

Wireless Innovations to Accelerate Development of Connected Smart Cities



Edge Computing and Intelligence Solutions



Embedded IoT Wireless Connectivity Solutions



Transportation



AGV



Medical



Smart Lighting



Bridge



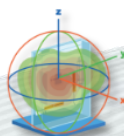
Construction



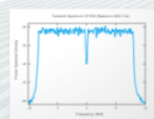
Aquaculture



Logistics



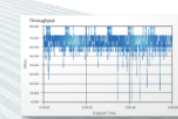
Optical Antenna Design



RF Certification



Software Integration



System Performance Tuning

Wireless Design-in Services



Industry-Grade WiFi-5 Module



WiFi-5 Module



WiFi-6 Module



Industry-Grade
GPS + G-sensor Module



Industry-Grade
GPS Module



Industry-Grade
Cellular Module



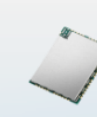
4G LTE Module



New M.2 3052
Sub-6G Module



Mini PCI-e Module



Sensor Node Module

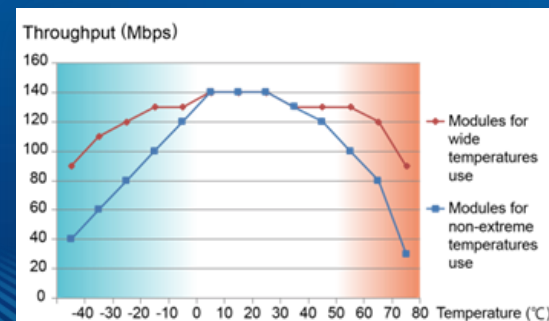


Wireless IoT Gateway &
Sensor Node

Embedded Wireless Module

IoT Solution

Industrial Wireless Modules



EWM-C148
LTE Cat4
Mini PCI-e

EWM-C148S
LTE Cat4
Solder down

EWM-W190
WiFi+BT
Mini Pci-e

EWM-W195
WiFi+BT
M.2 2230

EWM-G109
GPS
Mini PCI-e

EWM-NB147
NB-IoT
Mini PCI-e

Embedded Wireless Design-in Service



- 5~7 Longevity
- Window/Linux/Android
- M.2/mPCIe/LGA
- -45 ~ 85°C
- Water Proof / Dust Proof
- Add-on Software Support



4G Auto Connection Tools



Customer's Challenges

- Wide deployment in the city
- Need auto connection function
- Need suitable SW tool

Advantech Solutions

- EWM-C117FL06E
- Advantech 4G auto connection tool



Smart Roaming



Customer's Challenges

- Need reliable wireless module
- Need fast roaming with APs
- How to optimal wireless performance

Advantech EWM-W163

- Suitable EWM Module
- High efficiency antenna
- Support **802.11R** fast roaming under win10
- Professional Wireless team



Application Stories - Mindray Ultrasound

Reliable Wireless Connection Smart Medical Device

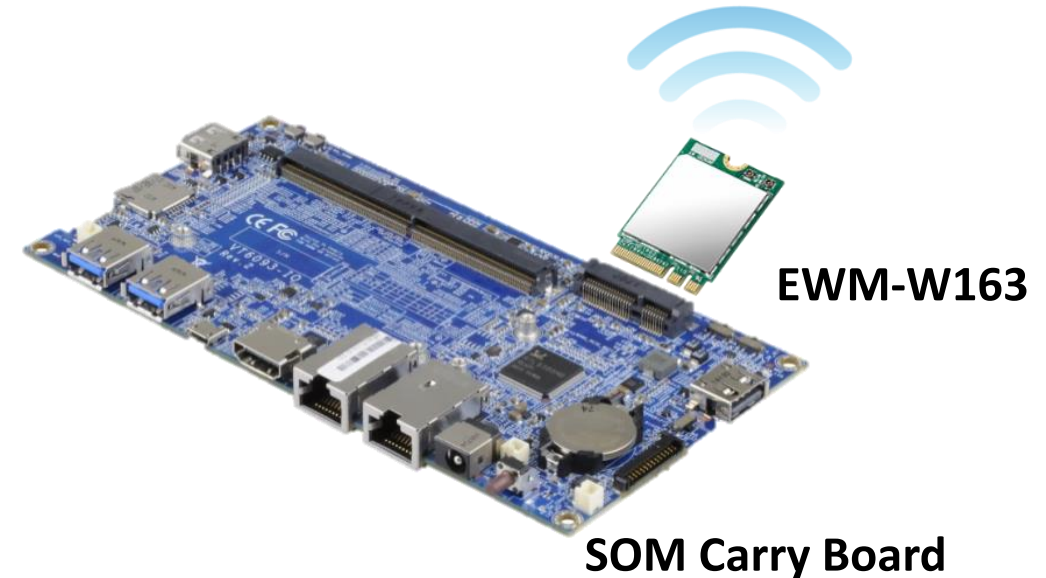
mindray



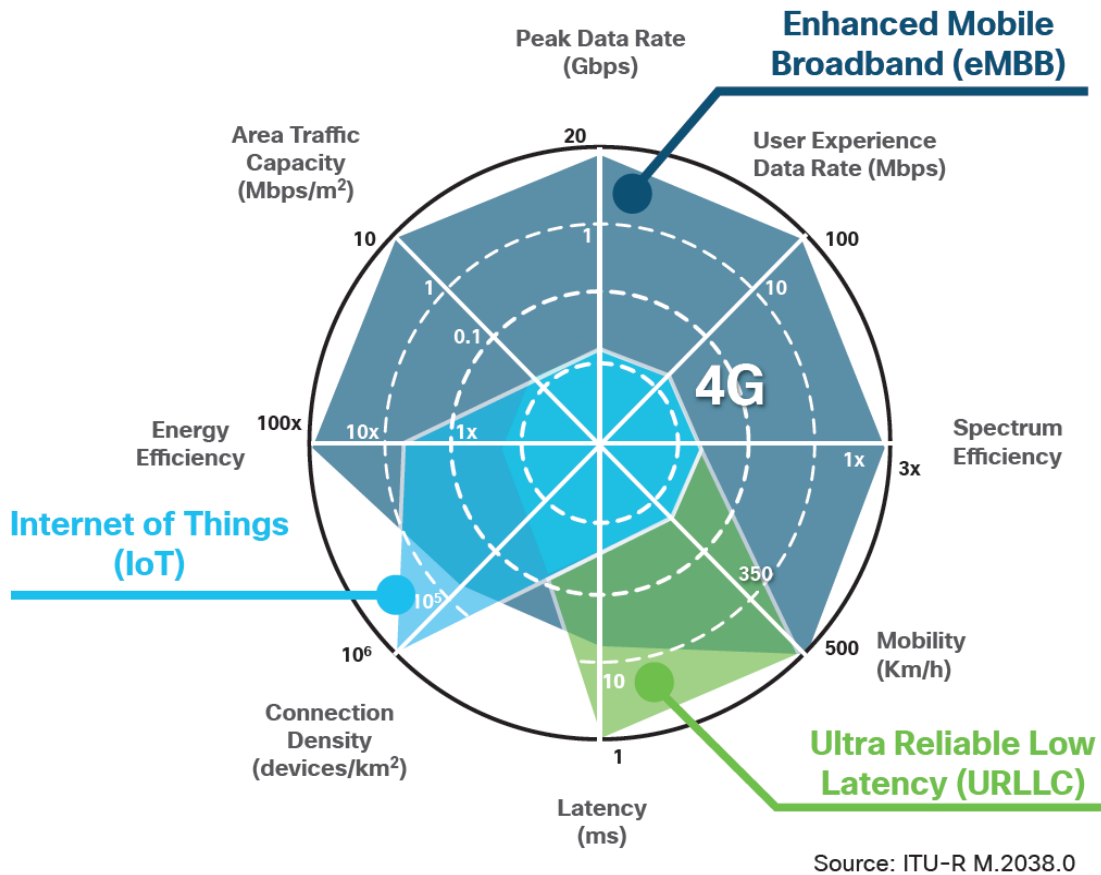
EWM-W163M201E is the M.2 standard form factor WiFi/BT module solution. Easy to implement at new medical device Ultrasound system integration. WW module level RF certification did help medical devices to save total cost and develop schedule at the system level. 802.11 ac 2*2 also apply reliable wireless connection at field application.

EWM-W163M201E:

- Wireless Design Service
- Wireless driver integration
- Longevity Support



5G Technology



	4G	5G
Business	2C 2B, Data/Voice	New business model : network slicing, uRLLC
Frequency	Focus<3G , Max. bandwidth 20MHz	Freq. 3~6GHz . mmWave , Larger bandwidth 100MHz
Architecture	Flat or Fix for each layer. Mainly 2TR or 4TR AAU	Distributed or Centralized Massive MIMO (64/32TR)
Performance	~10ms latency Peak ~1Gbps 0.1M connections/km ² Speed: 350Km/hr	~1ms latency Peak~ 10Gbps 1M connections/km ² Speed: 500km/hr
Terminal	Smart Phone, CPE	Smart Phone, CPE Various IoT devices

EWM-C500 Cellular 5G Module for Edge Computing

M.2 5G Modem

Target Applications:



Transportation



Smart Factory



Retail



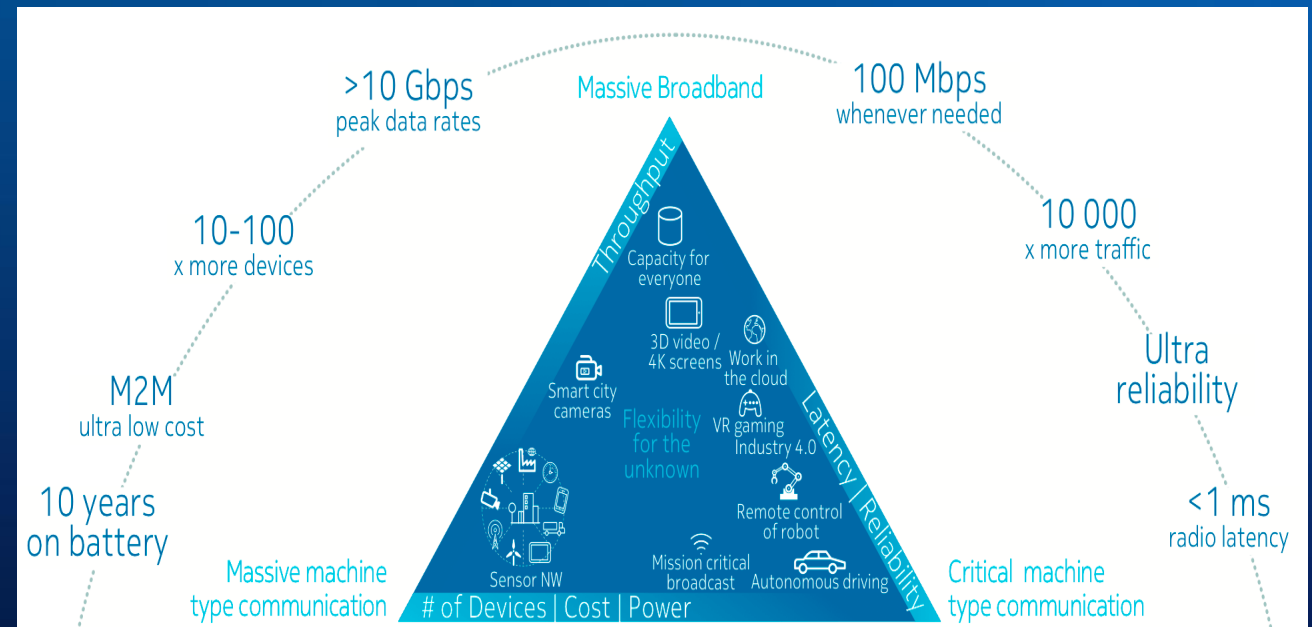
Medical & Healthcare



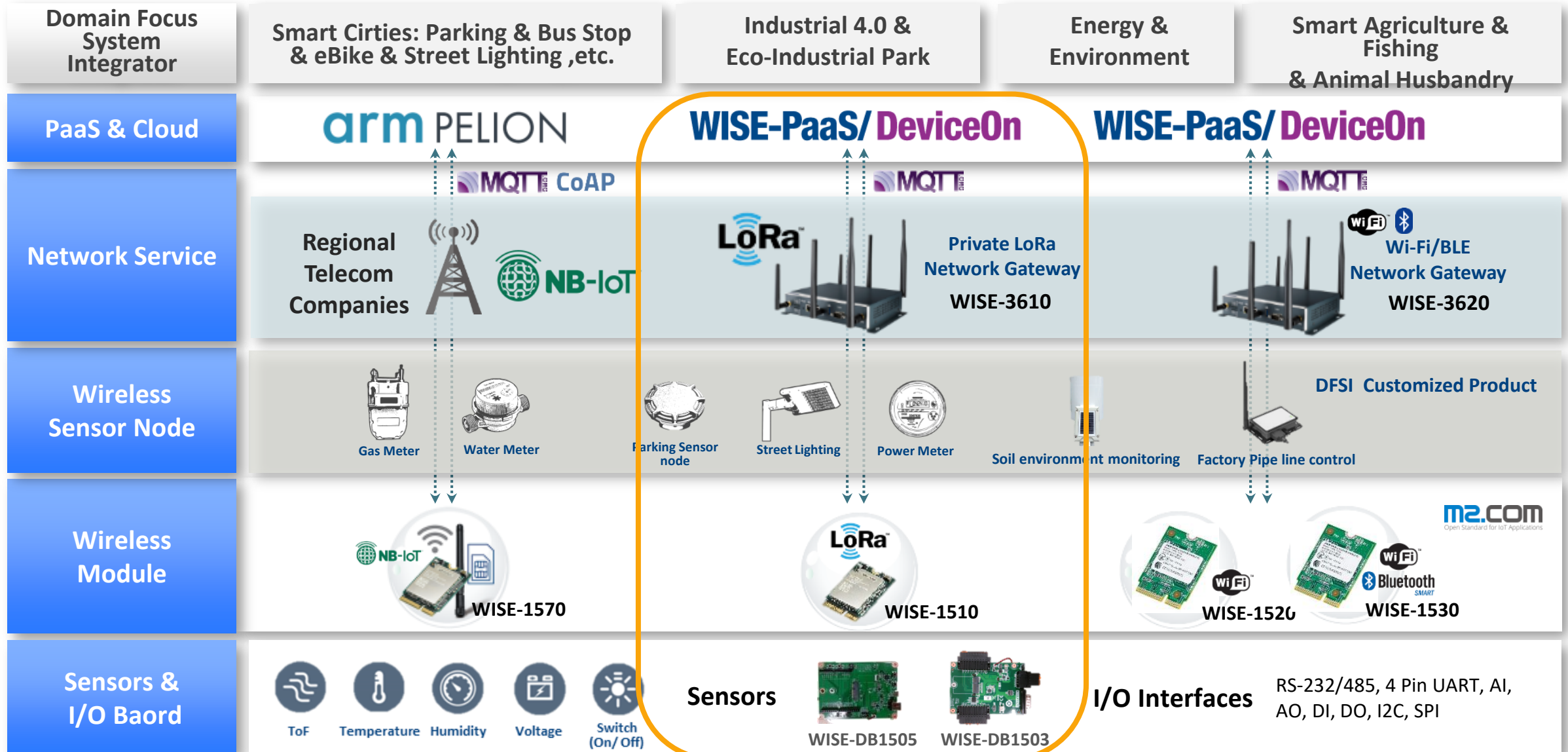
Smart City

- New 30mm x 52mm M.2 Key-B PCI-e bus
- 2.4Gbps DL at 4*4 MIMO 256QAM
- 450Mbps UL
- Support FDD LTE/TDD LTE bands
- 5G/NR mmW:DL~6Gbps UL ~2.5Gbps

Sample Q2'2020

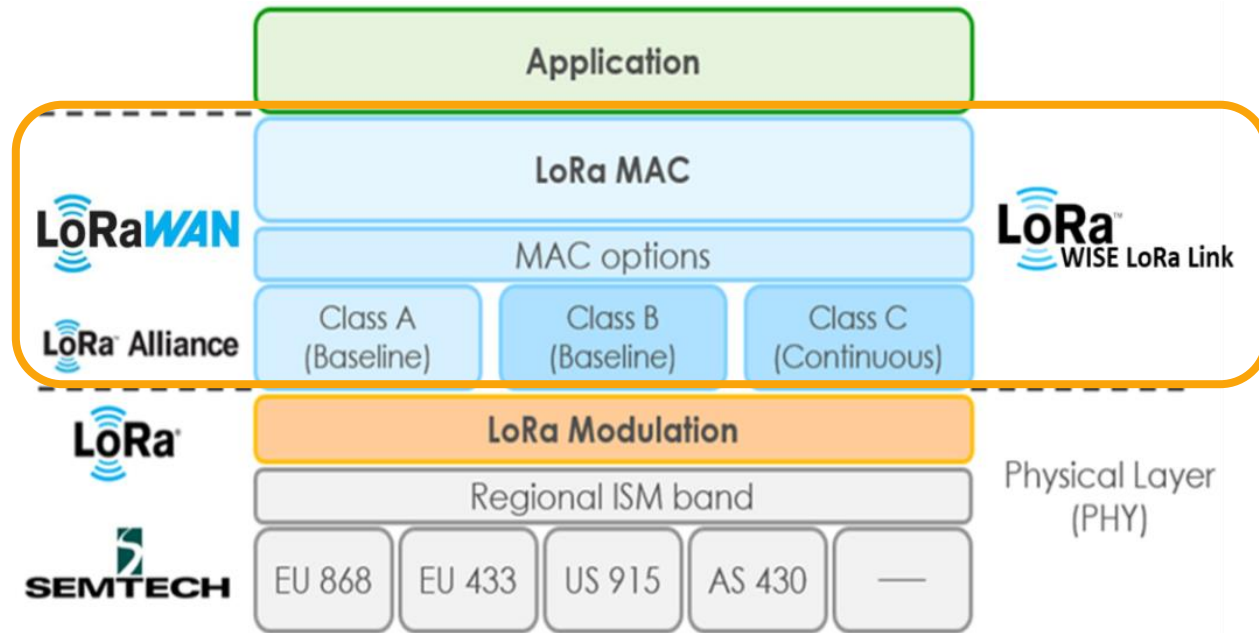


LPWAN Wireless IoT Solution



WISE-LoRa LPWAN Solution

Data **collision-free** with
TDMA System



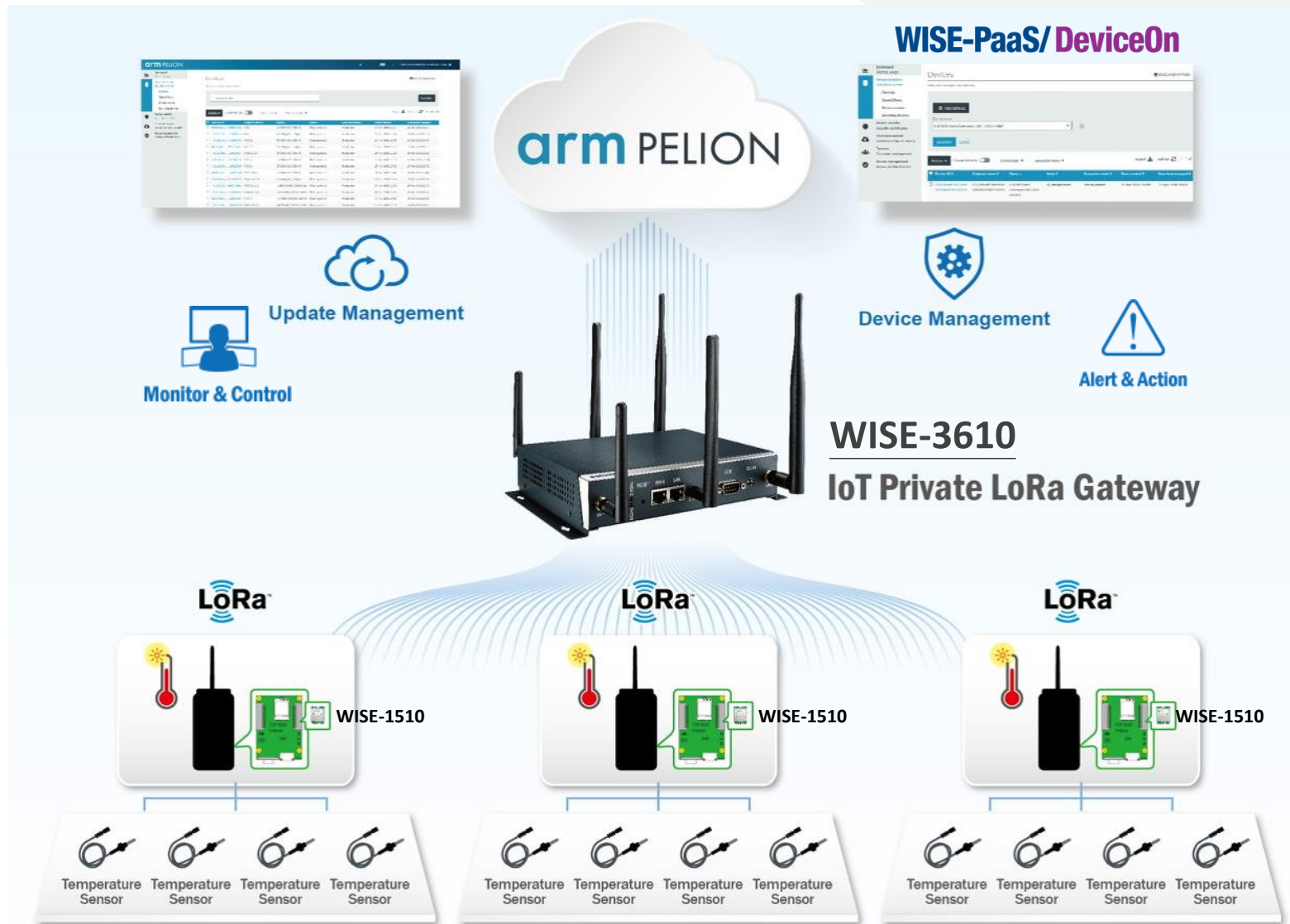
WISE-PaaS/ DeviceOn



CE FC IC R VCCI SRRC

ADVANTECH

Smart Construction Management SRP



Purpose

- Temperature monitoring to make sure the construction cement hydration quality.

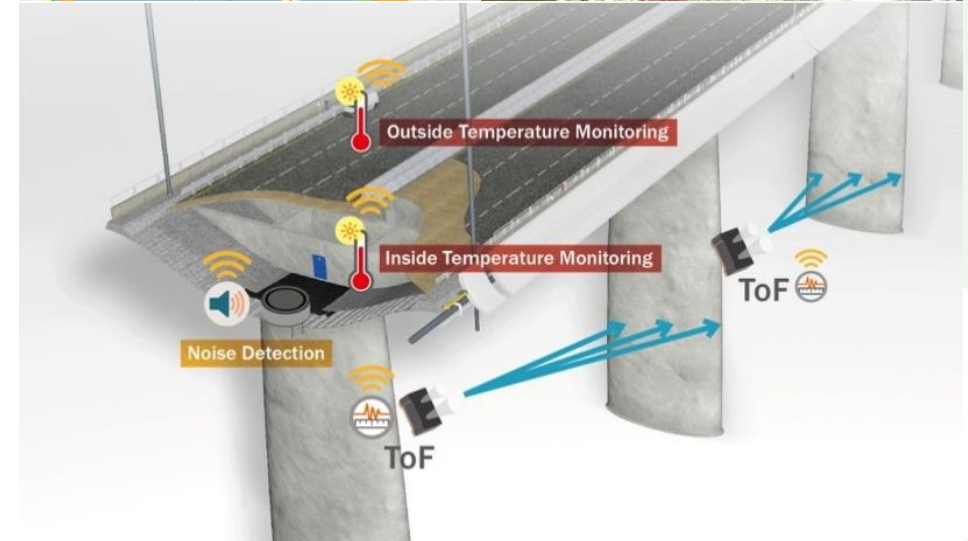


Bridge Safety Monitoring SRP

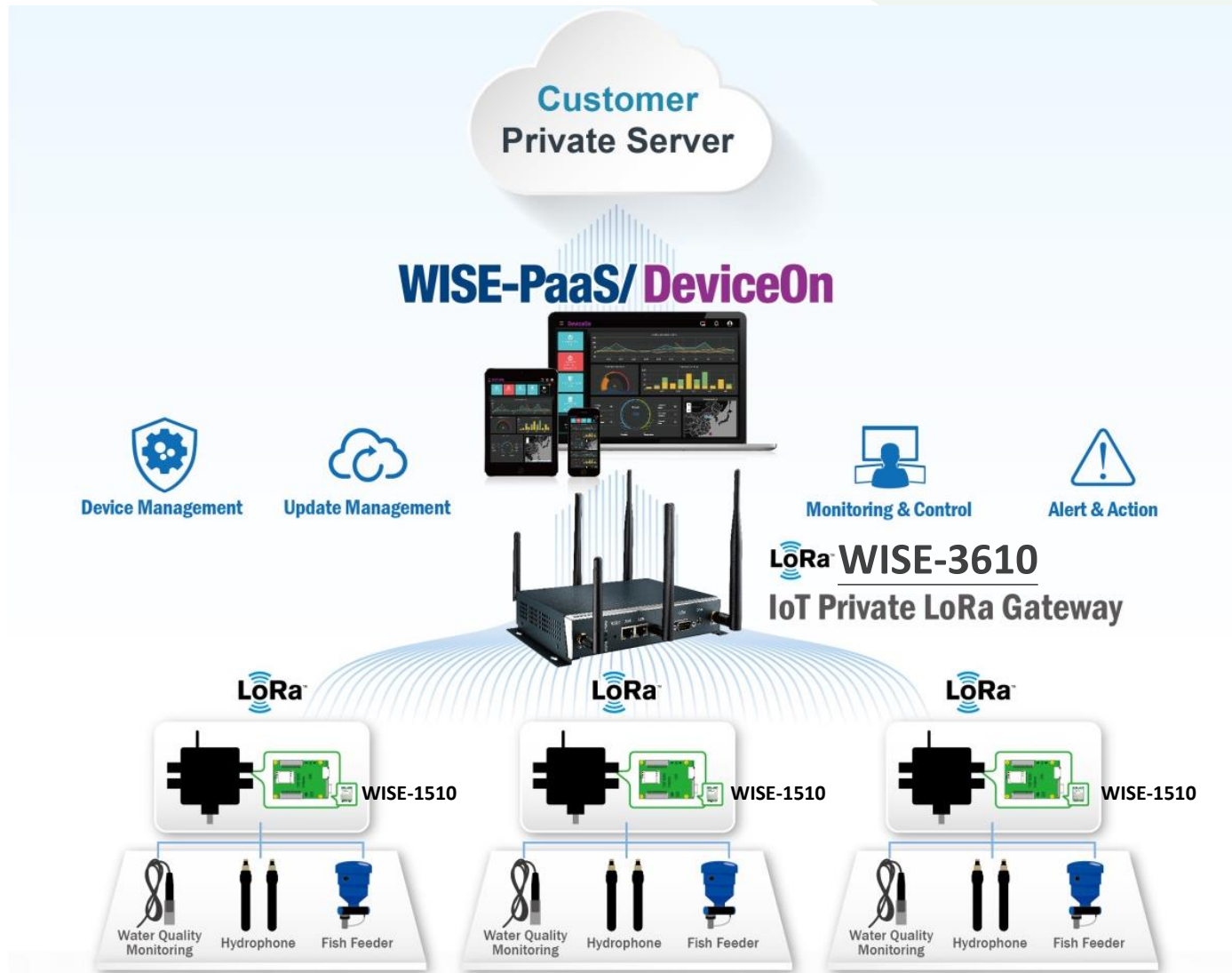


Purpose

- Environment Temperature & Noise & ToF Offset for monitoring facility's safety



Aquaculture Fishing Feeding System SRP



Purpose

- Water Quality & Hydrophone Monitoring and fish feeder remotely control



EPD Solution Market Focus

Smart Factory Logistics

EPD-023M/EPD-023

- 2.9" ePaper Display
- ARM® Cortex®-M3 MCU
- Rich I/O Control w/ 3 Buttons & LEDs

Smart Building Management

EPD-053M/EPD-053

- 5.6" ePaper Display
- ARM® Cortex®-M3 MCU
- Rich I/O Control w/ 1 Button & LED

Smart Hospitals

EPD-090M/092M, EPD-130M/132M

- 9.7" & 13.3" ePaper Display
- ARM® Cortex®-M4 MCU
- Rich Control I/O: Expansion Pin Header & I2C

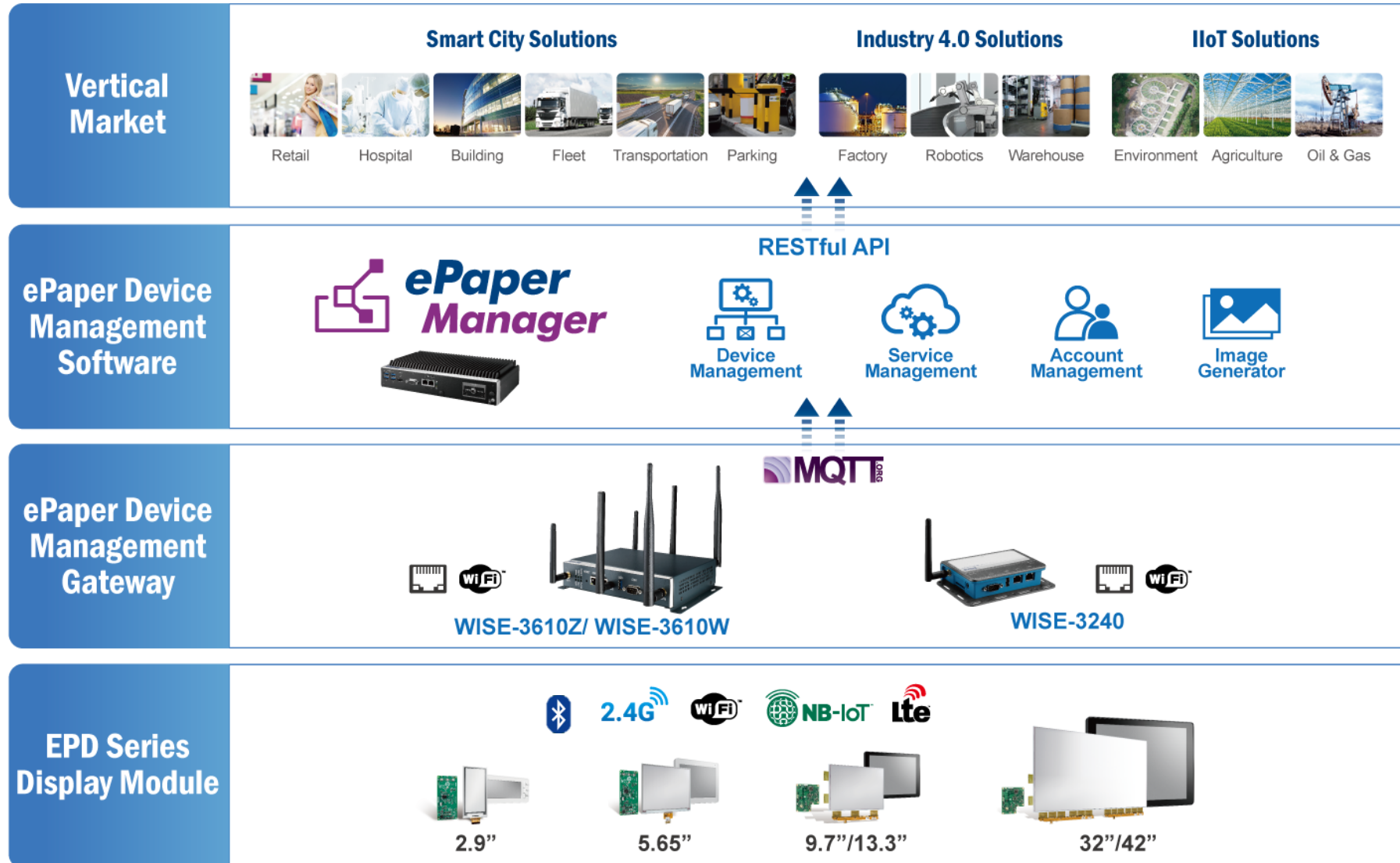
Smart Transportation

EPD-322M/327M, EPD-422M/427M

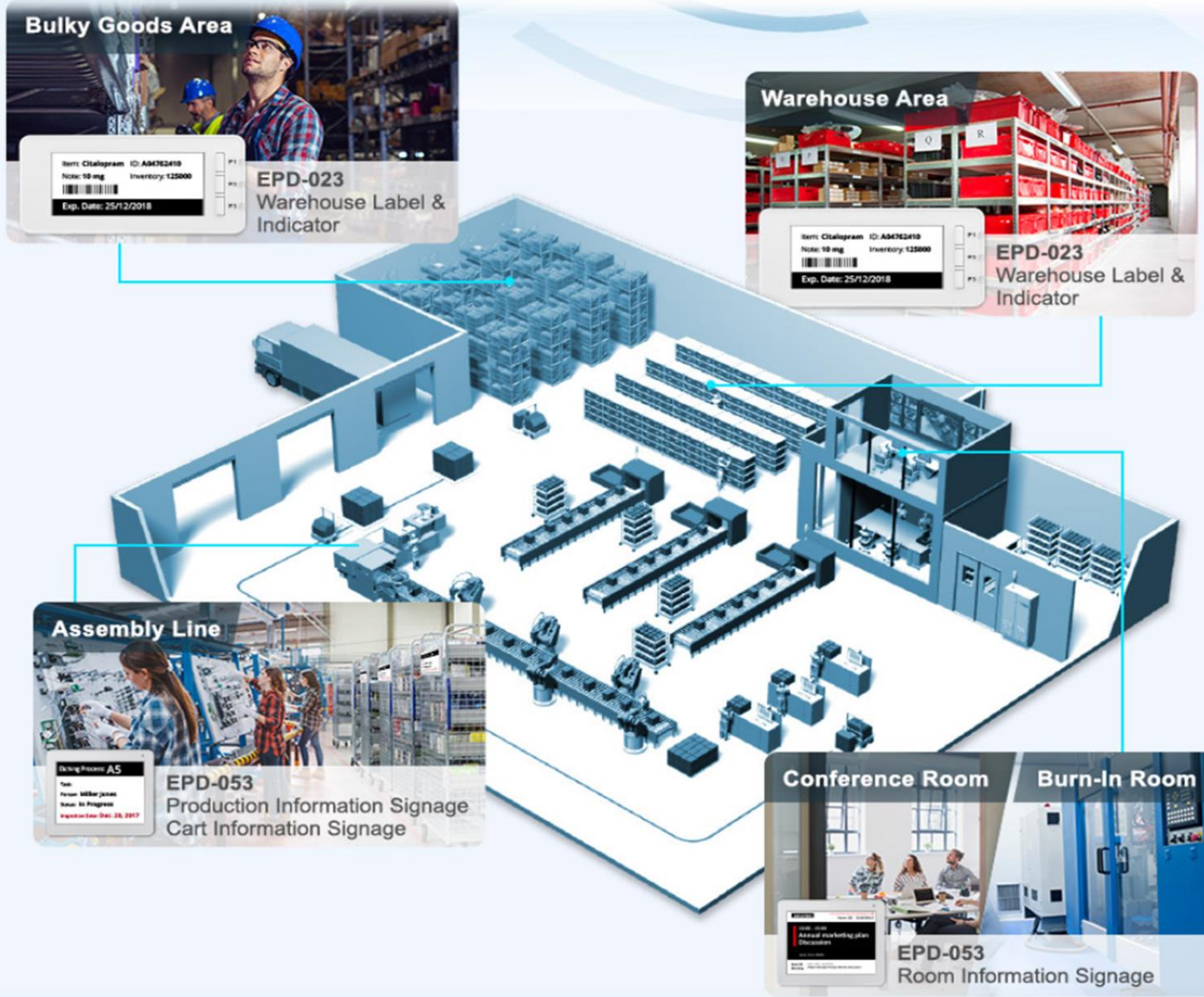
- 31.2" & 42" ePaper Display
- ARM® Cortex®-A9 CPU
- 4096 Color, 1280 x 720 Pixels
- 16 Gray Level, 2560 x 1440 & 2160 x 2880 Pixels



EPD Solution Architecture



Smart Building Application



Smart Bus Stop (EWM+EPD)



4G^{LTE}

EWM-C117 4G LTE Module
EWM-C148 4G LTE Module

Benefits

- Easy installation without extra cables
- Sunlight readability with better viewing angles
- Ultra low power for green energy and environment
- No power needed for emergency alerts

Taipei 101			
Route/Direction		Out	Here
22	Grand Hotel	05 min	20 min
28	Yangmingshan	10 min	25 min
202	Shilin Night Market	21 min	31 min
699	Longshan Temple	28 min	48 min
 Rider Alert Temporary Bus Stop Closures Routes 1, 58, 956 Effective December 31, 2028			

EPD-322M/327M, EPD-422M/427M



ADVANTECH

Wireless Innovation for Connected Smart City



EPD-023
EPD-053
EPD-092
EPD-132

WISE-PaaS/ DeviceOn



WISE-3610



WISE-1510



WISE-DB1505
WISE-DB1503



EWM-C148



EWM-W195



EWM-W163



ADVANTECH
AIWireless
Advantech Industrial Wireless



Co-Creating the Future of the IoT World

