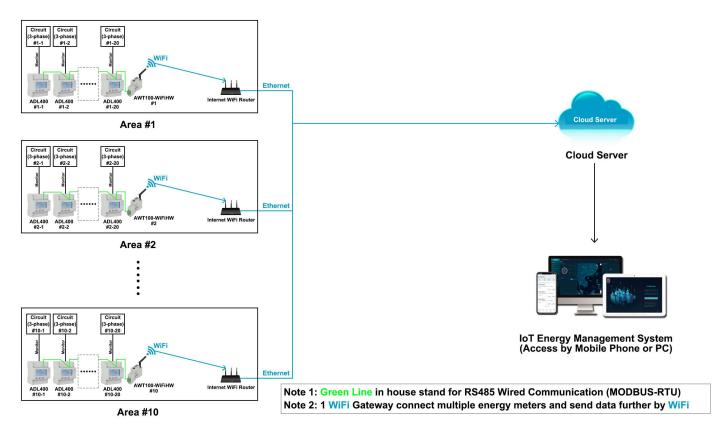
2. Devices Deployment Plan - [3-phase, Centralized, WIFi based Solution]

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]



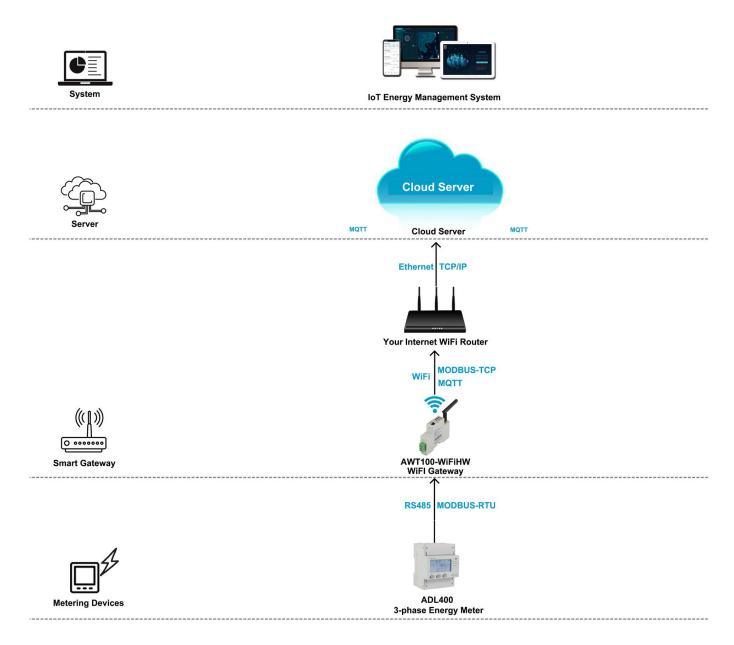


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3. Communication Structure&Logic - [3-phase, Centralized, WIFi based Solution]

- (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.



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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: 85~265VacOutput: 12Vdc

- Application: Paired with AWT100-4GHW for 85~265Vac

Power Supply Input [via PIN L & PIN N]

- Certificate&Standard: CE

Rated Input

85~265Vac

Rated Output

12Vdc



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

More Introduction: https://www.acrel-electric.fr/product/

adl400_three_phase_din_rail_energy_meter

3-phase

35mm DIN Rail

Direct or via CTs

MODBUS-RTU



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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 1.0Certificate&Standard: CE

- More Introduction: https://www.acrel-electric.fr/product/split_core

_current_transformer_akh_0_66_k_24





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4. Overall Model Selection&Quoation - [3-phase, Centralized, WIFi based 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 ice or Buy-out Service after ial of Cloud IoT System)	
			ill the meters across the country whose data has server through 4G,WiFi or Ethernet .	\$0		3-m	onth Free Trail	
		2.Remote meter re-	ading and data collection. for mobile phone side and IoT WEB for PC side.	(recommended in pilot p \$xxxx/Year (For 200 P		,	't need to rent a cloud server)) ing Service for 1 monitoring poin	
		4.Generate energy	data report of daily, monthly and annually -yeay and period-on-period energy analysis.	(Price for Host Service recommended in pilot p	Only,	connected	to the system 1 year eed to rent a cloud server)	
		5.Provide various a	larm function to ensure a stable operation	\$xxxxPermanent (Limitles			\$xxxx for Buy-out Service	
Acrel Cloud IoT Energy Manager	ment System		orotect your property. e trial of system with full technical support or pilot project.	(Price for Buy-out Se Only,recommended in late			nitless monitoring points ar need to be rent by users)	
			Cloud Server					
Name	Name Description Server Renting Price (For Reference Only)						Remark	
		1.Cloud Server cou	ld be rent on the cloud server provider like Amazon	(FOI Releience On	iy)			
Cloud Server		cloud server when t System. And if they our Cloud IoT Syste rent on Amazon so	of Energy Management System only need to rent hey choose buy-out service of our Cloud lot / 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	f 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)		
			WiFi Smart Gateway					
Overview Picture	USAGE&MO	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)	
		rt Gateway - -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	
To state the state of the state		oply Module 00-POW	Input: 85~265Vac/Vdc Output: 24Vdc Application: paired with AWT100 Series gateway for 85~265Vac/Vdc power supply input	10 pcs	I		1	
			3-phase Energy Meter					
Overview Picture	USAGE&MO	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)	
P 1984		ail Energy Meter L 400	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		1	
			Paired CTs		'			
		ent Trasnformer 6/K K-φ24	Current Ratio: 150/5A AC Aperture: φ24mm (diameter) Accuracy: Class 1.0 Application: Paired with ADL400/C for current	600 pcs		/	1	

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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]

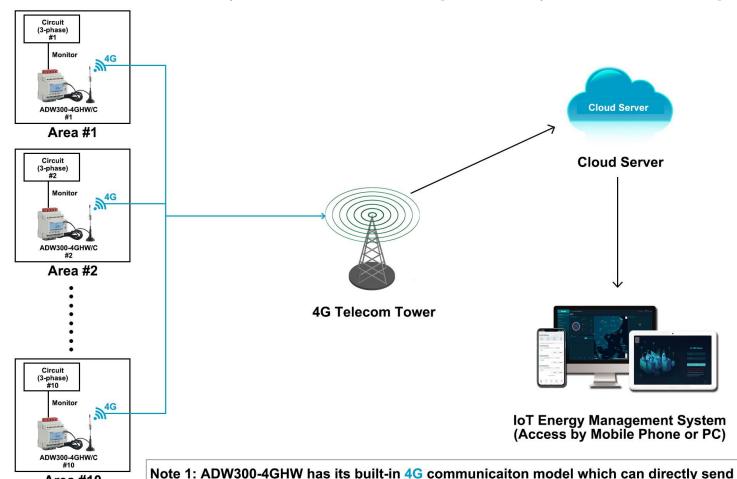
Area #1 - Power Circuit [3-phsae] #1:

- 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:

Area #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]



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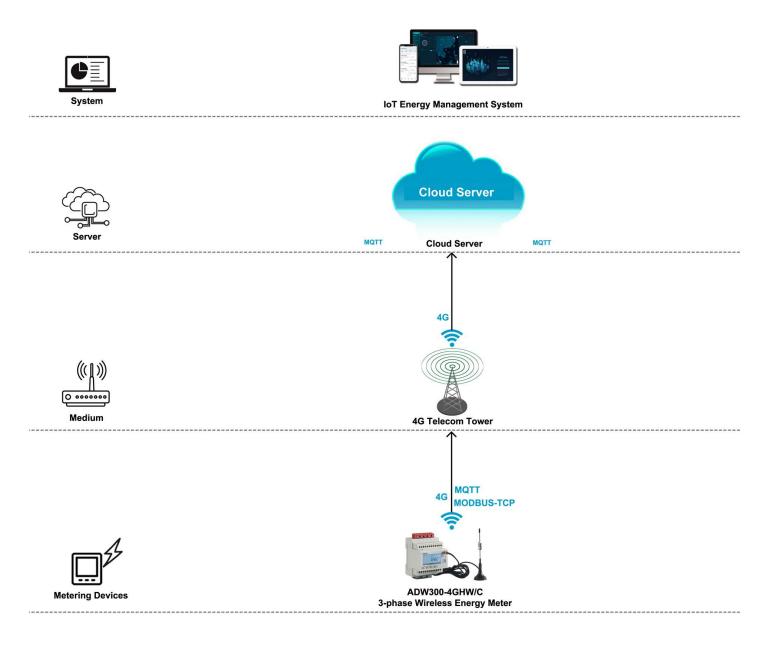
its data to the near-by 4G Telecom tower for further data uploading



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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.



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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]

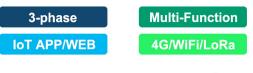
- Rated Current: 3x1(6)A AC [via -/5A CTs.]

- Rated Voltage: Up to 3x660Vac L-L

- Certificate&Standard: CE, CE-RED

- More Introduction: https://www.acrel-electric.fr/product/

adw300_iot_wireless_smart_energy_meter





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 1.0Certificate&Standard: CE

More Introduction: https://www.acrel-electric.fr/product/split_core

_current_transformer_akh_0_66_k_24





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4. Overall Model Selection&Quoation - [3-phase, Separate,4G based 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 aft month Free Trial of Cloud IoT System)	
0 0		been sent to cloud s	Il 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-month Free Trail (Users don't need to rent a cloud server)	
		3.Provide IoT APP 4.Generate energy of period with year-on-	for mobile phone side and loT 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 sed to rent a cloud server)
Acrel Cloud loT Energy Manager	ment System	of the system and p 6.Offer 3-month free	Provide various alarm function to ensure a stable operation the system and protect your property. Offers "Amongh free trial of system with full technical support		Points) rice projtect)	1-time charging of \$xxxx for Buy-out Service permanent use (Limitless monitoring points at 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 Cloud. 2.Users of Cloud server wh System. And if our Cloud IoT S rent on Amazor		d be rent on the cloud server provider like Amazon T Energy Management System only need to rent ney choose buy-out service of our Cloud IoT are using hosting service or 3-month free trial of m, 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.	t Below cloud server spec According to Specs of Rented Cloud Server Server Server: S		erver specs could support bings points connected to the system rer: 8 core 16G em: windows server 2016)	
			4G Wireless Energy Mete	er			
Overview Picture	USAGE&MO	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	NIT PRICE (USD)	AMOUNT (USD)
	3-phase 4G Wirel ADW300-		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&MOI	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	NIT PRICE (USD)	AMOUNT (USD)
	Split-core Curre AKH-0.66		Current Ratio: 150A/5A AC Aperture: φ24mm (diameter) Accuracy: Class 1.0	30pcs		1	1



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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.

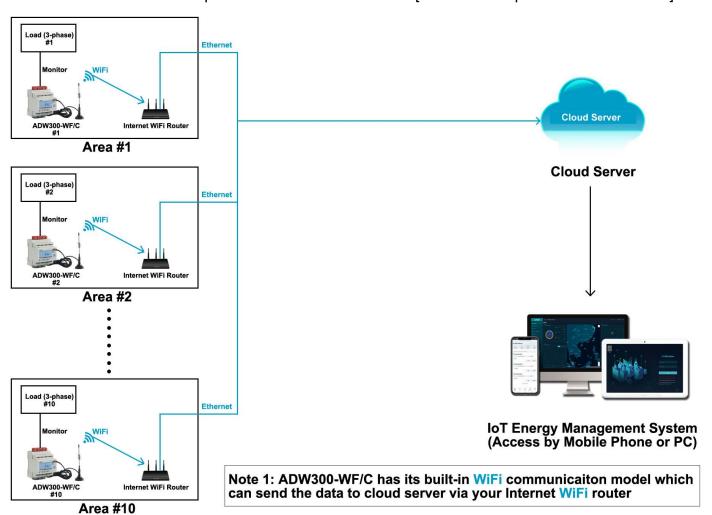
2. Devices Deployment Plan - [3-phase, Separate, WiFi based Solution]

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]

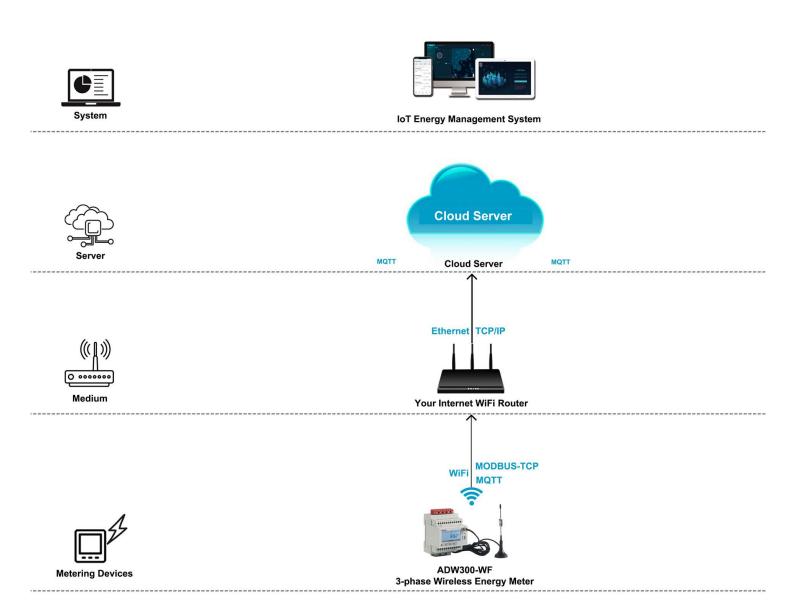




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2. Communication Structure&Logic - [3-phase, Separate, WiFi based Solution]

- (1) WiFi Communication could be served as one of the final data upstream methods by sending the data to cloud server deployed in Internet via your WiFi Internet Router so that Acrel IoT System could be interact with these data collected by bottom metering devices like Energy Meter
- (2) 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.



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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]

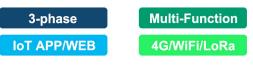
- Rated Current: 3x1(6)A AC [via -/5A CTs.]

- Rated Voltage: Up to 3x660Vac L-L

- Certificate&Standard: CE, CE-RED

- More Introduction: https://www.acrel-electric.fr/product/

adw300_iot_wireless_smart_energy_meter





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 1.0Certificate&Standard: CE

- More Introduction: https://www.acrel-electric.fr/product/split_core

_current_transformer_akh_0_66_k_24





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3. Overall Model Selection&Quoation - [3-phase, Separate, WiFi based 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	Name		Description	System Price		Remark (Choose Host Service or Buy-out Service after month Free Trial of Cloud loT System)	
		been sent to cloud s	Il the meters across the country whose data has server through 4G,WiFi or Ethernet.	\$0 (recommended in pilot pr	ojtect)	3-month Free Trail (Users don't need to rent a cloud server))	
		3.Provide IoT APP 4.Generate energy	for mobile phone side and loT 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 recommended in pilot pro	Only,	\$xx to buy Hosting Service for 1 monitorin connected to the system 1 year (Users don't need to rent a cloud serv	
Acrel Cloud loT Energy Manage	Acrel Cloud IoT Energy Management System		larm function to ensure a stable operation rotect your property. e trial of system with full technical support or pilot project.	\$xxxxPermanent (Limitless Points)		1-time charging of \$xxxx for Buy-out Service permanent use (Limitless monitoring points a cloud server need to be rent by users)	
			Cloud Server				
Name	Name		Description	Server Renting Pric			Remark
Cloud Server	Cloud Server Cloud Server Cloud Server Cloud Server Cloud Server 3.Th		f Cloud IoT Energy Management System only need to rent ver when they choose buy-out service of our Cloud IoT And if they are using hosting service or 3-month free trial of IoT System, we will use our own cloud server which has been mazon so that users don't need to rent a cloud server. Itation of Cloud Server is only a reference price that we have mazon Cloud.		Below cloud server specs could 1000~2000 monitoings points condition system (Server: 8 core 16G Operation System: windows se		oings points connected to the system er: 8 core 16G
			WiFi Wireless Energy Met	er			
Overview Picture	USAGE&MC	DDULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)
552		reless Energy Meter 00-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		1
			Paired Split-core CT				
Overview Picture	USAGE&MC	DDULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB L	INIT PRICE (USD)	AMOUNT (USD)
Para San		rent Trasnformer i6/K K-φ24	Current Ratio: 150/5A AC Aperture: φ24mm (diameter) Accuracy: Class 1.0 Application: For current input of ADW300-WF/C	30 pcs		1	I

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Website: www.acrel-electric.fr

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]

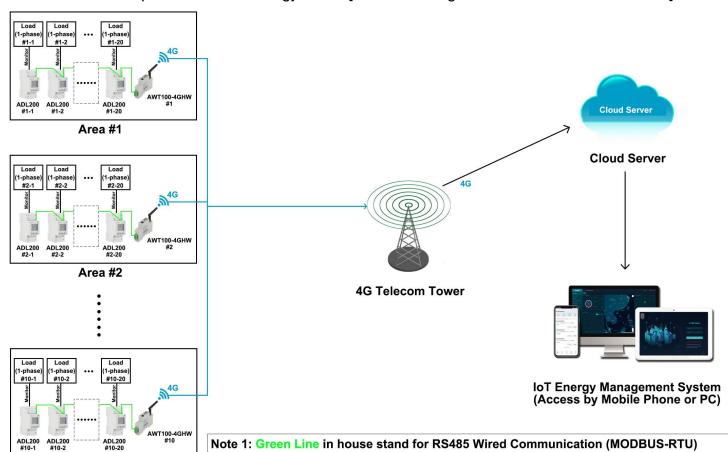
Area #1 - Power Circuit [1-phase] #1-1 ~ #1-20:

- 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:

Area #10

- 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]



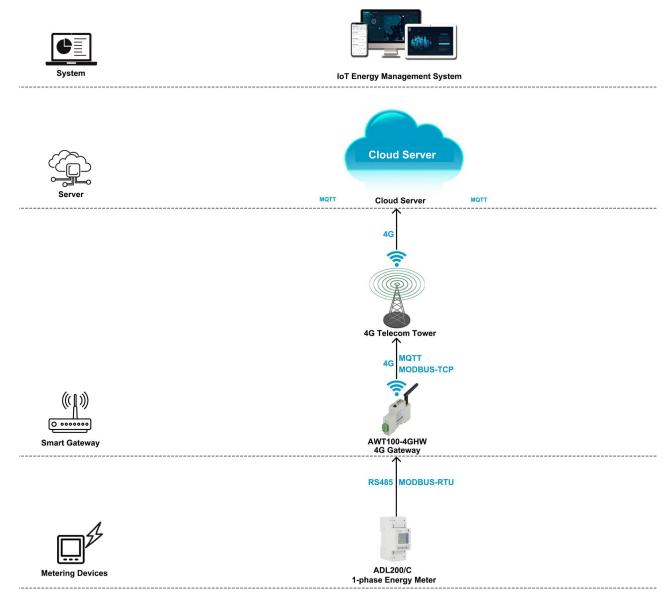
Note 2: 1 4G Gateway connect multiple RS485 energy meters and send data further by 4G



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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.



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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
- More Introduciton: https://www.acrel-electric.fr/product/

awt100_4ghw_iot_smart_4g_gateway



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: ADL200 1-phase AC DIN-rail Energy Meter

- 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

More Introduction: https://www.acrel-electric.fr/product/

adl200_single_phase_din_rail_energy_meter

1-phase 2-wire Direct Connect

AC Metering RS485 MODBUS-RTU





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4. Overall Model Selection&Quoation - [1-phase, Centralized, 4G based 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 month Free Trial of Cloud loT System)		
	· —)	System support all the meters across the country whose data has been sent to cloud server through 4G,WiFi or Ethernet. Remote meter reading and data collection.		\$0 (recommended in pilot projtect)		3-month Free Trail (Users don't need 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,	\$xx to buy Hosting Service for 1 monitori connected to the system 1 year (Users don't need to rent a cloud ser		
Acrel Cloud IoT Energy Managen		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.	\$xxxx/Permanent (Limitless (Price for Buy-out Serv Only,recommended in late p	rice	permanent use (Lim	\$xxxx for Buy-out Service of itless monitoring points and seed to be rent by users)	
			Cloud Server					
Name			Description	Server Renting Price (For Reference Only)			Remark	
Cloud Server Cloud Server Cloud Server Cloud Server 3.		Cloud. 2.Users of Cloud Identification cloud server when the system. And if they our Cloud IoT System ton Amazon so	In the cloud server provider like Amazon of Energy Management System only need to rent hey choose buy-out service of our Cloud loT 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 sud.			Below cloud server specs could support 1000~2000 monitoings points connected to the system (Server: 8 core 16G Operation System: windows server 2016)		
			4G Smart Gateway					
Overview Picture	USAGE&MO	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)	
	4G Smar AWT10	t Gateway 0-4GHW	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	
		pply Module 10-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&MO	DULE NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)	
Nove 223.3		5 Energy Meter 200/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				



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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)

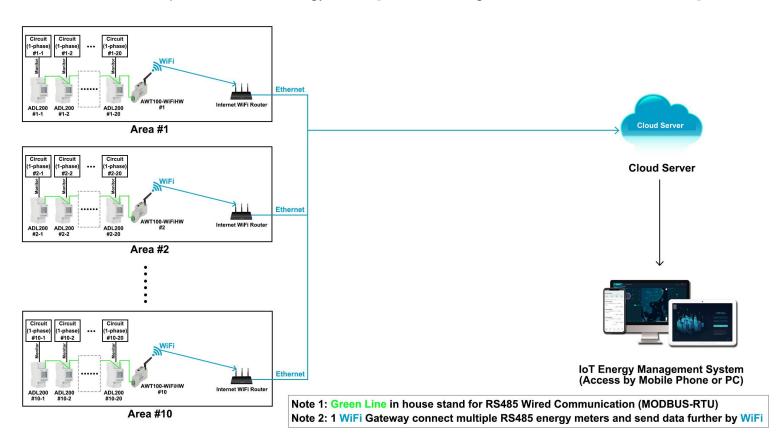
2. Devices Deployment Plan - [1-phase, Centralized, WiFi based Solution]

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]

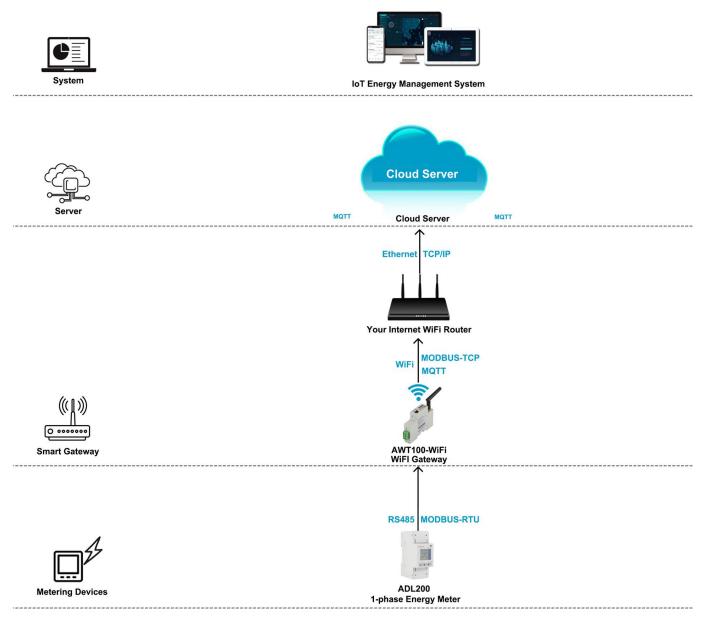




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3. Communication Structure&Logic - [1-phase, Centralized, WiFi based Solution]

- (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.



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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

Rated Input

Rated Output

12Vdc



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

- 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

More Introduction: https://www.acrel-electric.fr/product/

adl200_single_phase_din_rail_energy_meter

1-phase 2-wire

Direct Connect

AC Metering RS485 MODBUS-RTU





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5. Overall Model Selection&Quoation - [1-phase, Centralized, WiFi based 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	System Price		Remark ice or Buy-out Service after ial of Cloud IoT System)
	been sent to	System support all the meters across the country whose data has been sent to cloud server through 4G,WiFi or Ethernet. Remote meter reading and data collection.		\$0 (recommended in pilot projtect)		onth Free Trail ed to rent a cloud server))
	3.Provide le 4.Generate	T APP for mobile phone side and IoT WEB for PC side. energy data report of daily, monthly and annually	\$xxxx/Year (For 200 Po (Price for Host Service recommended in pilot pr	Only,	connected	Service for 1 monitoring poi to the system 1 year ed to rent a cloud server)
Acrel Cloud IoT Energy Manager	5.Provide v of the syste 6.Offer 3-m	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.		Points) vice projtect)	1-time charging of permanent use (Lim	\$xxxx for Buy-out Service of nitless monitoring points and need to be rent by users)
		Cloud Server				
Name		Description	Server Renting Pric			Remark
Cloud Server Cloud Server Cloud Server Cloud Server Cloud Server 3.The		ver could be rent on the cloud server provider like Amazon cloud IoT Energy Management System only need to ren when they choose buy-out service of our Cloud IoT if they are using hosting service or 3-month free trial of T System, we will use our own cloud server which has been sone that users don't need to rent a cloud server. ion of Cloud Server is only a reference price that we have zon Cloud.	of According to Specs of Rented Cloud Server		Below cloud server specs could support 1000~2000 monitoings points connected to system (Server: 8 core 16G Operation System: windows server 201	
		WiFi Smart Gateway				
Overview Picture	USAGE&MODULE NAM	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)
	WiFi Smart Gateway AWT100-WiFiHW	Upstream: WiFi (2.4GHz, support MQTT&MODBUS-TCP Protocol) Downstream: RS485 (MODBUS-RTU) Support: up to 20~25 Energy Meters within 400r using RS485 Wired Communication Power Supply: 85~265Vac/Vdc	n 10 pcs	/		/
M ANNO MARKET MA	Power Supply Module AWT100-POW	Input: 85~265Vac/Vdc Output: 24Vdc Application: paired with AWT100 Series gatewa for 85~265Vac/Vdc power supply input	y 10 pcs	/		1
		1-phase Energy Mete	r	•		
Overview Picture	USAGE&MODULE NAM	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	INIT PRICE (USD)	AMOUNT (USD)
32 mer 9	1-phase RS485 Energy Me	Communication: RS485 (MODBUS-RTU) for Multi-rates: 4 Tariff Rates and etc.	200 pcs			

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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

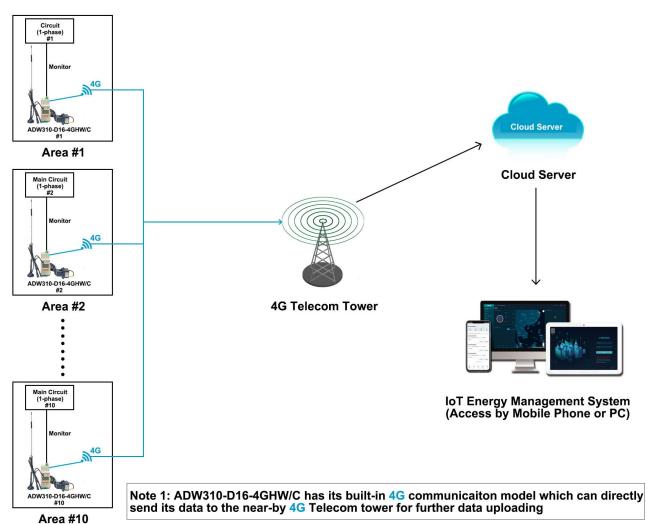
2. Devices Deployment Plan - [1-phase, Separate,4G based Solution]

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]

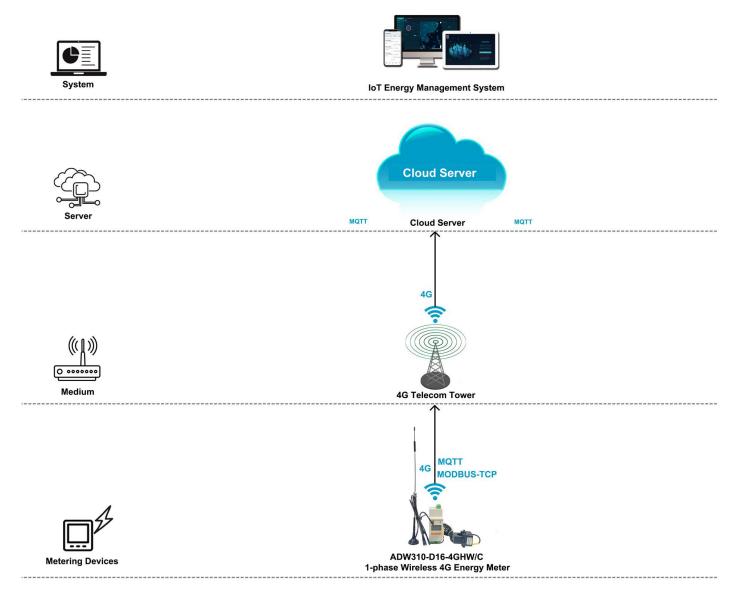




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3. Communication Structure&Logic - [1-phase, Separate,4G based Solution]

- (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.



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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

- More Introduction: https://www.acrel-electric.fr/product/adw310-

iot1-phase-wireless-smart-energy-meter





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5. Overall Model Selection&Quoation - [1-phase, Separate,4G based 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 vice or Buy-out Service after 3- rial of Cloud IoT System)	
	beer	n sent to cloud se	the meters across the country whose data has erver through 4G,WiFi or Ethernet . ding and data collection.	\$0 (recommended in pilot pro	ojtect)	3-month Free Trail (Users don't need to rent a cloud serv		
	3.Prov 4.Gen		for mobile phone side and IoT WEB for PC side. Interpretation of daily, monthly and annually yeay and period-on-period energy analysis.	\$xxx/Year (For 10 Poin (Price for Host Service (recommended in pilot pro	Only,	connected	Service for 1 monitoring poir to the system 1 year ed to rent a cloud server)	
Acrel Cloud IoT Energy Management System 5.Pro of the 6.Off		ne system and pr	larm function to ensure a stable operation protect your property. e trial of system with full technical support \$xxxxPermanent (Limitless Point (Price for Buy-out Service)		ice	ts) 1-time charging of \$xxxx for Buy-out Service permanent use (Limitless monitoring points		
			Cloud Server					
Name	Name		Description	Server Renting Price (For Reference Only)		Remark		
Cloud Server Cloud Server	Cloud. 2.Users of Cloud It cloud server Cloud Server System. And if they our Cloud IoT System to A Mazzon so 3. The graphetics of 1.		If be rent on the cloud server provider like Amazon T Energy Management System only need to rent ley choose buy-out service of our Cloud IoT are using hosting service or 3-month free trial of m, we will use our own cloud server which has been hat users don't need to rent a cloud server. Cloud Server is only a reference price that we have ud.	f 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)		
			4G Wireless Energy Meto	er				
Overview Picture	USAGE&MODULI	E NAME	DESCRIPTION & SPECIFICATION	QUANTITY	FOB U	NIT PRICE (USD)	AMOUNT (USD)	
	1-phase 4G Wireless E ADW310-D16-40	Energy Meter	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 Split Trasnforme		Current Ratio: 100A/25mA AC Aperture: φ16mm Appliaction: Paired with ADW310-D16-WF/C for current input	10 pcs		g both Energy meter External CTs)		



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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.

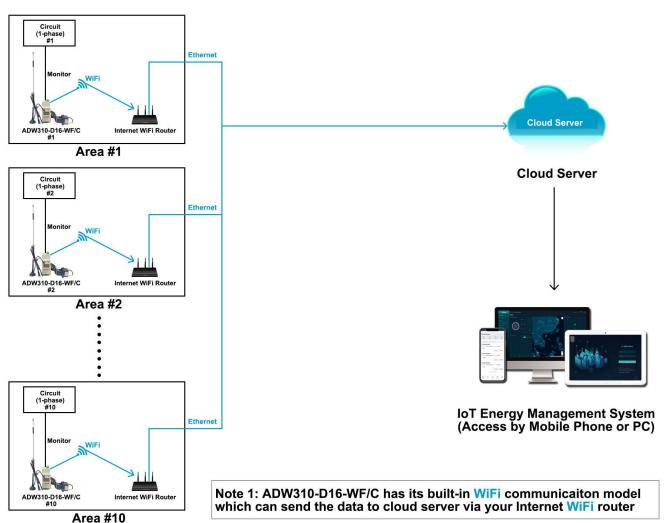
2. Devices Deployment Plan - [1-phase, Separate, WiFi based Solution]

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]

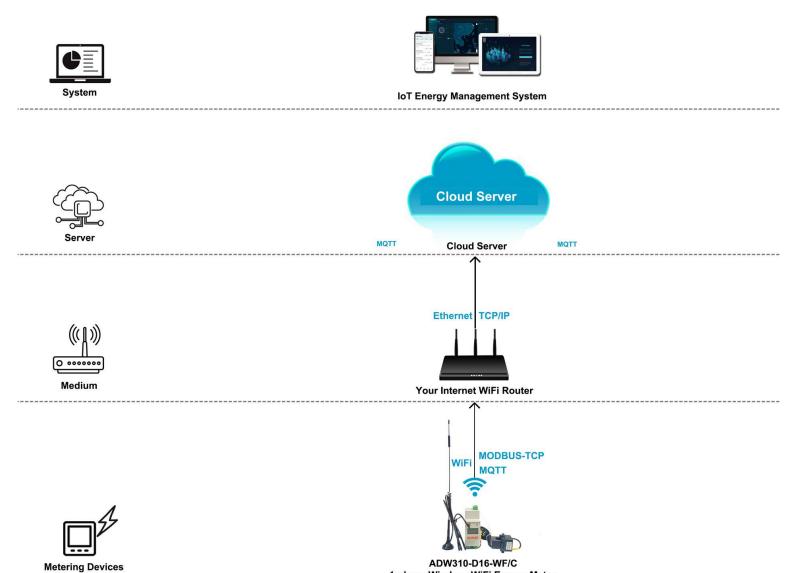




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3. Communication Structure&Logic - [1-phase, Separate, WiFi based Solution]

- (1) WiFi Communication could be served as one of the final data upstream methods by sending the data to cloud server deployed in Internet via your WiFi Internet Router so that Acrel IoT System could be interact with these data collected by bottom metering devices like Energy Meter
- (2) 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.



1-phase Wireless WiFi Energy Meter

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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

- More Introduction: https://www.acrel-electric.fr/product/adw310-

iot1-phase-wireless-smart-energy-meter





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4. Overall Model Selection&Quoation - [1-phase, Separate, WiFi based 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	Name		Description		System Price		Remark ice or Buy-out Service after 3- ial of Cloud IoT System)
			Il the meters across the country whose data has erver through 4G,WiFi or Ethernet. Iding and data collection.	\$0 (recommended in pilot pro		3-month Free Trail (Users don't need 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 of recommended in pilot pro	Only,	connected	Service for 1 monitoring points to the system 1 year ed to rent a cloud server)
Acrel Cloud IoT Energy Manage	ment System	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 of permanent use (Limitless monitoring points and cloud server need to be rent by users)	
			Cloud Server				
Name	Name		Description		Server Renting Price (For Reference Only)		Remark
Cloud Server	Cloud. 2. Users of Cloud cloud server whe System. And if the our Cloud IoT Syrent on Amazon. 2. The question.		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 loT are using hosting service or 3-month free trial of my 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 support 1000~2000 monitoings points connected to t system (Server: 8 core 16G Operation System: windows server 2016	
			WiFi Wireless Energy Met	ter			
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	\$ (Including both Energy meter and External CTs)		
		l Split-core Current former	Current Ratio: 100A/25mA AC Aperture: φ16mm Appliaction: Paired with ADW310-D16-WF/C for current input	10 pcs			

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5. Project Sample #1 - Phillipines Factory IoT Cloud Energy Management Project

(1) Project Overview:

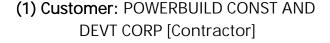
• Customer: POWERBUILD CONST AND DEVT CORP [Contractor]

· Country: Phillipines

• **Project Aim**: To realize the digitalization and visualiation of factory **3-phase** machines' and other loads' energy consumption management [Online Energy Management]

· Project Amount: About 100.000 USD



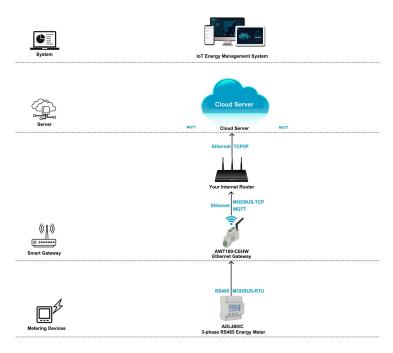




IoT Energy Management System

(1) Project Aim: Factory Online Energy Management Solution

- · AWT100-CEHW IoT Ethernet Gateway [Collect data from ADL400 via RS485 and upload data further to IoT system via Ethernet]
- · ADL400 3-phase Energy Meter [for monitoring 3-phase circuits and loads]
- · AKH-0.66/K K-xx Series Split-core CT [paired with ADL400 for current input.]



(2) Product Combination&Comms. Topology



(2) Project Site Picture
[Centralized installation&Monitoring]

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5. Project Sample #2 - USA Building IoT Cloud Energy Management Project

(1) Project Overview:

Customer: CISCO SYSTEMS INC [System Integrator]

· Country: USA

• **Project Aim**: To realize the digitalization and visualiation of building **3-phase** circuits and other loads' energy consumption management [Online Energy Management]

· Project Amount: About 200.000 USD



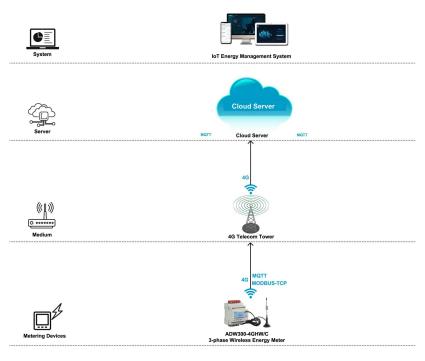
(1) Customer: CISCO SYSTEMS INC [System Integrator]



IoT Energy Management System

(1) Project Aim: Building Online Energy Management Solution

- ADW300-4GHW 3-phase 4G Energy Meter [for monitoring 3-phase circuits&loads and upload data to IoT system via 4G Comms. and MQTT protocol]
- AKH-0.66/K K- xx Series Split-core CT [paired with ADW300-4GHW for current input.]



(2) Product Combination&Comms. Topology



(2) Project Site Picture
[Centralized&Separate Mixed installation&Monitoring]

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5. Project Sample #3 - UK Deluxe Building Energy Management Project

(1) Project Overview:

· Customer: Deluxe House [Contractor]

· Country: UK

 Project Aim: To realize the digitalization and visualiation of building's overall sub-metering circuits energy consumption management [Online Energy Management]

· Project Amount: About 186.000 USD



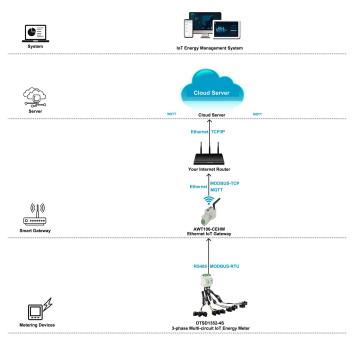
(1) Customer: Deluxe House [Contractor]



IoT Energy Management System

(1) Project Aim: Building Online Energy Management Solution

- AWT100-CEHW IoT Ethernet Gateway [Collect data from DTSD1352-4S via RS485 and upload data further to IoT system via Ethernet]
- · DTSD1352-4S 3-phase Multi-circuit Energy Meter [for monitoring up to 4 circuits 3-phase]
- · AKH-0.66/K K-xxN Series Split-core CT [paired with DTSD1352-4S for current input.]



(2) Product Combination&Comms. Topology





(2) Project Site Picture
[Centralized installation&Monitoring]

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5. Project Sample #4 - Chile Factory IoT Cloud Energy Management Project

(1) Project Overview:

- · Customer: Casa de Moneda [Industrial Customer/Party A]
- · Country: Chile
- Project Aim: To realize the digitalization and visualiation of factory 3-phase machines' and other loads' energy consumption management[Online Energy Management]
- · Project Amount: About 50.000 USD



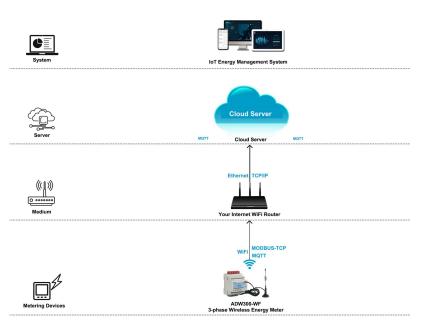
(1) Customer: Casa de Moneda [Industrial Customer/Party A]



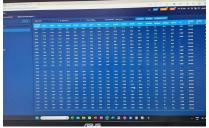
IoT Energy Management System

(1) Project Aim: Factory Online Energy Management Solution

- ADW300-WF 3-phase WiFi Energy Meter [for monitoring 3-phase circuits&loads and upload data to IoT system via WiFi Comms. and MQTT protocol]
- · AKH-0.66/K K- xx Series Split-core CT [paired with ADW300-WF for current input.]



(2) Product Combination&Comms. Topology







(2) Project Site Picture [Centralized&Separated Mixed installation&Monitoring]