real data
from
real devices

Collecting data from the edge
with Advantech
intelligent devices

ADVANTECH

Enabling an Intelligent Planet

Real Data from Real Devices

Advantech intelligent devices are compatible with numerous software solutions to bring you the data you need, when you need it. Through working with domain-focused partners, systems integrators, and additional software providers, our devices are well-suited for various systems and protocols. At Advantech we're constantly looking for new data and networking solutions so you can get the most out of your data—and make it a painless process.

Need to integrate data from PLC and automation networks?

Get help with the top industrial PCs on the market

Advantech's UNO is a cost effective "pocket-sized" modular Smart Edge Gateway that is fan-less and highly ruggedized for business-critical and mission-critical applications. When running, the UNO will connect with OPC-UA, MQTT Sparkplug-B, Modbus, Siemens, and Allen Bradley devices, supporting up to 500 tags. Users are able to connect to virtually any PLC. The UNO can be used in combination with Advantech sensor nodes to easily add sensor data. Additional Industrial PC sizes and configurations are available, including C1D2-rated devices, modular iDoor expansions, and more.

Need to add a local HMI, IIoT interface, or both?

Choose a compatible Touch Panel Computer

The Advantech TPC-1551 Series touch panel computer is a state-of-the-art HMI that provides seamless interaction between humans, machines, and IIoT data. Status and alarm data is available for applications, including status dashboards on system components.

Need rugged Ethernet switches?

Advantech Ethernet switches not only handle your networking needs, specific models also report network status over Modbus, Ethernet/IP or PROFINET protocols, allowing you to integrate network status and network health information directly into your SCADA system. Additionally, multiple EKI switch models also offer MQTT. Managed EKI series switches support our innovative IXM™ configuration solution, which lets you configure one switch and synchronize its settings with similar switches on a network. IXM dramatically reduces configuration time on medium and large networks.

When a "stranded asset" is really stranded

Advantech LTE & WAN/LAN Gateways bring your remote devices and networks back in reach

The Smartflex gateway is an advanced LTE router that can bridge remote devices and entire networks to your local SCADA and Industrial IoT systems. Wide temperature ratings and a wide range of Ethernet and serial port options make SmartFlex the perfect solution for integrating data from remote locations into your SCADA and IIoT system. The SmartStart LTE Cat 1 and Cat 4 family of routers and gateways are the perfect way to connect Ethernet, Wi-Fi, and serial devices to an LTE network.
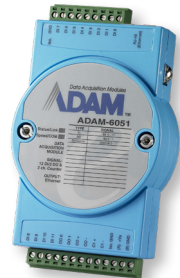
Need to integrate sensors and I/O?

The WISE-4000 wireless I/O module has broad adoptability, making it a reliable source of big data that benefits users in identifying next steps and actions to take. WISE can log up to 10,000 data samples with a time stamp; I/O data can be logged periodically, and when the I/O status changes. Once the memory is full, users can choose to overwrite old data, ring log, or stop the log function.

Wzzard Wireless Mesh Sensing Nodes are tailor-made for bringing hard-to-reach sensor data into SCADA and IIoT solutions. Wzzard sensor nodes are battery powered and IP67- and C1D2-rated, making them easy to integrate even in harsh environments. They utilize Smartmesh IP, a self-forming, self-healing wireless mesh protocol that not only provides a highly-reliable and resilient network, but is also easy to deploy.

ADAM Ethernet I/O modules utilize an Ethernet connection to connect to sensors and I/O into various software solutions. A wide variety of I/O types makes it easy to find an ADAM module for most any application. Ethernet I/O, MQTT, Modbus TCP, Ethernet/IP and PROFINET Modules are available. Group configuration capability for multiple module setup daisy chain with auto-bypass protection.

Which sensing solution is right for your application?

Choose WISE when you can tie into an existing Wi-Fi infrastructure and have access to power for the node.

Choose Wzzard when you've got a cluster of sensors in one facility or campus and take advantage of its wireless mesh technology.

Choose ADAM when you have easy access to an Ethernet connection and power for the node.

	Connection Type	Protocol	Enclosure	Power
Wzzard	Wireless Mesh to Gateway	Native Ignition MQTT Engine	Outdoor rated	AA Lithium, multi-year battery life
WISE (LoRa)	Wireless LoRaWAN	MQTT Engine	Outdoor rated	9-36 VDC
WISE	Wi-Fi	Modbus TCP MQTT	Indoor	10-30 VDC
ADAM	Ethernet	Modbus TCP MQTT	Indoor	10-30 VDC

LoRa® solution

The LoRa solution is ideal for applications in remote areas (e.g. for flood monitoring) and harsh environments (e.g. extreme temperatures, high humidity). This solution utilizes LoRa wireless technology to overcome the boundary of distance, thereby maximizing monitoring efficiency and overall productivity.

What is LoRa?

- **Long Distance (5 ~ 15 km)**
  Single base station provides deep penetration in dense urban/indoor regions, plus connects rural areas up to 30 miles away
- **Low Power Consumption**
  Protocol designed specifically for low power consumption extending battery lifetime over years
- **High Capacity**
  Supports millions of messages per base station, ideal for public network operators serving many customers
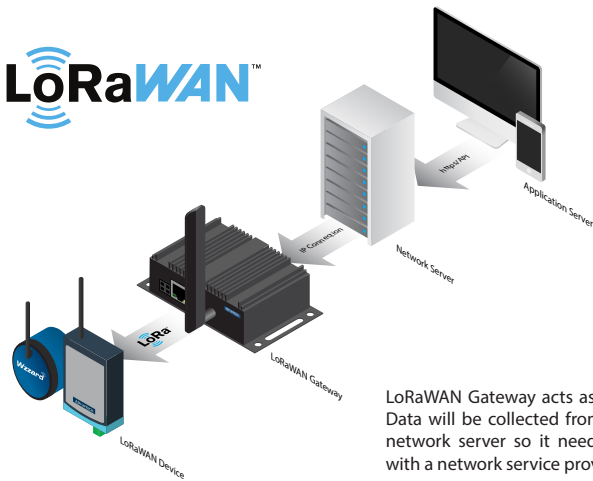- **Cost Effective**
  Reduces costs three ways: infrastructure investment, operating expenses, and end-node sensor
- **High Security**
  Embedded end-to-end AES128 encryption

LoRaWAN Gateway acts as a base station. Data will be collected from end nodes to network server so it needs to cooperate with a network service provider

Product Selection Guide

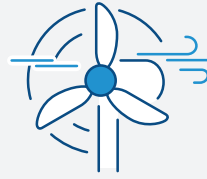| Model Name	WISE-6610	WISE-4610	Wzzard Node
Description	Industrial LoRaWAN Gateway	Industrial LoRaWAN Sensor Node	Industrial LoRaWAN Sensor Node
Wireless	LoRaWAN	LRWAN & GNSS	LoRaWAN
Communication Interface and I/O	ETH/IO	S672: 6 x DI RS232, RS-485 S614: 4 x AI, 4 x DI	Option 1: RS-485 with Modbus RTU Option 2: 4xAI, 2xDI, 1xDO
Temperature	-40~75°C	Battery: 0~60°C No Battery: -20~70°C	-40~75°C
Power	9~36 VDC	400mAh Rechargable Battery 10~50 VDC line power or solar panel	9~36 VDC
Dimensions (without antenna) W x H x D	150 x 30 x 83 mm	82 x 122 x 48.8 mm	95 x 116 x 65 mm

LoRa Applications

Agriculture

• Smart irrigation Systems
• Irrigation Control
• Environment Sensing
• Animal Tracking
• Animal Sensing - ovulation, birth

iFactory & IEM

• Machine Condition Monitoring
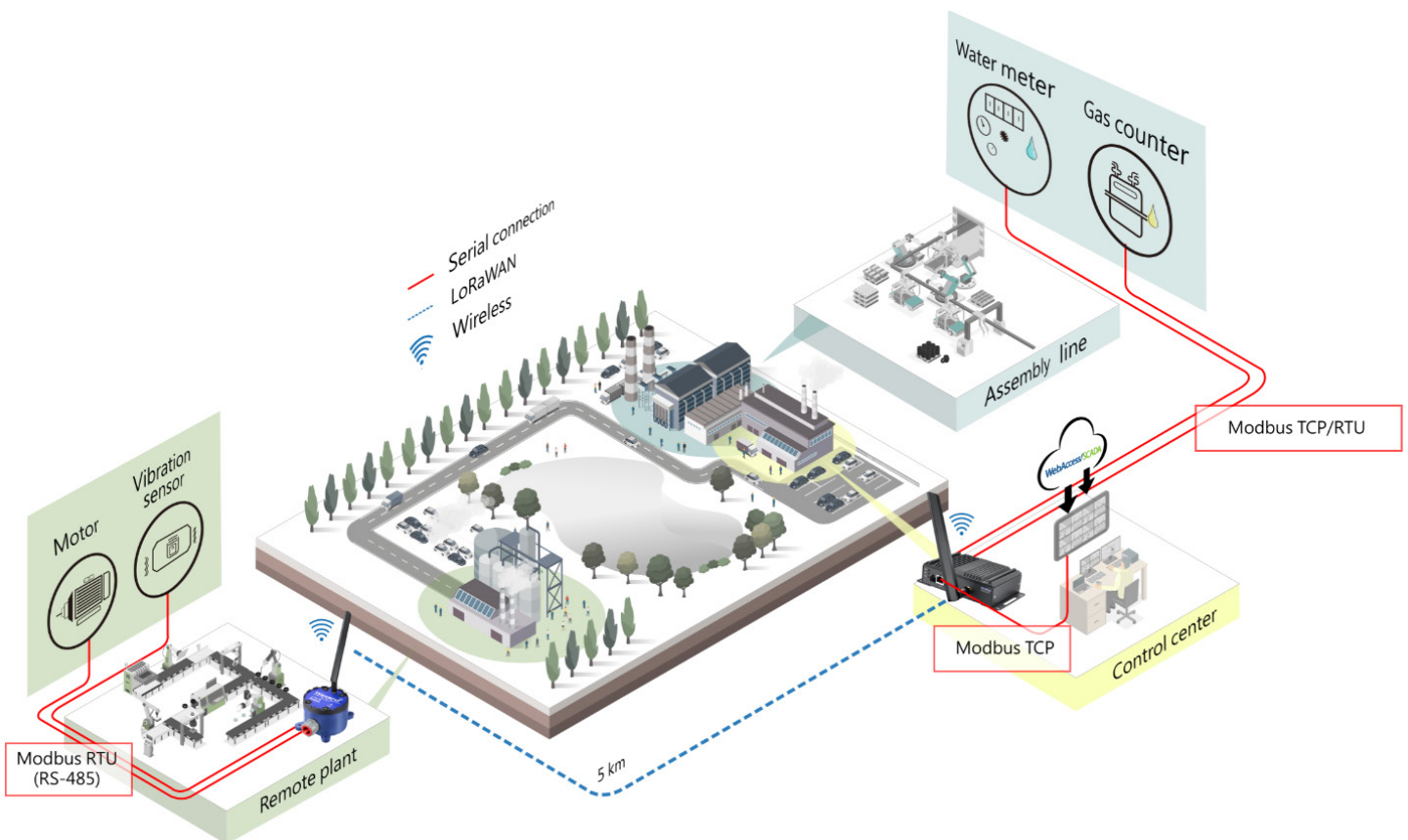• Water Meters
• Gas Meters
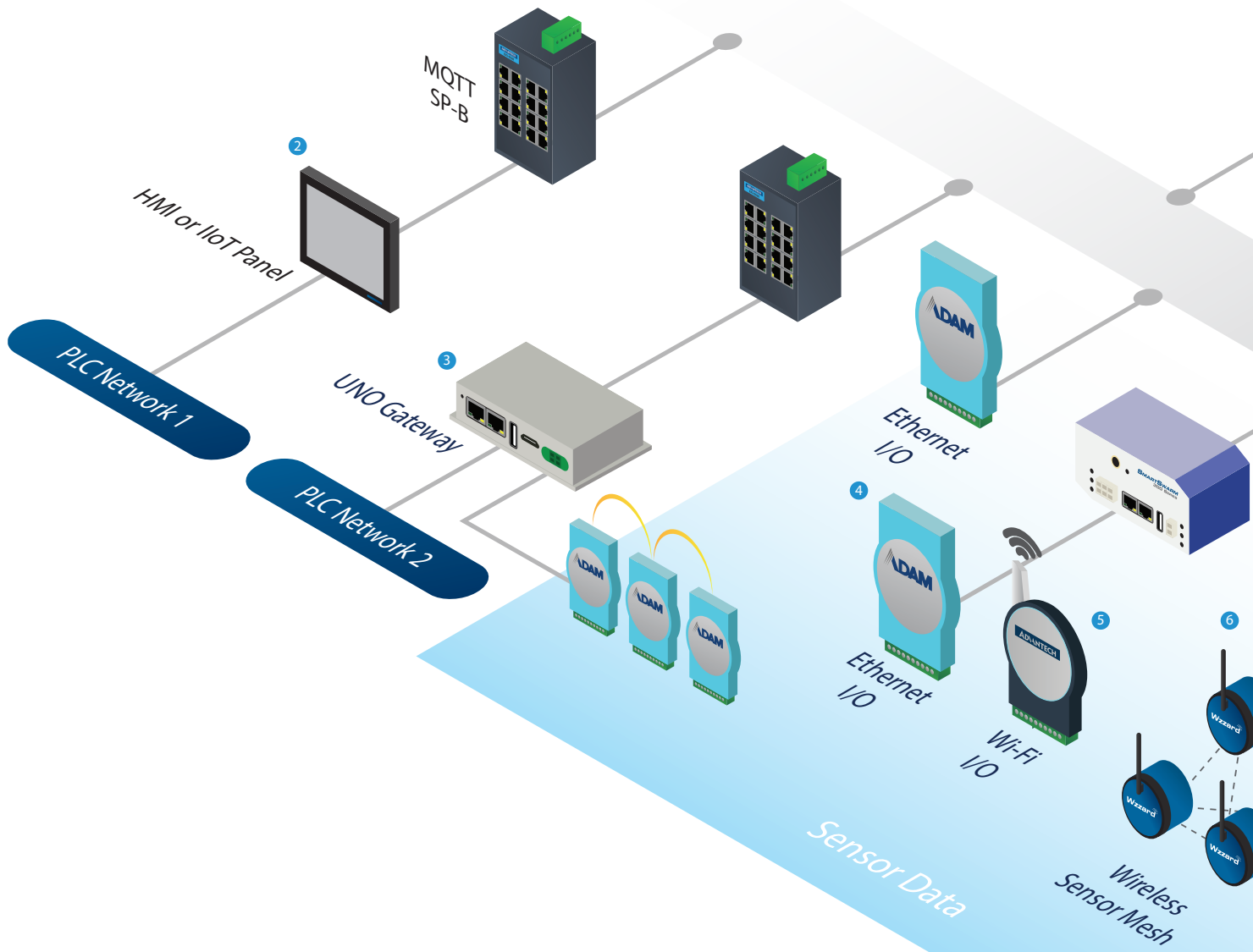• Infrastructure & Production

Energy & Environment

• Forest Fires
• Air Pollution
• Earthquake Sensors
• Avalanche and Flooding
• Heating and AC
• Electric Smart Grid

Smart City

• Smart Parking
• Traffic Sensors & Control
• Street Lighting
• Advertising Displays Signage
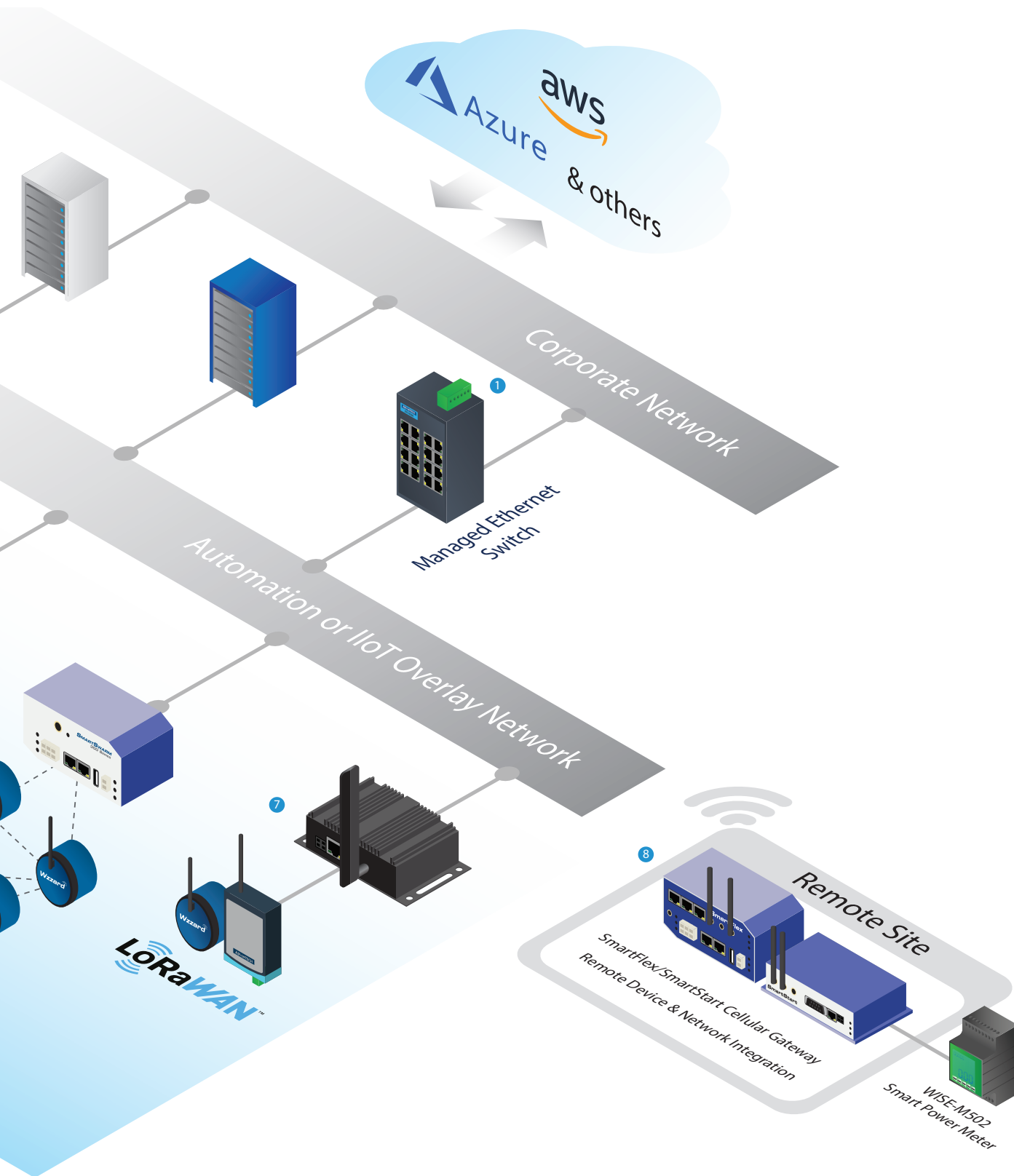• Bridge, Building, Infrastructure Monitoring

MQTT
SP-B

2 HMI or IIoT Panel

PLC Network 1

3 UNO Gateway

PLC Network 2

Ethernet
I/O

4 Ethernet
I/O

Wi-Fi
I/O

Sensor Data

Wireless
Sensor Mesh

1 Managed Ethernet Switches*

2 TPC-1551 Series Touch Panel Computer*

3 UNO Smart Factory Edge Gateway*

4 ADAM Ethernet I/O Module*

5 WISE-4000 Series Wireless I/O Module

6 Wzzard Wireless Nodes*

7 LoRaWAN Gateway & Sensor Nodes

8 SmartStart/SmartFlex Cellular Routers*

*Now supports MQTT
Gateways convert disparate industrial protocol to MQTT

Azure aws & others

Corporate Network

Automation or IIoT Overlay Network

1 Managed Ethernet Switch

7

8 Remote Site

LoRaWAN™

SmartFlex/SmartStart Cellular Gateway
Remote Device & Network Integration

WISE-M502
Smart Power Meter

To learn more about these and
additional products:
Visit us at advantech.com

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