

WELCOME

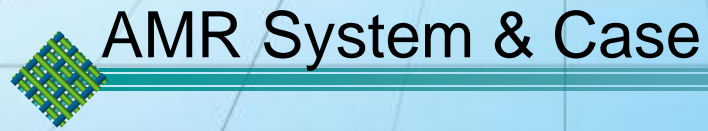
SHINHAN PRECISION

2017. 05.17

SHINHAN

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Contents



Company

1. Name : Shinhan Precision Co., Ltd.
2. Location : Incheon, Republic of Korea
3. Site : www.spic.co.kr
4. Tel : +82-32-865-0411,
Fax : +82-32-865-0410
5. Established Data : 1996. 06.
6. Products : Water Meter(Cold, Hot)

Gas Meter

Electricity Meter,

Calorie Meter,

AMR, AMI System



Company

“ Specialized Company in Metrology and Metering ”



**Water Meter
(Cold, Hot)**



Electricity Meter

**AMR
System**



Gas Meter



Calorie Meter

Water Meter

Digital Vane Wheel



- ❑ Vane wheel type digital meter
- ❑ Real time leakage sensing, indicates leakage alarm in LCD or communication
- ❑ Battery Operation, 8 years
- ❑ Fine accuracy and 8 time sensing per rotation
- ❑ Reduce slip to the zero



Indicates that there is leakage.



Flickers when overloaded.



Indicates that there is backflow.



Indicates that the system is not being used.



Flickers in waveforms when the communication is normal



Indicates that the rotation is forward.



Indicates that the rotation is backward.

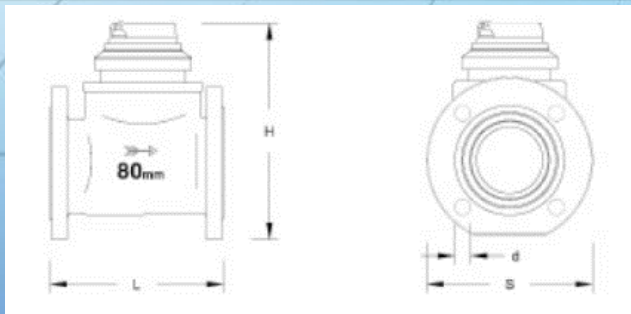
| DN (mm) | Length L (mm) | Height H (mm) | Width W (mm) | Connecting Thread |
|---------|---------------|---------------|--------------|-------------------|
| 15 | 165 | 112 | 88 | G ¾ |
| 20 | 190 | 121 | 98 | G 1 |
| 25 | 225 | 125 | 98 | G 1¼ |

Water Meter

Digital Waltmann



- ☐ Woltmann type digital meter
- ☐ Magnetic sensor can read 8 time per rotation, fine accuracy
- ☐ Remote reading indicator
- ☐ Ultra low power consumption
- ☐ 8-years operation by internal battery



| DN (mm) | Length L (mm) | Height H (mm) | Flange S (mm) | Flange Bolt |
|---------|---------------|---------------|---------------|-------------|
| 80 | 206/225 | 250 | 200 | 19 |
| 100 | 241/250 | 260 | 220 | 19 |
| 150 | 300 | 340 | 285 | 23 |
| 200 | 350 | 384 | 340 | 23 |
| 250 | 450 | 419 | 395 | 23 |
| 300 | 500 | 434 | 445 | 23 |

Water Meter

Unified Multi Jet, Dry

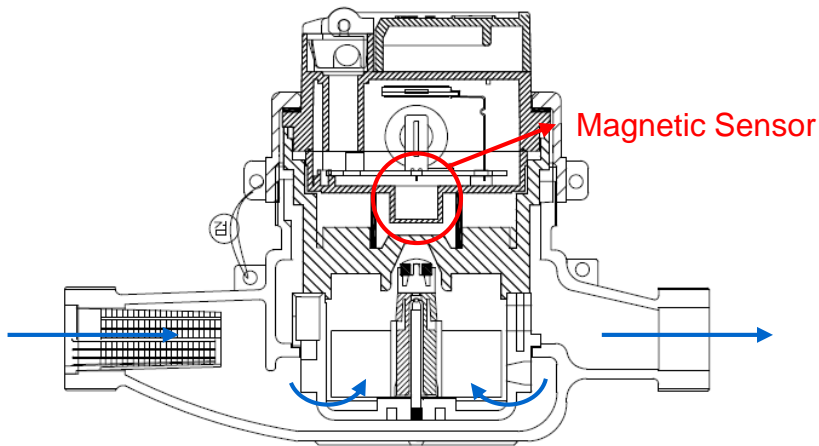


- ☐ Unified vane wheel multi jet dry dial type
- ☐ High accuracy especially in the low flow range
- ☐ Stable accuracy in the wide range of pressure
- ☐ Long durability and high sensitivity using special engineering plastic
- ☐ Strong from the freeze burst

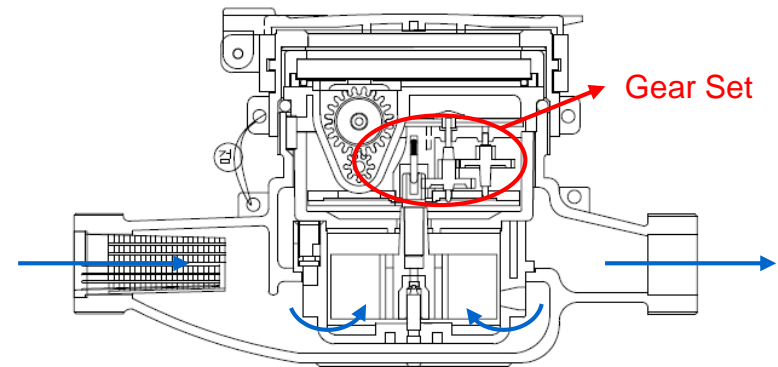
Water Meter

Digital Vane Wheel

Multi Jet Mechanical Type



Multi Jet Digital Type



- ☐ No Moving Part In Gear Set
 - Sensitivity ↑ , Trouble with foreign substance ↓
- ☐ Make and Give more Information

Water Meter

Digital Vane Wheel



Dry Dial type Body





PCB with Magnetic Sensor



Vane wheel digital meter

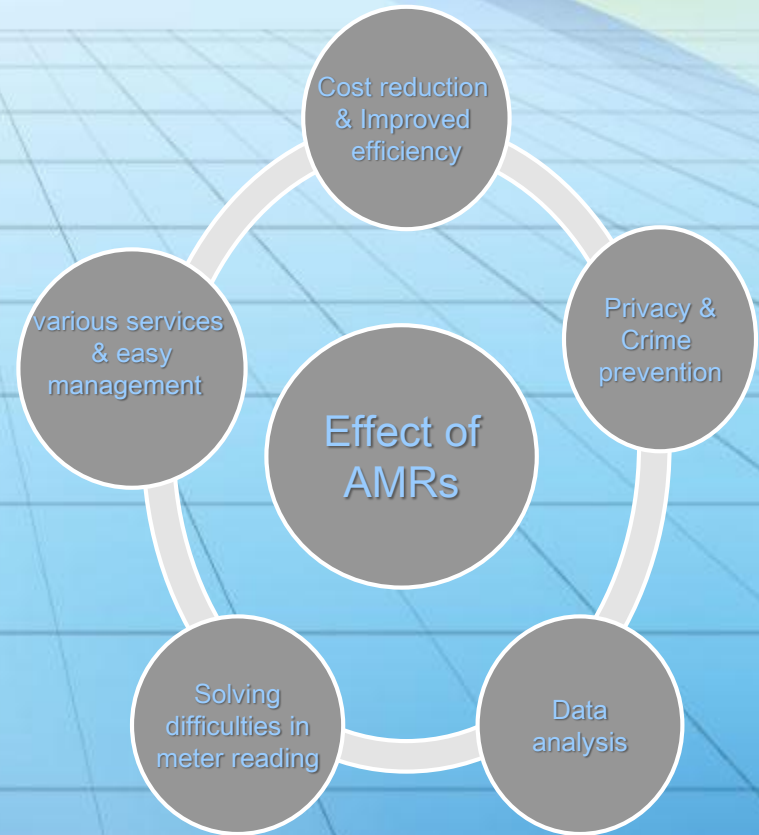
Water Meter

| | Reed Switch | Digital Communication |
|-----------------------|--|---|
| Picture And Structure |  <p>The image shows a physical blue and white water meter with its top cover removed. Next to it is a technical diagram titled 'CLASSIC REED SWITCH OPERATION'. The diagram includes a green reed switch tube with 'H' and 'S' markings, a schematic of the switch mechanism, and a cross-section of a rotating magnet with 'N' and 'S' poles.</p> |  <p>The image shows a brass water meter with a digital display and a blue cover. To its right is a white rectangular digital communication module with a small screen showing '00000.00'.</p> |
| Characteristic | <ul style="list-style-type: none"> ■ Weak in mechanical shock <ul style="list-style-type: none"> - Reed switch could be broken ■ Difference in register and AMR module <ul style="list-style-type: none"> - Risk in signal loss from noise of line - Sensitivity change due to mechanical stress | <ul style="list-style-type: none"> ■ Battery needed for communication ■ Exact same number in register and AMR <ul style="list-style-type: none"> - Meters response the values at the moment - Additional information could be checked (leakage, overload etc.) |

Automatic Meter Reading System

System summary

- Unlike traditional method where a meter reader visits each household and read meters, automatic data collecting allows wireless transfer of records to a meter reader who is within effective distance
- Two types of automatic meter readings are possible:
 - ① On-Site AMR: Meter reading by visit (handheld)
 - ② Off-Site AMR: Long distance data receiving
- Two-way communication allows automatic shut-off or prepaid



Automatic Meter Reading System

Types of AMR



Visual reading

- Low cost
- Requires construction for wired device



PDA meter reading

- Short distance wireless reading

PDA



Wireless meter reading

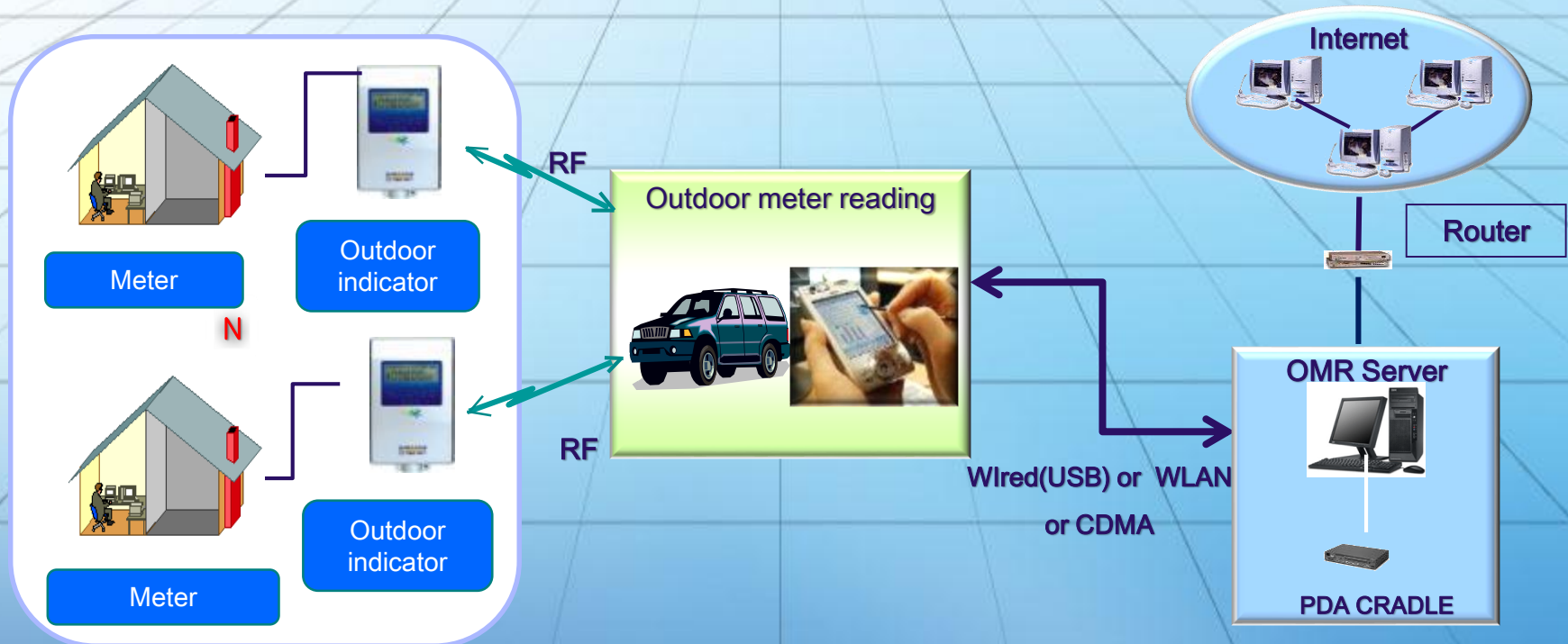
- Minimize in construction expense and complaint

Wireless
indicator

Automatic Meter Reading System

5-1. PDA AMR System (Short distance wireless communication type)

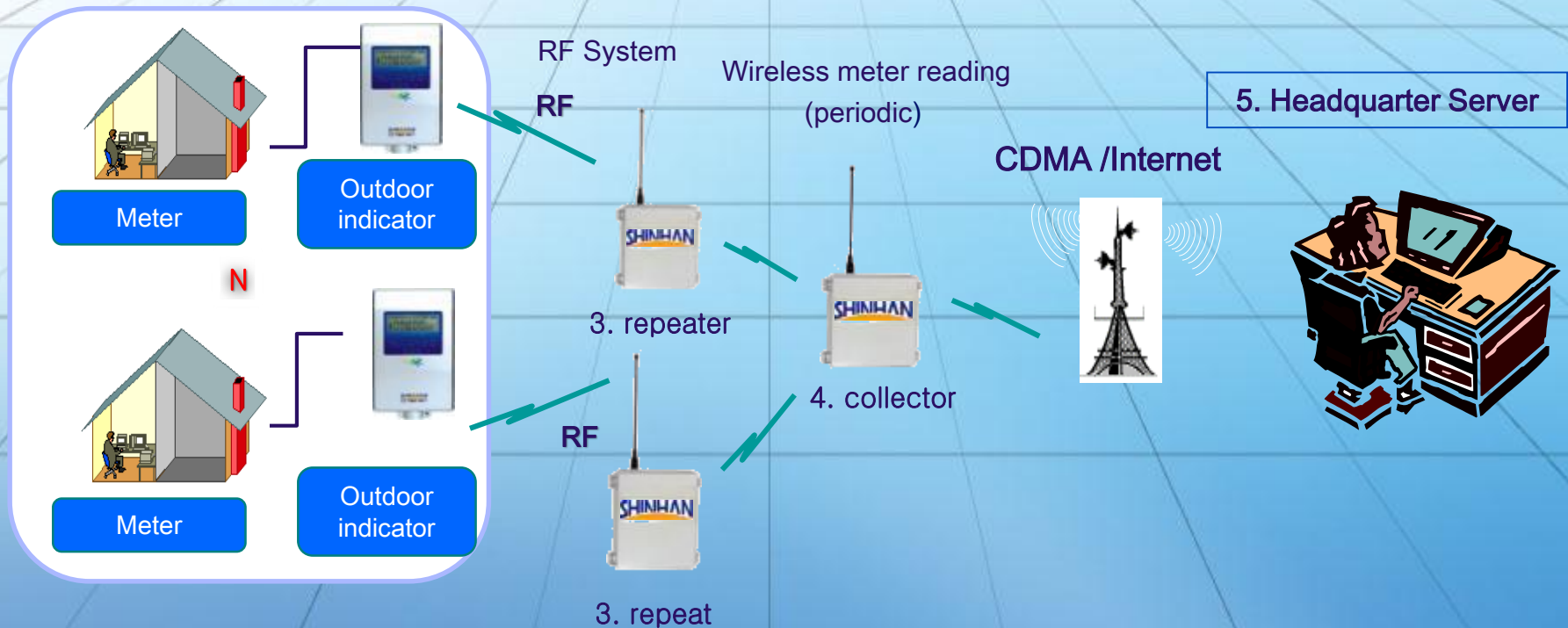
PDA AMR system is a on-site meter reading method where a meter reader carries a PDA(handheld computer) and receives data from outdoor indicator. These data is collected at central server.
(Remote controllable by two-way communication)



Automatic Meter Reading System

5 - 2. CDMA AMR System (Long distance wireless communication method)

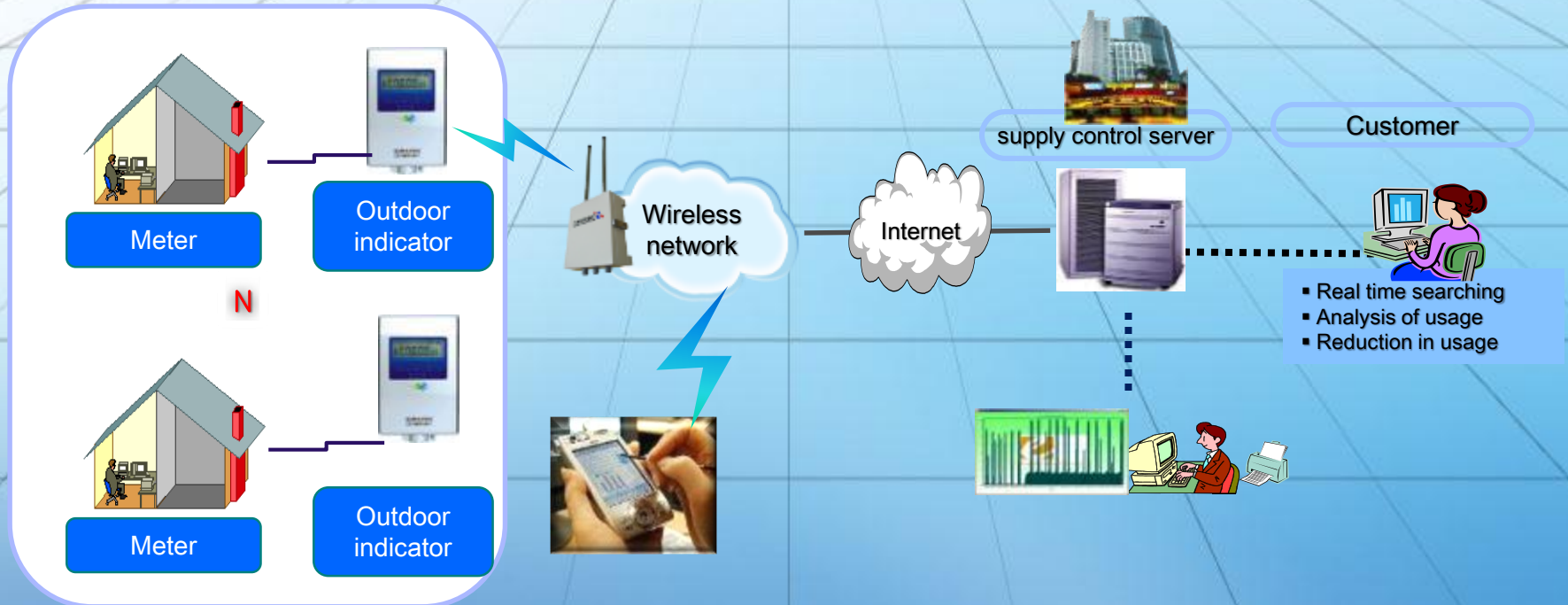
- Transfer of usage from meter to outdoor indicator
- Using wireless network(424MHz) each data is transferred from outdoor indicator to repeater
- Repeater sends data to collector, which ultimately transfers data to headquarter server using wireless CDMA network
- CDMA ARM System allows automatic control (supply and shut-off) for each household at central system



Automatic Meter Reading System

5 – 3. M2M AMR System(Long distance communication method)

- High quality telecommunication service without interference from commercial freq.(mobile communication network)
- Wide area wireless telecommunication service with high power wave (terminal output : 1W)
- Economical choice from low cost on modem and communication service fee
- Optimal solution for wireless AMR from low power consumption, compact, direct connection with meter
- M2M System allows automatic control (supply and shut-off) for each household at central system



Automatic Meter Reading System

5-4 . Wired AMR System (Wired communication for apartment building)

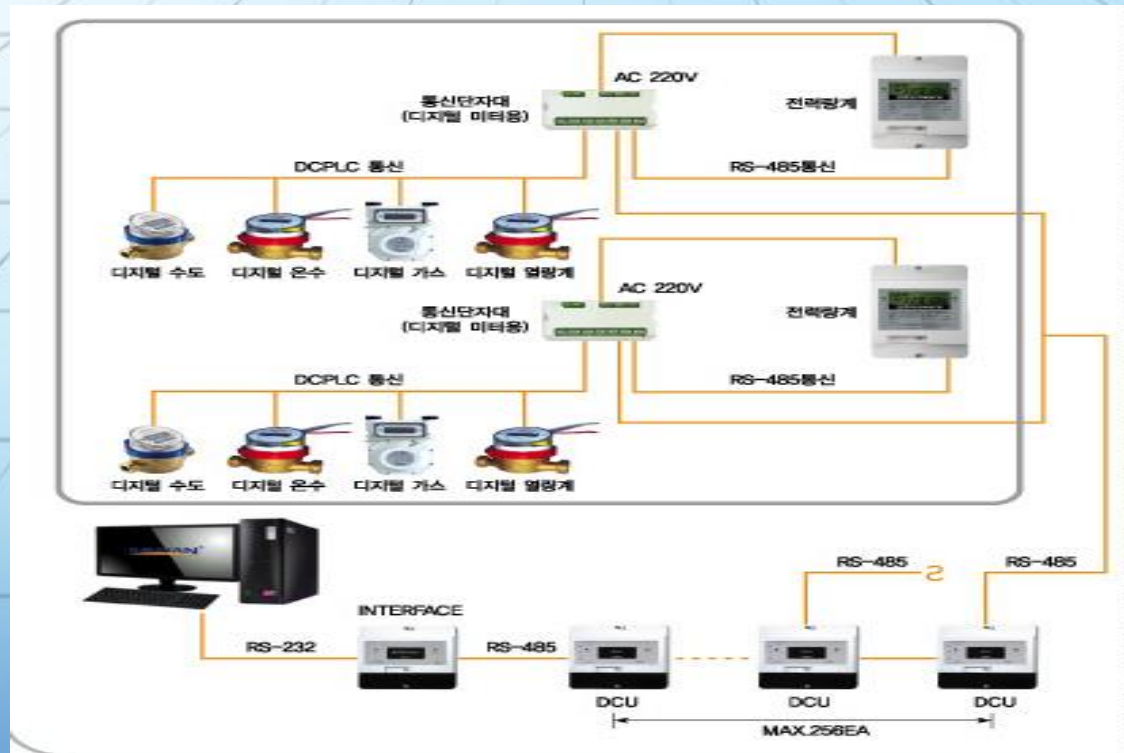
3-kinds, 5-kinds meter

Pulse output meter reading

Digital communication meter reading

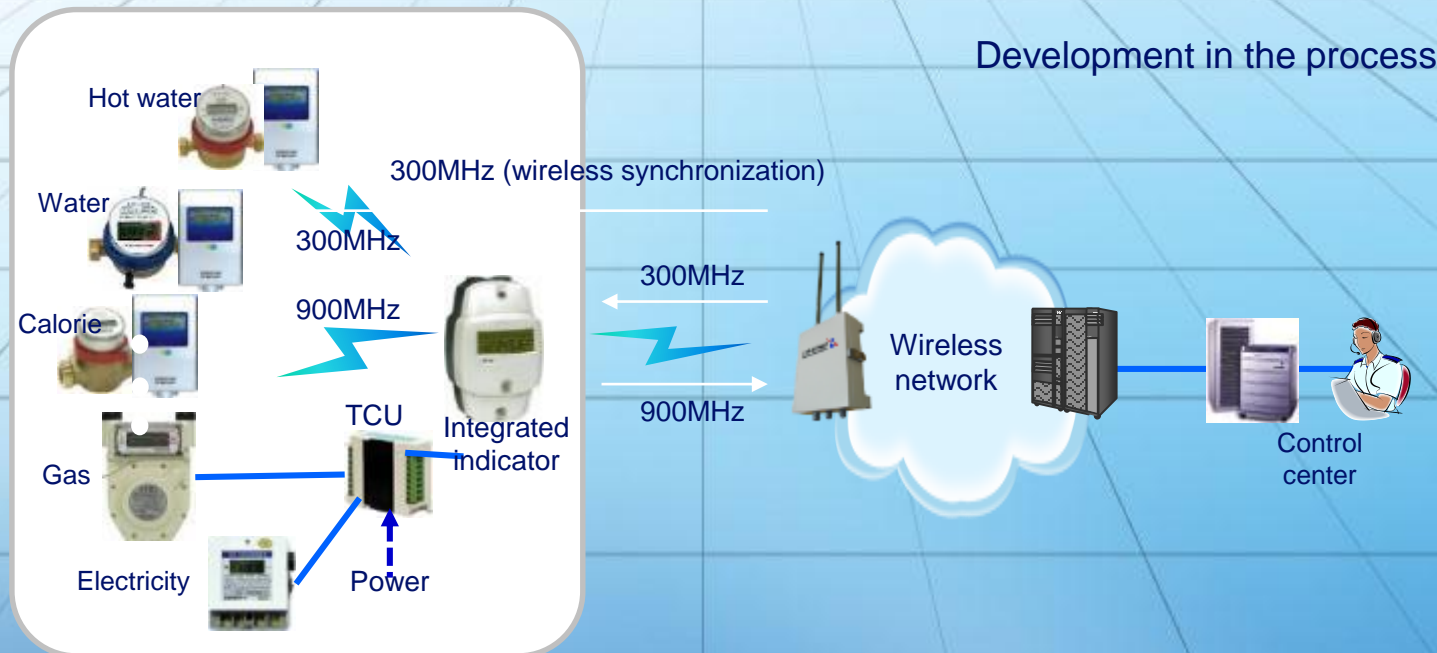
TCU, DCU, I/F Unit

System software



Automatic Meter Reading System

- ❑ Integrated Automatic meter(hot water, water, calorie, gas, electricity) reading for remodeling of apartment house
- ❑ Various network types: Indoor wired, mixed (wired/wireless), wireless
- ❑ Collect and display 5 kinds of readings at integrated indicator and send to main server (real-time)
- ❑ Reliable system through wireless network management
- ❑ High quality wireless communication network by providing private frequency (channel)



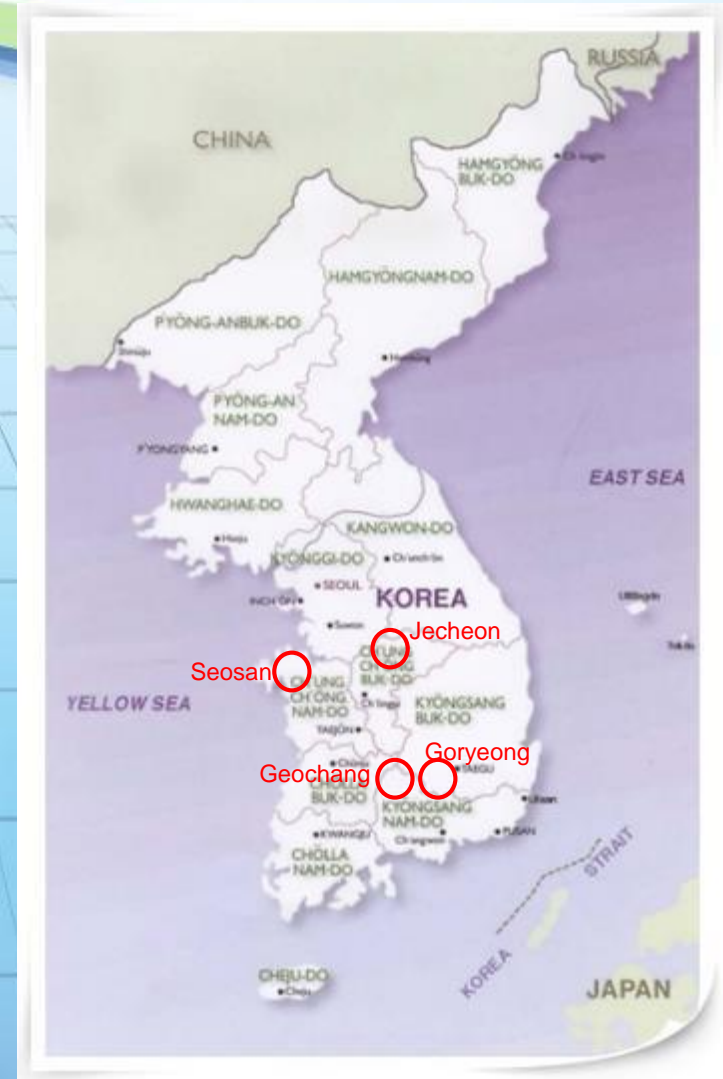
Case : AMR System

Improvement in Revenue Water Ratio

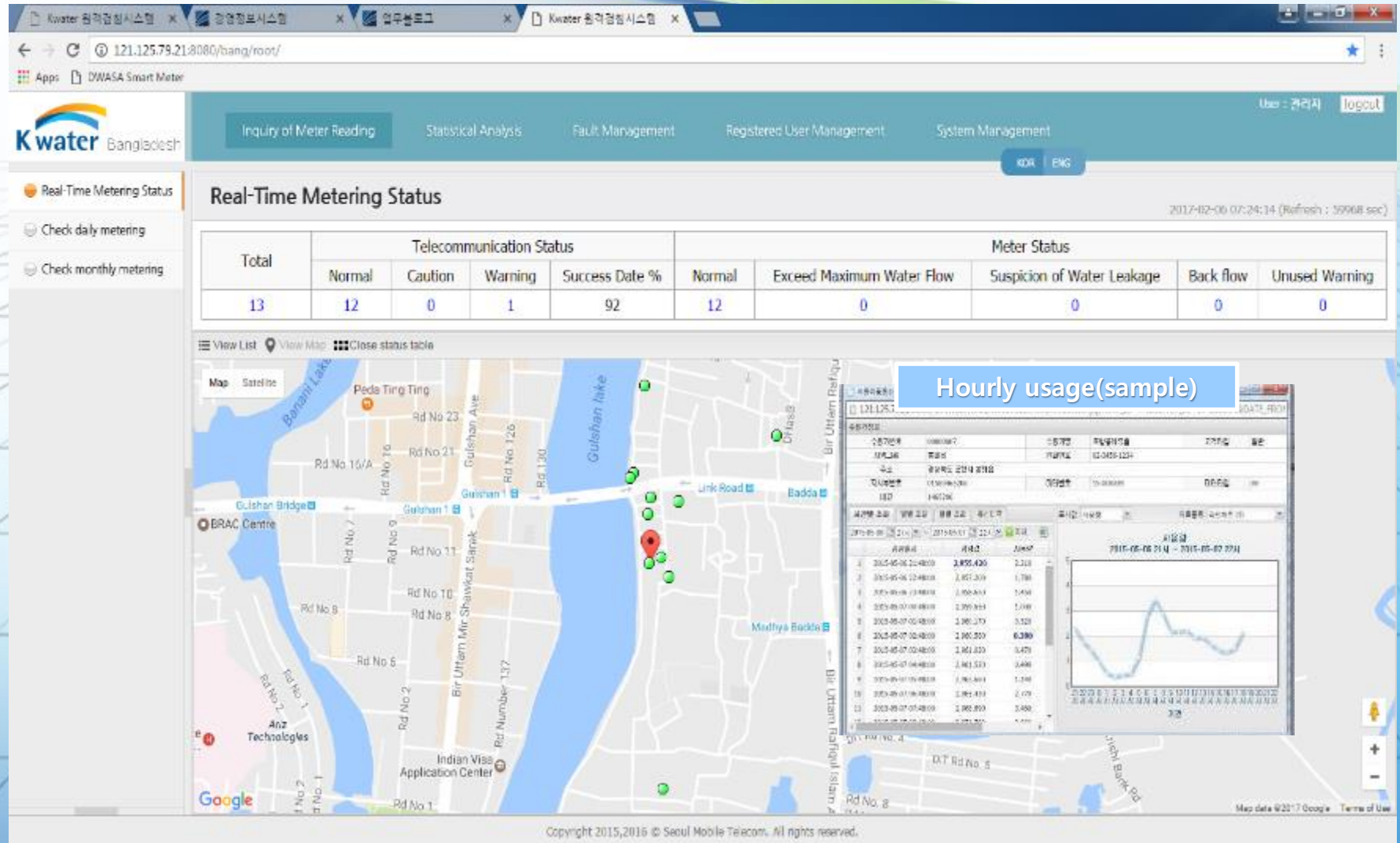
| Area | Result |
|----------|--------|
| Seosan | 20% up |
| Goryeong | 10% up |
| Jecheon | 8% up |
| Geochang | 8% up |

Advantage in AMR System with Digital Water Meter

- Leak Water ↓, Revenue Water ↑
- Revenue Enlargement in charge
- Interworking with Block Monitoring System
- Automatically Computerized Data Collecting
- Using SWM Data in Social Service



Bangladesh Data Monitoring System



Thank you !

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