



ADT Smart Grid Energy Management System

AUO Digitech

2022/09

ADT is a wholly owned subsidiary, supply smart manufacturing



Founded in

2020

Number of employees

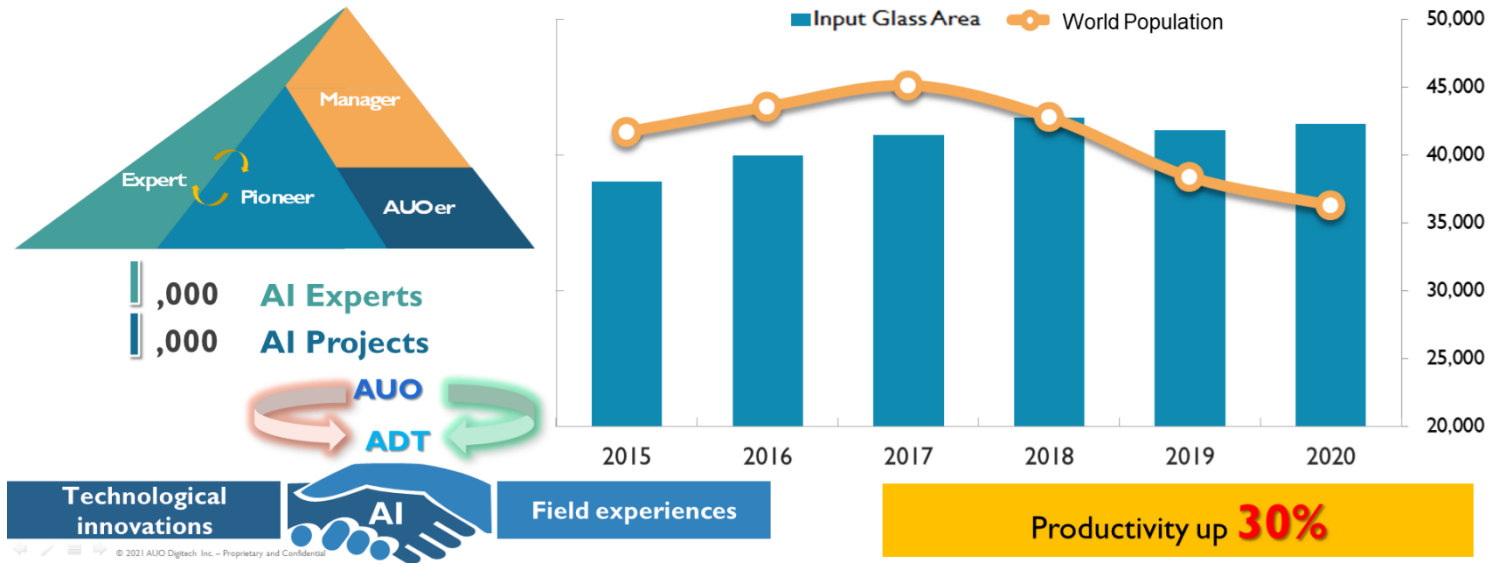
150+

Global Digital Empowerment



- We have team support in different regions to provide automation & intelligent solutions for smart factories

AUO is experienced in smart manufacturing and production process optimization



- Our technological innovations and field experience comes from the support of AUO's smart manufacturing and digital team
- From 2017 to 2021, AUO sent more than 1,000 engineers to study at AIA
- In the past 5 years, more than 1,000 AI projects have been imported, and productivity has been went up by 30%

ADT provides comprehensive solutions and services for manufacturing

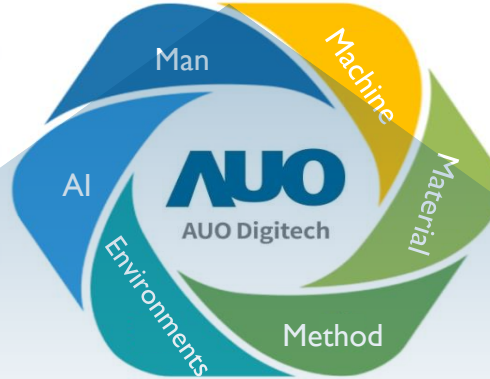
SaaS Service

Low-Code Platform

online consultation

Industry Cloud Solution

Manufacturing software solutions



Automated Storage solutions

Smart Training Assistant

PLC Data Extraction

Equipment Prognostic and Health Management

Machine Vision

Data Science

AI industrial intelligent

Intelligent factory construction total solution



Strategy consultancy



factory construction service



Intelligent factory & Cloud Platform

Based on AI technology hardware solutions and services



AIoT Solutions



AOI Solution



SM Solutions



AI Solutions

AUO selected for Global Lighthouse Network

AUO Taichung Fab III has been selected by the World Economic Forum (WEF) for the “Global Lighthouse Network,” reflecting the company’s accomplishments in the 4th Industrial Revolution .



友達台中廠獲選全球燈塔工廠，展現第四次工業革命成果，邁向永續經營願景

Technology

1. Automation
2. AIoT
3. Digitization
4. Big data analysis
5. 5G

All over the world focus on environmental sustainability, energy reduction is imperative



Corporate energy saving and carbon reduction practical route

Energy flow inventory

Build factory greenhouse gas emissions information as a factory total emissions based control.

01

02

Corporate Energy Management

Through the operation of the energy system, the use of energy can be tracked and quantified to improve energy efficiency, reduce energy costs and carbon emissions.

Carbon reduction Strategy

Carbon Reduction Information Sharing

Participate in carbon reduction groups, via share successful experience, integrate corporate inside and outside carbon reduction energy, and replicate successful experience quickly.

04

03

Technology of reduce carbon emissions

Replacing old equipment and adopting advanced carbon reduction technology to improve equipment energy consumption efficiency

AUO energy saving and carbon reduction practical route



Comprehensively review the energy flow ,establish a traceability and sustainable energy improvement plan.



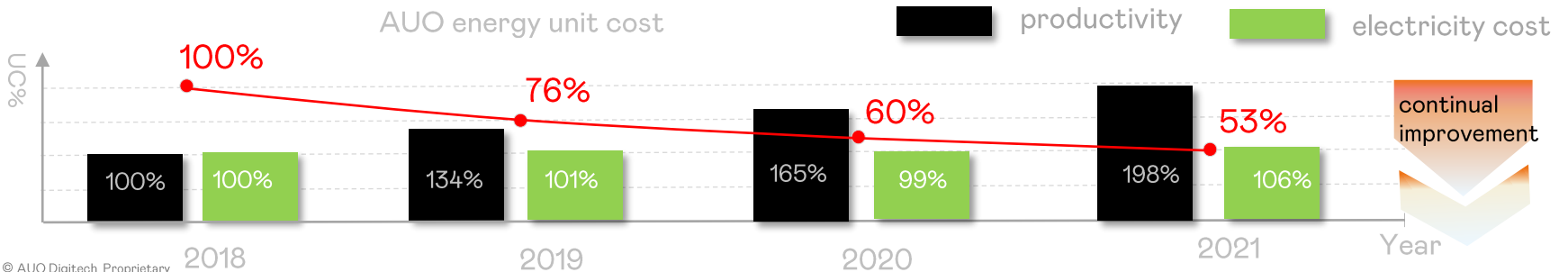
Comprehensive energy data collection, across devices and different data sources.

Energy flow and composition identification, equipment energy efficiency analysis and historical trend traceability.

BI data analysis
Abnormal electric energy consumption identify
Exception warning and notification.

Base on energy usage, analyze energy costs and equipment effectiveness.

Formulate energy improvement strategies.



Actual Benefit

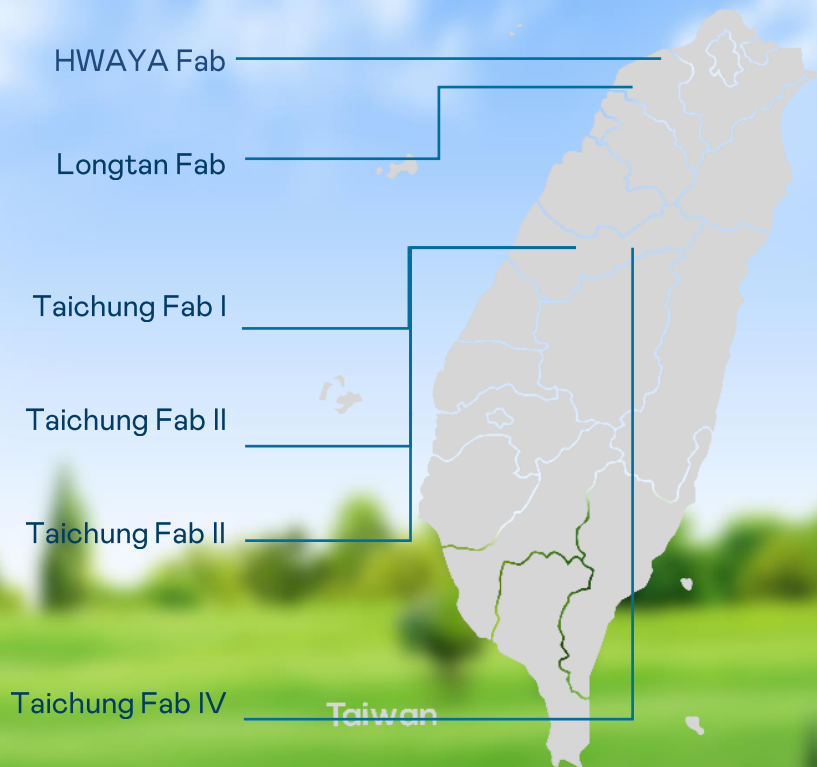
Total saving energy

Reduce/year

Carbon emission **9,300** mt

Electricity consumption **1832.3** GWh

Electric bill **40.15 million** NTD



Smart Grid is co-sell ready with Microsoft



Products > AUO Digitech Smart Grid 智慧雲端能源數據監控解決方案



Contact Me

Categories
Analytics
Internet of Things

Support
Support
Help

Legal
Under Microsoft Standard
Contract
Privacy Policy

AUO Digitech Smart Grid 智慧雲端能源數據監控解決方案

♥ Saved

友達光電股份有限公司

Overview Plans Ratings + reviews

友達數位將自身透過用電管理達到節能減碳的成功經驗，轉化為服務方案，協助製造業節省費用及耗能，不僅落實永續願景也致力推進產業永續成長。

友達數位為友達光電全資子公司，透過全球運營中積累了大量智慧製造經驗，並以集團場域實際應用，提供客戶可落地的智慧製造解決方案。

Smart Grid 是依工廠用電管理需求設計的雲端平台，系統採用模組化架構設計，可以依照使用者現地環境與用電需求，彈性的設置私有雲或是公有雲的形式設計系統，系統高效的數據解析工廠用電流向與組成，讓能源管理透過數據可視找出異常耗電設備，進而可做到減少無效能源浪費，提升能源使用效率。



Pain point of corporate energy management



High power-consumed Equipment

1. Old equipment
2. Due to electric meter deploy, unable to confirm the cause of high power consumption.
3. Don't know the electricity bill increase until get the bill



Short-handed

1. Lack of energy administrator
2. Only can rely on recorders for energy analysis
3. Statistical functions in Excel is unavailable



Unable to overcome existing circumstances

1. High cost of investment equipment
2. Energy saving effect depends on labor

Saving electricity, The smarter choice



SPIIDER D1000
Intelligent data terminal Extract

The equipment is immediately upgraded to IoT , data collection, terminal equipment plug-and-play, provides analysis of electricity data in real time and easy to use.

Smart Grid Service

1 Refinement

In real time

Electric current capture

Precision

Master the time point of abnormal electricity consumption

Complete

Combine multi-dimensional data, cross-analysis to find more improvement points

2 Intellectualized

Exception warning and notification

Smart monitoring and adjustment control line

Active warning

Enclosed type management, power saving experience sharing

Analysis of electricity

Dashboard visible

3 Productization

One factory, one customer

PnP

Facility department can import by itself
IoT hook, upload parameters, complete import

SaaS

Scaling fast

Smart Grid Solution Architecture

Smart Grid
(Azure cloud)



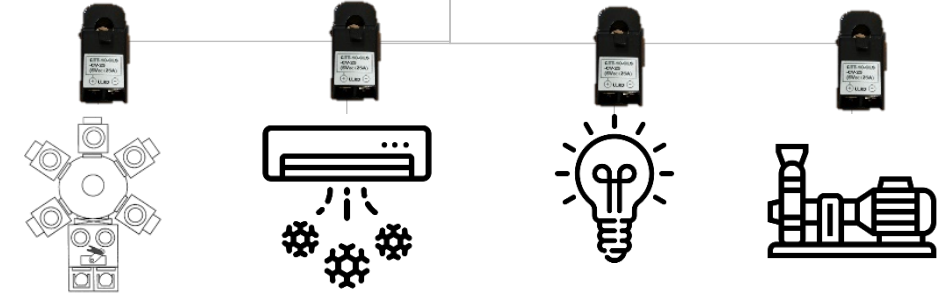
Ethernet



SPIIDER D1000



Clip-on Meter
IoT



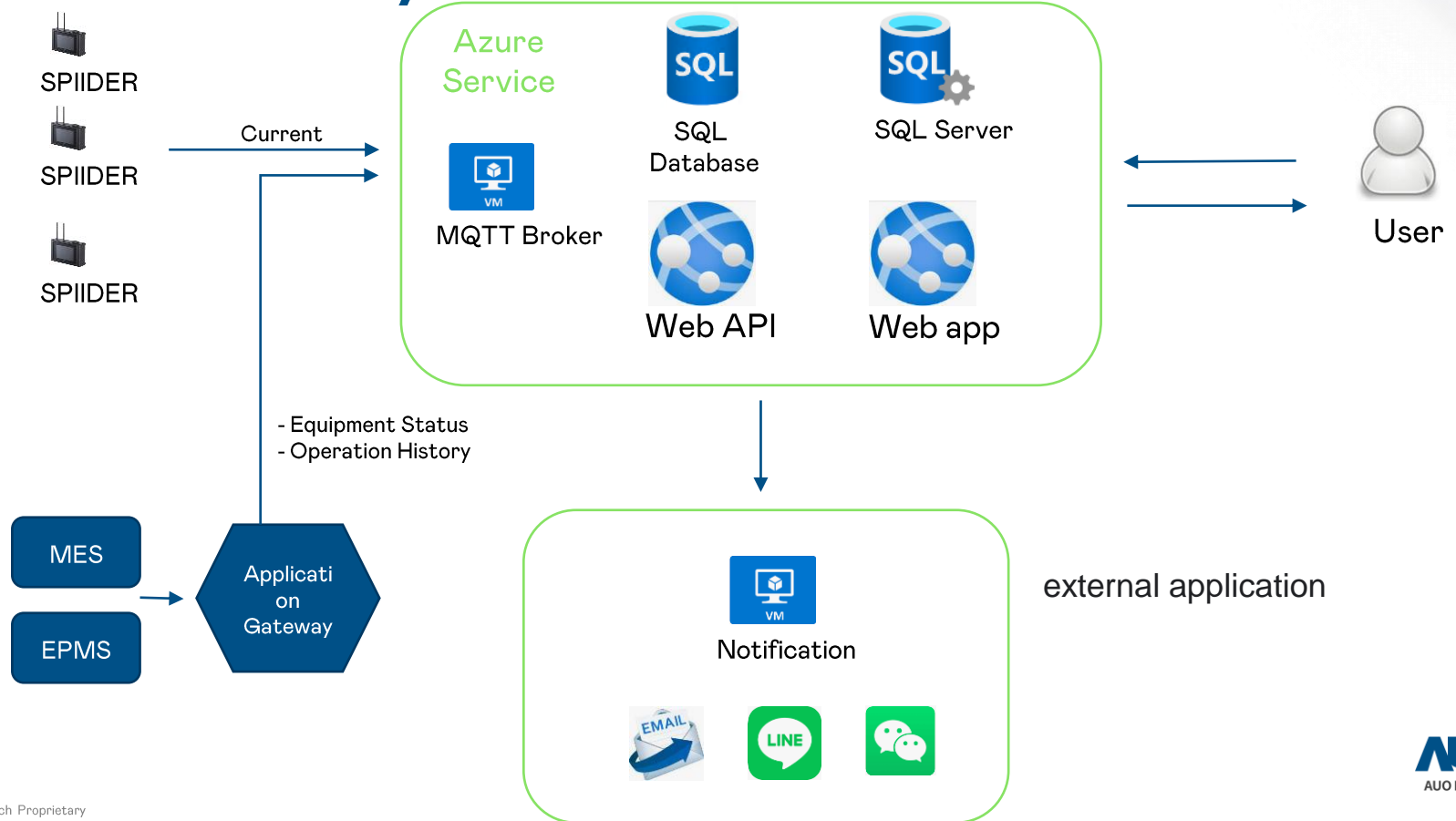
equipment

air conditioner

lamp

motor

Smart Grid System Architecture



SPIIDER D1000

Intelligent terminal data extract

All-in-one IoT data acquisition terminal, and suitable for power monitoring and equipment warning

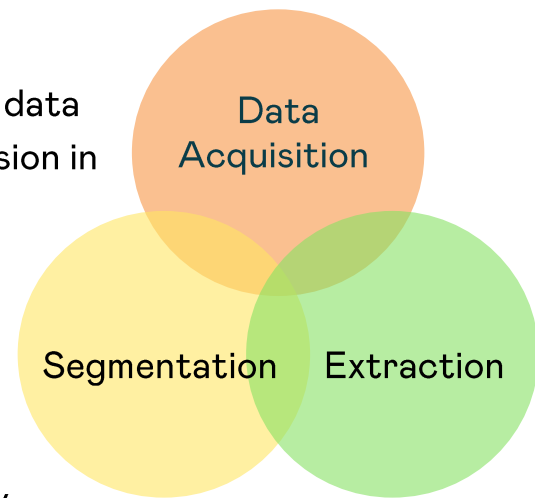


All in one edge computing, sampling to feature conversion

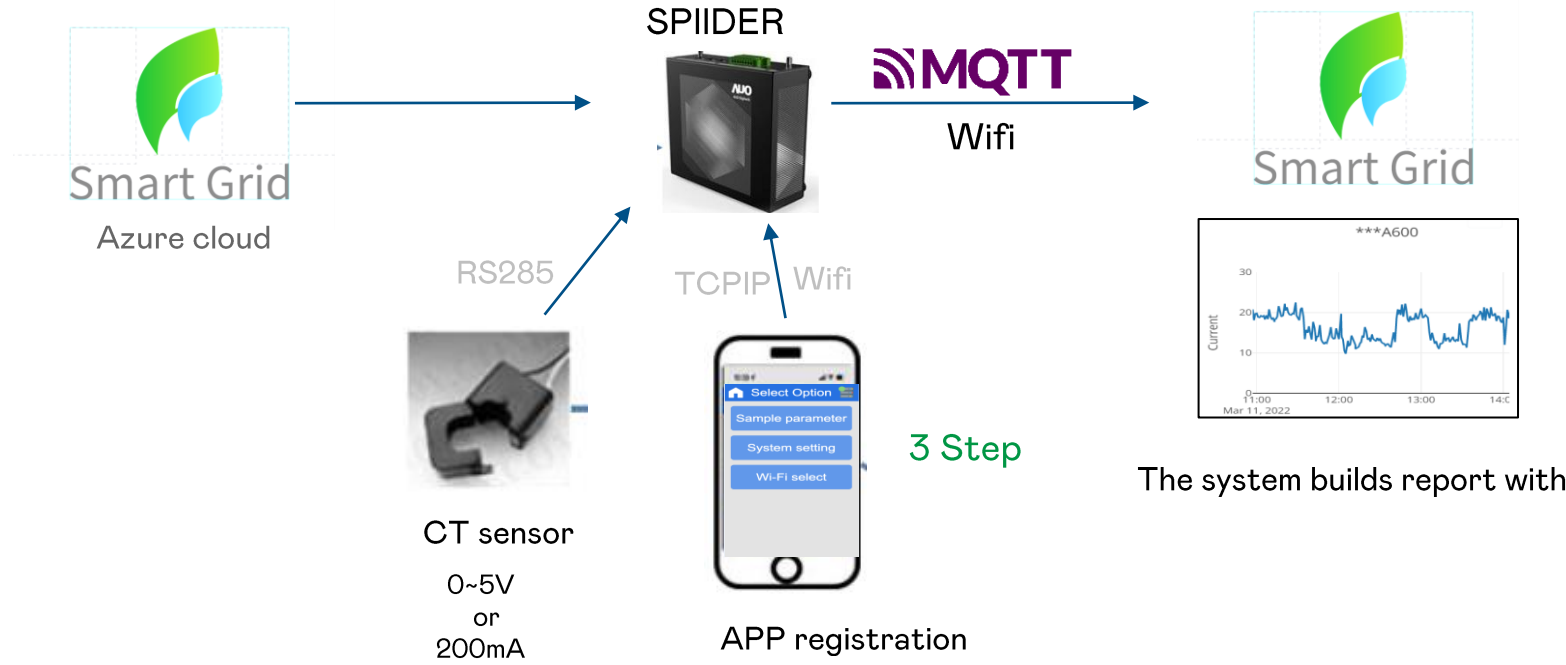
Easy to use operational interface, device data collection, signal cutting, feature conversion in one machine.

Deployment and update of remote program and diversity protocol

Program deployment or version update, which can be performed remotely, without fixed-point updates. Support Modbus, MQTT, PLC, etc. Protocol.

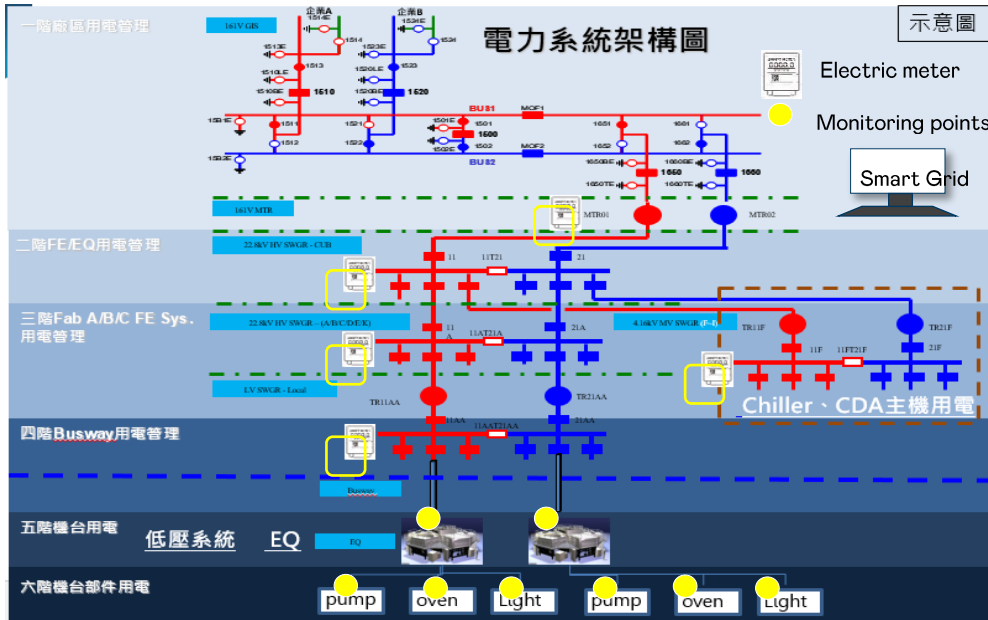


Smart Grid Easy installation, plug-and-play



The system builds report within 5 minutes

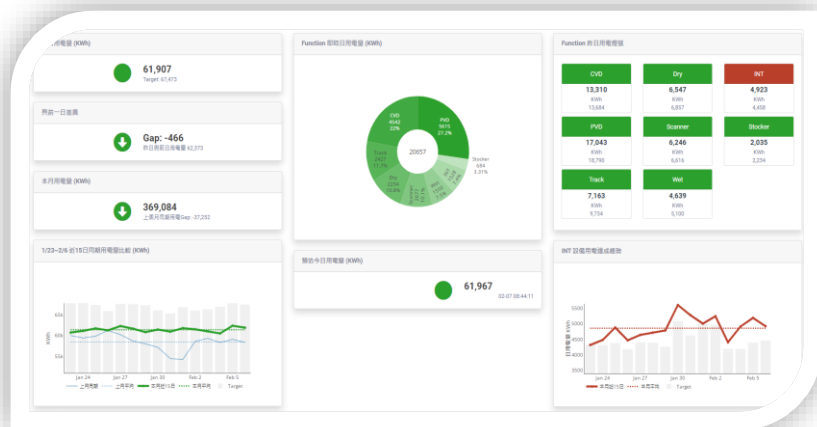
Smart Grid-Compatible and integrated with existing power data



AUO Digitech Smart Grid Solution is a big data analysis energy management system, with SPIIDER-D1000, support Modbus, MQTT, PLC, etc. protocol, accepts multiple sources of power data.

- ① Plug-and-play
- ② Without conductor configuration, wireless communication
- ③ High adaptability-compatible with the original power system architecture
- ④ Analyze power consumption quickly and accurately
- ⑤ Service can be expanded

Smart Grid-Focus on manufacturing energy management demands

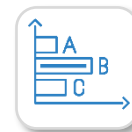


Smart Grid



Overview Of Electricity Consumption

Stratified management of lights
Clearly display electricity usage information



Energy Flow Statistics

Inquire about energy flows at different times



Energy Consumption Analysis

Combine machine condition and production history
Cross analysis to find improvement points



Abnormal Energy Consumption Detection

Or designate the system to automatically adjust the control boundaries



Event Alert

Through self-developed communication software notification, immediately identify the problem machine

Smart Grid Dashboard

SmartGrid 智慧電網

首頁

日常監控

效益

即時預警

電力分析

機台/電流參數設定

昨日用電量 (KWh)



47,935

Target: 56,310

與前一日差異



Gap: 713

昨日與前日用電量 47,222

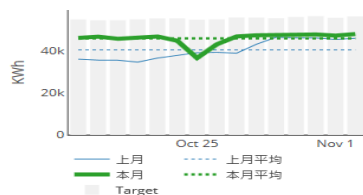
本月用電量 (KWh)



688,143

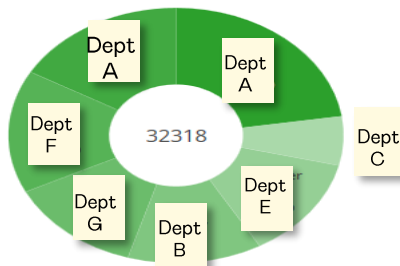
上個月同期用電Gap: 92,281

◆ Comparison of daily electricity consumption trends



Function 即時日用電量 (KWh)

◆ real-time power consumption %



預估今日用電量 (KWh)



48,477

11-03 16:59:58

◆ Forecast management (estimation of daily electricity consumption)

Function 昨日用電燈號

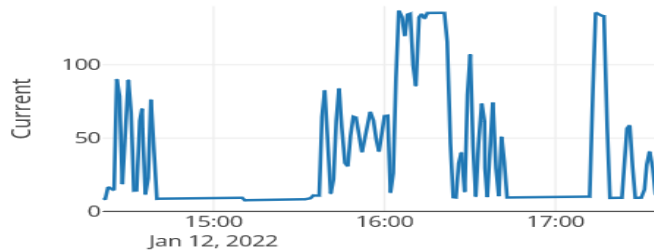
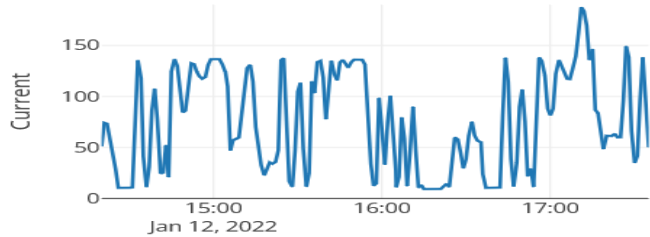
Dept A	Dept B	Dept C
10,954 KWh 13,795	6,056 KWh 5,881	2,879 KWh 3,351
7,951 KWh 9,645	6,787 KWh 6,405	7,595 KWh 10,743
6,268 KWh 6,489	Light health management: green/yello/red light	

◆ Dept electricity trend

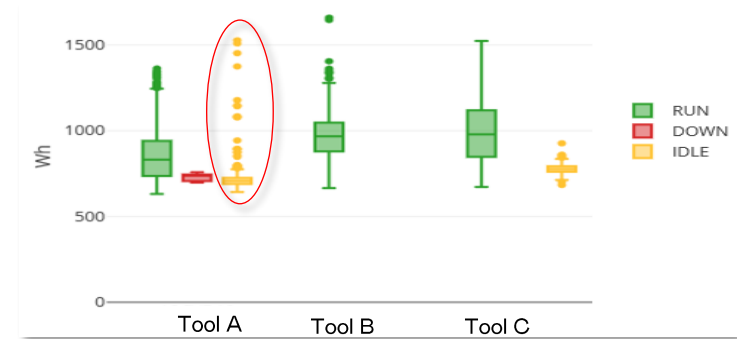


Energy flow and composition identification

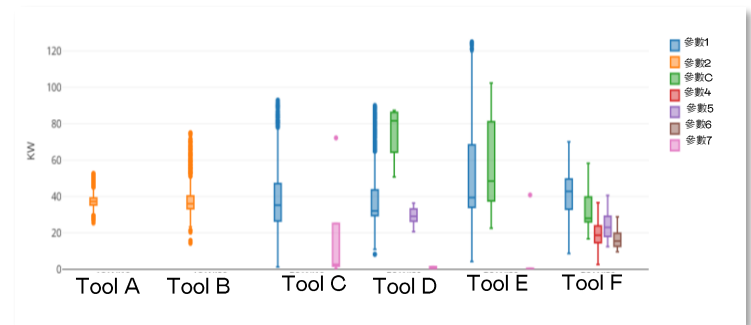
Find out the reason of power consumption
Equipment electricity analysis



Equipment electricity Find errors quickly



Electricity consumption for production parameters refinement analysis



Smart monitoring and adjustment control line



異常能耗偵測



用電趨勢智慧化管理

- ✓ 自動調適管制界線
- ✓ 免去人為手動調整
- ✓ 即時動態偵測機台用電情形

Smart Grid uses PDCA control process to improve power management effect

Trigger event

Event processing

Event closed

Active warning,
closed-loop management

Anomaly
detection component



Abnormal record

Exception
notification
component

Tornado notification



Turn to Smart Grid

Date	RespDept	EventType	Equip_ID	IssueType	Issue	Chart	Reply
9/26	PVD	SPT	SP120	电压=用电偏高	RUN异常偏高15%		
10/12	CVD	CVD	CVD10	电压=用电下台理	Idle/Down/用电配RUN高		

Report

Status Update (In Progress / Closed)



PCB industry Smart Grid power management refinement tool



A well-known PCB manufacturer in Taiwan, providing all kinds of printed circuit board, can provide from design, research, development, manufacturing, and sales

Pain-Point

Energy flow is not clear

Equipment need to shut down to install electricity meter, causes factory's capacity planning

No tool to analyze the power difference, can only rely on labor, can not expand to the whole factory equipment

Lack of energy administrator or hold a concurrent post

Factory electricity bills too high, production costs are higher than electricity bills, unable to clearly grasp electricity usage.

Solution



A smart energy management platform with energy data analysis capabilities.



IoT technology, application of equipment components (such as current sensors, SPIIDER) equipment, collection of equipment data, data analysis, disassembly, information fusion and collocation of highly readable charts, make energy administrator to accurately achieve intelligent management.



SPIIDER-D1000 Smart Grid

Benefit

Plug-and-play

Without conductor configuration, wireless communication

High adaptability-compatible with the original power system architecture

Analyze power consumption quickly and accurately

Service can be expanded

Assist clients reduce energy consumption continuously by 1~1.5%

ADT solution detail

Product	Item	Explanation	Remark
Smart Gird	Subscription	-30 points, 100 points -According to the amount- annual fee for one year or two years	Renting Azure Cloud Hosting
		Monitoring point expansion plan Divided into two levels 30 points/100 points	
SPIIDER	Outright sale	Charged according to the number of units purchased	ADT Shipping
CT Sensor	Outright sale	Charged according to the number of units purchased	ADT Shipping
Field wiring	Construction	Customers can handle it by themselves or ask the manufacturer to construct	
Case evaluation	Advisory service	ADT provides SOP and consultant assistance	



Tap Into The Possibilities