



节能
Saving energy



减漏
Reduce leakage



增收
Increase income



Harmonious Assured
Impartiality Reliable

ANSO Electromagnetic water meter

A reliable and trustworthy leak control service
provider in the water supply industry

深圳拓安信物联股份有限公司
Shenzhen ANSO IOT Co.,Ltd

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深圳拓安信物联股份有限公司
Shenzhen ANSO IOT Co.,Ltd



01 公司介绍

Company introduction

Founded in 1996, the founding team of Shenzhen Taoxin IoT Co., Ltd. is composed of technical personnel from the former Ministry of Electronics, the Seventh Institute, the Thirtieth Institute, and the China Shipbuilding Industry Corporation's 724th Institute.

The company's headquarters is located at Chuangzhi Yuncheng in Liuxiandong Headquarters Base, Nanshan, Shenzhen. The production base is located at Anxin IoT Industrial Center in Liaobu, Dongguan. The industrial center is equipped with a high-flow water metering laboratory, a leak control training base, a water supply service big data center, and an all-scenario water supply facility and platform simulation experience center.

The company's mission is "Achieve every drop of water" and its purpose is "Let customers rest assured and trust." Adhering to the corporate spirit of "dedication, pragmatism, innovation, responsibility," it is a national high-tech enterprise integrating the research and development, production, sales, and service of smart water systems, leak control services, and flow meters.

As the first domestic company to obtain certification for an electromagnetic water meter, it has achieved long-term cooperation with nearly 1000 water companies nationwide through continuous product iterations and innovation, combined with years of service experience in the water supply industry. It is the earliest and most implemented company participating in domestic DMA leak control projects and is also a provider of smart water system solutions and proactive water loss control services.



ShenZhen headquarters



DongGuan "Anxin IoT Industrial Center"

The **1st** electromagnetic water meter was **borned in ANSO 安信**

ANSO 安信 electromagnetic water meter **online stable operation for more than 16 years**

More than **200000** ANSO 安信 electromagnetic water meter an in use online

Provides data protection and services **for nearly 1000** water supply enterprises

ANSO 安信®
成就每一滴水

2022

The Anso lot industrial center in Dongguan was full completion and operation, Approved Guangdong water distribution network leakage control engineering technology Research center, Awarded by the urban water supply network leakage detection training base, with Guangdong University of Technology, Donghua University to build a joint training base for graduate students.

FUTURE
.....

2019

Actively respond to market demand, ANSO 安信® Secondary water supply special meter come into the market.

2021

Issued a special meter for high-quality drinking water.

2017

Obtained NB-IoT Huawei certification, Launched NB-IoT series products.

2014

Build a smart water ecology
Online "ThinkWater云知水" leakage control management platform
Provide basic guarantee for smart water; set up leakage control department. ®

2012

Overcome industry problems such as interference and launch a new generation of upgraded products
MAG-AX Enhanced series products

2013

The first no-straight pipe section technology. the first no-straight pipe section water meter in China was born, And obtained the recognition of national authority

2008

The first electromagnetic water meter in china was born in Anso
Won the first electromagnetic water meter CMC certificate in Chins.

2009

The world's first all-stainless steel electromagnetic water meter was listed
AMD the first domestic flow pressure remote transmission was released. Integrated DMA special table

2003

Develop the first domestic,electromagnetic vortexflowmeter.

2006

Develop the first battery powered electrialmagnetic flowmeter in Chinafill the domestic gap the water supply metering environmnet has entered the era of low cost

1996

Company was established in Shenzhen
production of ultrasomic,flowmeter.

★ The product applies to the application scenario

04

02系列产品

series products

E3000 Electricalmagnetic water meter(WM)



- Superior Measurement Performance
- Integrated flow measurement and remote transmission (pressure optional)
- Adaptable to various installation environments

S3000 Electricalmagnetic WM



- Food-grade lining, greener and safer
- Optimized structure significantly improving measurement accuracy
- 316L stainless steel material higher quality and longer lifespan

E2600 Electricalmagnetic WM



- Integrated flow, pressure, and remote transmission
- Dynamic monitoring terminal for water supply pipeline network
- High-frequency monitoring during night-time MNF periods Capture the real minimum nighttime flow

F3000 Electricalmagnetic WM



- Optimized structure, easier installation
- Wider range, accurate measurement
- Environmental lining, safe for direct drinking
- Online battery replacement without breaking the seal
- Upgraded chip, lower power consumption
- Optional rectangular or circular measuring tube
- Integrated flow, pressure, and remote transmission, with built-in pressure measurement

E3500 Electricalmagnetic WM



- Stainless steel material, polished process Coordinated appearance with high-standard
- Secondary supply supporting equipment
- Second-level measurement millisecond response

C2000 Electricalmagnetic WM



- Low height, lightweight, suitable for small installation environments
- Environmental lining, reaching direct drinking water level
- Battery replacement without breaking the metering seal
- Built-in grounding electrode, no grounding ring needed even when connected to non-metallic pipes
- Rectangular measuring tube design, more stable flow field
- Ratio range R400
- Integrated flow, pressure, and remote transmission, with built-in pressure measurement



GM3000 Electromagnetic flowmeter

- Excellent Low Flow Speed Performance
- Simultaneous measurement of flow, pressure, and flow direction
- Multiple power supply methods: mains electricity, street lights, solar power 4G, NB-IoT wireless collection



Ty1000 Intelligent pressure regulation and stabilizing valve

- Remote pipeline pressure management
- Pipeline pressure reduction and stabilization function
- Pressure measurement function before and after the valve
- Suitable for reducing pipeline leakage in DMA management reduces the probability of water hammer in the pipeline network

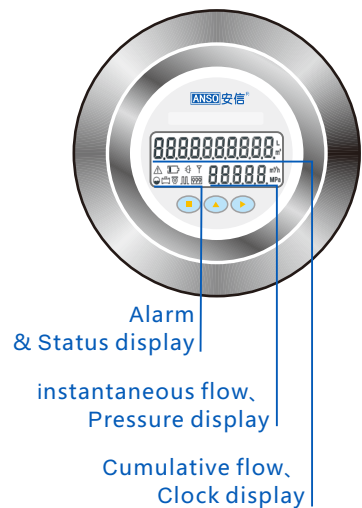


Ty3000 Intelligent regulation Switch valve

- Electromagnetic Water Meter and Electric Butterfly Valve Combination:
- Anti-disassembly and anti-theft patented structure Built-in positioning module, reports any changes
- Free control of opening degree, achieving refined management

03 产品特性

characteristics



Excellent Measurement Performance:

Can provide bidirectional high-precision measurement;
Ultra-largerange ratio (1st level R250, R400, 2nd level R160, R250, R500, R800), ultra-low starting flow rate, almost



Edge Computing + Intelligent Self-Diagnosis Function

The latest generation of intelligent converters has self-diagnosis functions, timely alarms for "alarm status display, battery undervoltage, empty pipe, measurement status, output alarm," and other abnormal conditions. Accurate data, no delay. For 4G/NB-IoT remote transmission models, it can cooperate with the fully self-developed ThinkWater cloud water leakage management platform to achieve various forms of remote



Low Maintenance, Ultra-Low Power Consumption

Uses ultra-low power processors and industrial-grade chips, with a battery life of up to 6 years (under standard conditions), minimizing maintenance costs and frequency.



Overall Stainless Steel Design:

Protection level up to IP68



Patented Battery-Powered, Flow, Pressure and Remote Integrated Models:

Specially designed models for domestic market demand, coupled with positioning functions and pipeline pressure monitoring functions, providing monitoring data sharing for the information construction of water supply companies (business charges, SCADA, GIS, hydraulic models, hotline systems, and other smart water-related business systems), is the best choice for district metering (DMA) and large user metering, achieving multiple benefits with one



Complete Communication Solutions

Equipped with complete communication solutions, the battery-powered integrated design makes the measurement and remote transmission functions complete in one machine, easily completing data collection; 4G/NB-IoT convenient, economical, and stable



Identification, convenient installation

The initial inspection and weekly inspection can be carried out on the existing water meter verification devices in the area. The verification work is convenient and simple. The first no-straight pipe section technology can be installed without straight pipe section

04 选型&配置

Type selection & configuration

Converter

Designed for domestic usage scenarios with a cylindrical structure, using thickened stainless steel material; the internal circuit board and high-capacity lithium battery are sealed with special waterproof glue, ensuring long-term reliable operation in harsh environments; the battery can be replaced in high-temperature and high-humidity environments



1.0 Data output type
RS485 output 4-20
optional pulse output



2.0 Flow remote
transmission type
4G/NB-IoT



3.0 Flow and pressure
remote transmission type
4G/NB-IoT

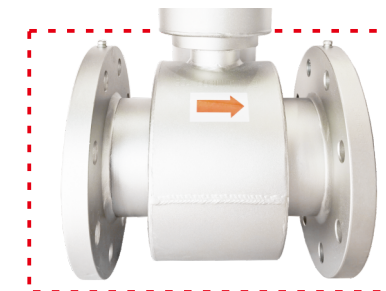


4.0 Flow remote
transmission type
RS485 output
4G/NB-IoT

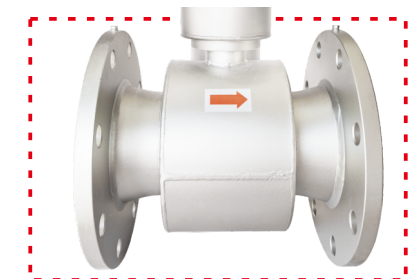
Sensor

Zero pressure loss full-bore type sensor: full pipe diameter, zero pressure loss.

Exempt from straight pipe section type sensor: gradual flow channel design, more stable measurement, can be installed without straight pipe section.



Zero pressure loss full-bore type



Exempt from straight pipe section type

ANSO 安信® Electromagnetic water meter. To provide the best quality product configuration for different industries

| | | | | |
|----------------------------|--|---|--|---|
| series type |  |  |  |  |
| | 4.0 Flow pressure remote monitoring type | 3.0 Flow pressure remote monitoring type | 2.0 Flow remote monitoring type | 1.0 Data output model |
| Sensor classification | 1、Zero pressure loss diameter sensor 2、Installed without straight pipe section | | | |
| Measurement parameter | Instantaneous flow, cumulative flow, temperature, pressure, coordinates | Instantaneous flow, cumulative flow, temperature, pressure, coordinates | Instantaneous flow, cumulative flow, temperature, coordinates | Instantaneous flow, cumulative flow |
| Pipe diameter range | DN40-DN300 | | | |
| Flow unit | Cumulative flow: m ³ (Standardization is L) ; Instantaneous flow: m ³ /h | | | |
| Measurement accuracy | Based on (GB/T 778-2018) water meter standard: Level2 R160 (Q ₂ / Q ₁ =1.6) Level1 R250 (Q ₂ / Q ₁ =1.6) Level1 R400 (Q ₂ / Q ₁ =1.6) Level2 R250 (Q ₂ / Q ₁ =1.6) Level2 R500 (Q ₂ / Q ₁ =1.6) Level2 R800 (Q ₂ / Q ₁ =1.6) | | | |
| Flow direction measurement | Bothway direction measurement(Forward,Backword) | | | |
| Installing | Integrate Split (The limit for the split line is 10m) | | | |
| Installing ways | Tubular type(flanged joint), DN40Can joint with screw | | | |
| Material & structure | Shell: SUS304 Stainless steel (Include flanged ,Body ,header) Lining: Food grade coating, Neoprene, electrode: 316L | | | |

| | | | | |
|-----------------------------|---|--|---|---|
| Number of electrodes | 4 | | | |
| Power supply mode | 3.6V Lithium battery power supply Dual power supply (3.6V+24V or 3.6V+220V) | | | |
| Displays&Contral | Display cumulative flow of 10 digits on the top line, Display Instantaneous flow of 5 digits on the bottom line Automatic adjustment accuracy; Instrument diagnosis and alarm status can be display: Two-way flow can be display (Instantaneous flow、Positive cumulative flow、negative cumulative flow、 Net cumulative flow) Time、 Pressure、 Temperature: User password control,menu setting parameters | | | |
| Signal output | Digital signal: MODBBUS communication protocol Rs485 port Wireless remote transmission: 4G/NBLoT Wireless remote transmission Output data is package and sent | Wireless remote transmission: 4G/NBLoT Wireless remote transmission Output data is package and sent | Wireless remote transmission: 4G/NBLoT Wireless remote transmission Output data is package and sent | Digital signal: MODBBUS communication protocol Rs485 port |
| Temperature | medium: 0℃~+70℃ environment: -25℃~+70℃ store: -40℃~+70℃ | | | |
| Protection level | IP68 | | | |
| Diagnostic & alarm function | Alarm statue display: Sensor/Transverter exception Low-battery、 Blank pipe alarm、 Measurement state、 output alarm etc | | | |
| Pressure range | 1.0MPa、 1.6MPa、 2.5MPa、 4.0MPa (Selectable) | | | |
| Optimal application | Water supply and drainage flow measurement, DMA Partitioned measurement, Large water user trade settlement, Energy metering system measure | | | |
| | Small size,suitable for various working conditions, can replace the battery without destroying the metering lead seal . more convenient to use remote data more stable | Becoming an intelligent terminal for measurement and monitoring, providing timely and accurate data for the information construction (business charge SCADA,GIS,hydraulic modle,hot line system etc.) of water supply enterprise | Improve the management of meter reading and measurement results to process management, timely. Effectively detect and eliminate water theft and leakage phenomena significant results | Micro consumption data output, real time online data. |

05 流量参数

Flow parameters

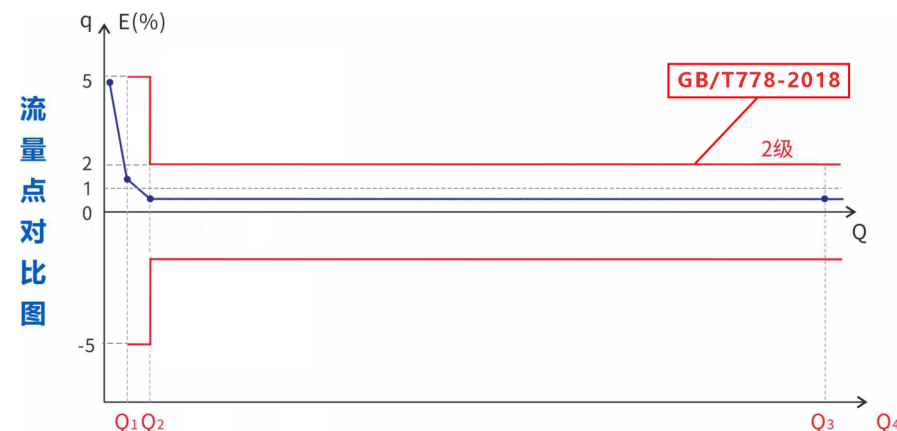
The flow parameter at accuracy level1 R250,Level2 R250

| Caliber (DN) Parameter | DN40 | DN50 | DN80 | DN100 | DN150 | DN200 | DN250 | DN300 |
|-------------------------------------|-------|-------|------|-------|-------|-------|-------|-------|
| R (Q ₃ /Q ₁) | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| Q ₂ /Q ₁ | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| Q ₁ [m ³ /h] | 0.1 | 0.16 | 0.4 | 0.64 | 1.6 | 2.52 | 4 | 6.4 |
| Q ₂ [m ³ /h] | 0.16 | 0.256 | 0.64 | 1.024 | 2.56 | 4.032 | 6.4 | 10.24 |
| Q ₃ [m ³ /h] | 25 | 40 | 100 | 160 | 400 | 630 | 1000 | 1600 |
| Q ₄ [m ³ /h] | 31.25 | 50 | 125 | 200 | 500 | 787.5 | 1250 | 2000 |

The flow parameter at accuracy level1 R400,Level2 R400

| Caliber (DN) Parameter | DN40 | DN50 | DN80 | DN100 | DN150 | DN200 | DN250 | DN300 |
|-------------------------------------|--------|------|------|-------|-------|-------|-------|-------|
| R (Q ₃ /Q ₁) | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| Q ₂ /Q ₁ | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| Q ₁ [m ³ /h] | 0.0625 | 0.1 | 0.25 | 0.4 | 1 | 1.575 | 2.5 | 4 |
| Q ₂ [m ³ /h] | 0.1 | 0.16 | 0.4 | 0.64 | 1.6 | 2.52 | 4 | 6.4 |
| Q ₃ [m ³ /h] | 25 | 40 | 100 | 160 | 400 | 630 | 1000 | 1600 |
| Q ₄ [m ³ /h] | 31.25 | 50 | 125 | 200 | 500 | 787.5 | 1250 | 2000 |

- * The maximum allowable error of the water meter conforms to the GB/T 778-2018 regulation:
- 1.The maximum allowable error in the low zone from including the minimum flow rate(Q₁) to excluding the boundary flow rate(Q₃) is ±3% in the first level and ±5% in the second level
 - 2.The maximum allowable error in the high zone from including the boundary flow rate(Q₂) to excluding the boundary flow rate(Q₄) is ±1% in the first level and ±2% in the second level



The flow parameter at accuracy Level2 R500

| Caliber (DN) Parameter | DN40 | DN50 | DN80 | DN100 | DN150 | DN200 | DN250 | DN300 |
|-------------------------------------|-------|--------|-------|-------|-------|-------|-------|-------|
| R (Q ₃ /Q ₁) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| Q ₂ /Q ₁ | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| Q ₁ [m ³ /h] | 0.08 | 0.126 | 0.32 | 0.5 | 1.26 | 2 | 3.2 | 3.2 |
| Q ₂ [m ³ /h] | 0.128 | 0.2016 | 0.512 | 0.8 | 2.016 | 3.2 | 5.12 | 5.12 |
| Q ₃ [m ³ /h] | 40 | 63 | 160 | 250 | 630 | 1000 | 1600 | 1600 |
| Q ₄ [m ³ /h] | 50 | 78.75 | 200 | 312.5 | 787.5 | 1250 | 2000 | 2000 |

The flow parameter at accuracy Level2 R800

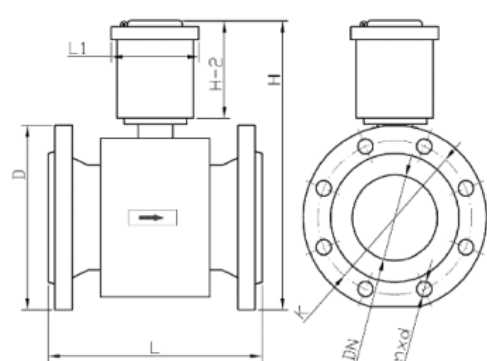
| Caliber (DN) Parameter | DN40 | DN50 | DN80 | DN100 | DN150 | DN200 | DN250 | DN300 |
|-------------------------------------|---------|------|-------|-------|-------|--------|-------|-------|
| R (Q ₃ /Q ₁) | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 |
| Q ₂ /Q ₁ | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| Q ₁ [m ³ /h] | 0.03125 | 0.05 | 0.125 | 0.2 | 0.5 | 0.7875 | 1.25 | 2 |
| Q ₂ [m ³ /h] | 0.05 | 0.08 | 0.2 | 0.32 | 0.8 | 1.26 | 2 | 3.2 |
| Q ₃ [m ³ /h] | 25 | 40 | 100 | 160 | 400 | 630 | 1000 | 1600 |
| Q ₄ [m ³ /h] | 31.25 | 50 | 125 | 200 | 500 | 787.5 | 1250 | 2000 |

- * The maximum allowable error of the water meter conforms to the GB/T 778-2018 regulation:
- 1.The maximum allowable error in the low zone from including the minimum flow rate(Q₁) to excluding the boundary flow rate(Q₃) is ±3% in the first level and ±5% in the second level
 - 2.The maximum allowable error in the high zone from including the boundary flow rate(Q₂) to excluding the boundary flow rate(Q₄) is ±1% in the first level and ±2% in the second level

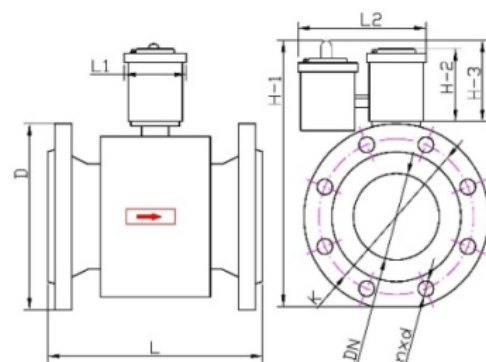
Please pay special attention when verifying operation

- 1.The verification method of electromagnetic water meter standard is pulse output method, and this method should be used when conditions are available to reduce the measurement error. When the level is 1, this method is required
- 2.The dynamic manual reading method can be used as the mechanical water meter, but the verification time (or water consumption) should be increased to 200 seconds (or 200 times the water flow per second) to eliminate the error when manual reading
- 3.When there is significant electromagnetic interference in the calibration environment, it may cause small flow deviation, and it is necessary to do a good job of bridging and setting the zero point.

06 安装尺寸图 Installation size



Basic Model



Flow Remote Monitoring Type

| Nominal diameter DN(mm) | Nominal pressure MPa | Total length L(mm) | L-1 (mm) | L-2 (mm) | D (mm) | k (mm) | nxd | Total height H(mm) | H-1 (mm) | H-2 (mm) | H-3 (mm) |
|----------------------------|-------------------------|------------------------|-------------|-------------|--------------|--------------|--------------------|-----------------------|--------------|-------------|-------------|
| 40 | 1.0-1.6 | 200 (flanged joint) | 131 | 265 | 150 | 110 | 4-Φ18 | 345 | 385 | 185 | 220 |
| | | 245 screw thread | | | / | / | / | 320 | 360 | 185 | 220 |
| 50 | 1.0-1.6 | 200 | 131 | 265 | 165 | 125 | 4-Φ18 | 355 | 395 | 185 | 220 |
| 80 | 1.0-1.6 | 200 (225option) | 131 | 265 | 200 | 160 | 8-Φ18 | 385 | 425 | 185 | 220 |
| 100 | 1.0-1.6 | 250 | 131 | 265 | 220 | 180 | 8-Φ18 | 400 | 440 | 185 | 220 |
| 150 | 1.0-1.6 | 300 | 131 | 265 | 285 | 240 | 8-Φ22 | 460 | 500 | 185 | 220 |
| 200 | 1.0-1.6 | 350 | 131 | 265 | 340 | 295 | 8-Φ22 12-Φ22 | 505 | 545 | 185 | 220 |
| 250 | 1.0-1.6 | 450 | 131 | 265 | 395 (405) | 350 (355) | 12-Φ22 (12-Φ26) | 565 (570) | 605 (615) | 185 | 220 |
| 300 | 1.0-1.6 | 500 | 131 | 265 | 445 (460) | 400 (410) | 12-Φ22 (12-Φ26) | 600 (615) | 640 (655) | 185 | 220 |

* The screw size of the screw thread is G 2B

07 ThinkWater 云知水® Water supply metering management platform

Challenges and Solutions:

- ◆ Various Protocols, Few Standard Protocols, Long Access Time
- ◆ Accessing data from multiple sources, difficult data conversion, and integration
- ◆ High access cost due to multiple device types, manufacturers, and communication methods
- ◆ Difficult to locate data problems with large-scale data from various sources

System characteristics

- ◆ Adapts to a variety of parsers
- ◆ Parser is flexibly configured
- ◆ Diversified data access
- ◆ Massive data processing
- ◆ High concurrent processing ability
- ◆ Data distribution management
- ◆ Equipment manufacturer management
- ◆ Debugging tasks assigned online
- ◆ Intelligent debugging report
- ◆ Data link tracking and alarm
- ◆ Data analysis and monitoring
- ◆ Event are sent online



Challenges and Solutions:

- ◆ Static information of equipment is chaotic, dynamic data assets are difficult to integrate and utilize
- ◆ Few management personnel, many managed devices, unable to detect faults in time, untimely maintenance
- ◆ Low equipment operation and maintenance efficiency, difficult to accurately plan for periodic inspections, regular inspections, and batch meter replacements
- ◆ Users water habits complicated, difficult to detect metering losses
- ◆ Untimely maintenance of users and device information, causing miscalculations or missed measurements, leading to user complaints or water loss

System characteristics

- ◆ **Fine Management** of Equipment
- ◆ **Accurate event alarm**
- ◆ **Daily operation & maintenance reminders**
- ◆ **Analysis of water usage characteristics**
- ◆ **Management of arrears valves**
- ◆ **Centralized** data management
- ◆ **Rapid fault location**
- ◆ **Idle equipment monitoring**
- ◆ **Identification of abnormal water usage**



Challenges and Solutions:

- ◆ Unable to refer to pipeline network information, difficulty in accurately constructing DMA
- ◆ Difficulties in overall leak point early warning management of DMA, unable to customize alarm mechanisms
- ◆ No warning for data anomalies, unable to further analyze abnormal data
- ◆ Difficulties in overall information integration of leak control operations, unable to analyze key leak control indicators such as minimum flow and total sub-difference, making the leak reduction effect not intuitive

System characteristics

- ◆ **Pipeline Empowerment:** Combining pipeline data modeling and spatial algorithms to accurately create DMA, partition, and quickly construct total sub-relationships
- ◆ **Multiple Alarms:** Using big data intelligent algorithms to quickly analyze abnormal data and accurately alarm key leak control indicators such as minimum flow, total sub-difference, and production-sales difference
- ◆ **Data Analysis:** Using big data algorithms to analyze problem data, govern abnormal data, integrate related data, and finally form a data analysis report
- ◆ **Multi-Dimensional Indicators:** Automatically generate indicators such as water balance, minimum flow, production-sales difference, leak reduction space, and assist in locating physical leak points and commercial leak loss analysis based on DMA characteristics
- ◆ **Monitoring Overview:** Global monitoring of DMA, partition operation, supporting APP remote monitoring, always grasping the pipeline network leak loss operation status, timely follow-up processing



Challenges and Solutions:

- ◆ **Difficult to supervise personnel:** Difficult to supervise field personnel working in scattered locations and with irregular work hours
- ◆ **Difficult to coordinate multiple department:** multiple business types involving a wide range of departments, and difficult to manage various field tasks efficiently
- ◆ **Difficult to simplify the business:** Business processes and forms are complex, still a lot of paper forms being filled out, consuming a lot of manpower
- ◆ **Difficult to guarantee data quality:** Difficult to guarantee data quality uploaded by field personnel with varying work capabilities
- ◆ **Difficult to reasonably assign tasks:** Difficult to reasonably assign tasks due to a large workload and multiple business types
- ◆ **Difficult to guarantee task:** Difficult to guarantee task completion timeliness with field personnel working in scattered locations and irregular work hours
- ◆ **Difficult to control the task execution process:** Difficult to control the task execution process with paper forms being filled out, unable to upload data in real-time
- ◆ **Difficult to quantify task results:** Difficult to quantify task results due to a lack of quantitative assessment criteria for field personnel's task volume and completion status
- ◆ **Difficult to efficiently circulate data:** Difficult to efficiently circulate data across multiple business types and departments

System characteristics

- ◆ Refined Management of Personnel ◆ Integrated business processing ◆ Standardized processes to increase efficiency
- ◆ Efficient & intelligence AI ◆ Optimized intelligent dispatch ◆ Timely work order processing
- ◆ Execution process Clear ◆ Quantifiable result assessment ◆ Data interconnection and sharing



Challenges and Solutions:

- ◆ **Difficult to supervise personnel:** Difficult to supervise meter readers working in scattered locations and with irregular work hours
- ◆ **Difficult to manage books:** Difficult to efficiently manage a large number of meter readings and meter reading plans involving many meter readers each month
- ◆ **Difficult to reply:** No effective way to handle unexpected incidents during meter reading, difficult to handle efficiently
- ◆ **Difficult to guarantee data quality:** Difficult to guarantee data quality uploaded by meter readers with varying work capabilities
- ◆ **Difficult to detect errors:** Difficult to detect errors due to complex work environments and large workloads, with a high possibility of manual entry errors in normal meter reading modes, and no timely reminders for data entry errors
- ◆ **Difficult to review:** Difficult to review a large number of meter readings each month, with a heavy workload for reviewing meter reading data in the background, difficult to detect data anomalies
- ◆ **Difficult to control the task execution process:** Difficult to control the task execution process with handheld devices still being used for meter reading, unable to upload data in real-time
- ◆ **Difficult to quantify task results:** Difficult to quantify task results due to a lack of quantitative assessment criteria for meter readers' task volume and completion status
- ◆ **Difficult to efficiently circulate data:** Difficult to efficiently circulate data, as meter reading data needs to be interfaced with the revenue system for billing and collection, with manual imports still common

System characteristics

- ◆ Refined Management of Personal ◆ Standardized business processing ◆ Timely completion of work orders
- ◆ Efficient & intelligence AI ◆ Intelligent anomaly reminders ◆ Intelligent data evaluation
- ◆ Clear execution process ◆ Quantifiable result assessment ◆ Data interconnection and sharing

