Impedance pipeline leakage monitoring system

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XBPP 兴邦管道

TANGSHAN XINGBANG PIPELINE ENGINEERING EQUIPMENT CO.,LTD.

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XINGBANG Pipeline Leakage Monitoring System

The leakage monitoring system is a complete set of leakage monitoring system consisting of intelligent monitoring unit and application software. This system is designed to identify and locate leakage of heating pipelines before the damage situation worsens.

The heating pipeline leakage monitoring system developed by XINGBANG is used to monitor and prevent leakage of pipelines.

XINGBANG leakage monitoring system is used to actively monitor regional pipelines to improve the operational reliability, ensure the energy efficiency of pipelines and reduce the risk of great damage.

The Aliyun online service system can realize communication through mobile signal.

Safer and cheaper

Operation Principle

The active monitoring system can identify and reduce leakage before great damage is caused. This means that operational reliability, customer satisfaction and energy efficiency can all be optimized. Gradually, the cost can be minimized and the Company can concentrate on core businesses.

Pipeline leakage can moisturize the insulating layer to reduce the energy efficiency and cause more serious corrosion. XINGBANG leakage monitoring system is designed to solve this problem. If leakage remains undetected for a long time and cold or heat supply is suddenly interrupted, the maintenance cost may be very high and customer satisfaction degree will be reduced. The leakage monitoring system developed jointly by us and Sweden Company can solve the problem of leakage detection and is applicable to the heating system of prefabricated directly buried pipe with signal line.

The signal line is prefabricated in the insulating layer of pipelines

When producing insulated pipes and pipe fittings, the sensor coil is embedded in the insulating layer between the working pipe and the casing pipe. XINGBANG intelligent leakage detection system monitors the humidity of the insulating layer in real time using the sensor coil and promptly and accurately warns against humidity change to avoid pipeline corrosion and leakage.

The monitoring unit meets your needs

Our detection units X4 and X6 are designed to meet the high requirements for operation and measurement accuracy. The wire length of the measuring transducer of X4 and X6 reaches up to 5000m. In the measurement path, many leak points can be detected and located within 1m. Our monitoring unit X1E can give an early warning against leakage of small pipelines.

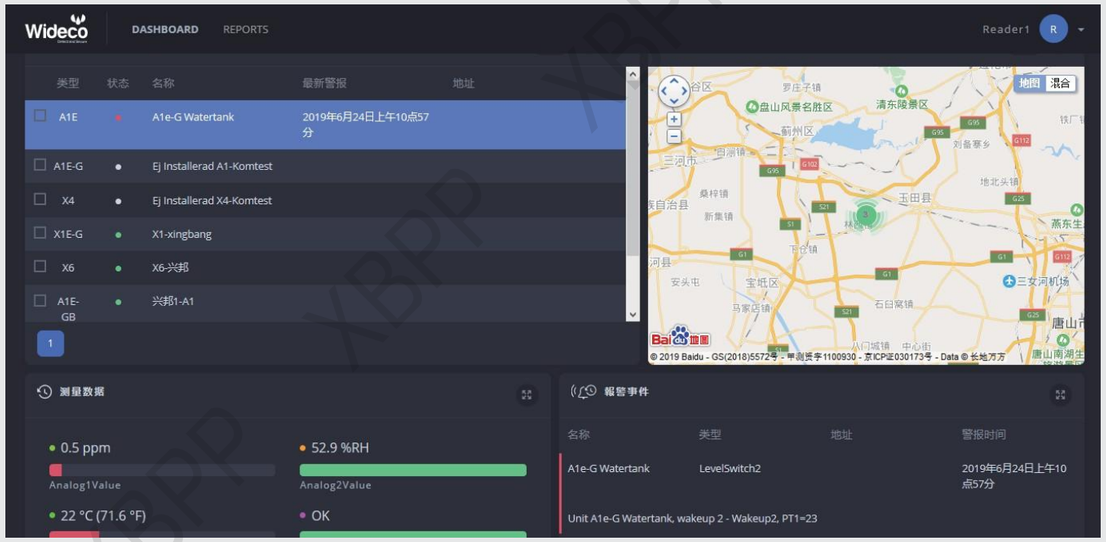
XINGBANG leakage monitoring system carries out online and real-ti monitoring

When laying pipelines, XTool software should be configured and started, which is the core of XINGBANG leakage monitoring system. XTool can be installed locally, but we suggest using XINGBANG online hosting service, with the following functions: It is easy to install and commission, is used to analyze and display measurement data on the server and can be constantly operated, maintained and supported.

X1e

X4

X6



Pass the certification for global harsh conditions

XINGBANG intelligent leakage detection system can detect leakage heating pipelines

- XINGBANG intelligent leakage detection system is designed specifically for heating pipelines with an insulating layer and is applicable to all metallic conduits with an embedded sensor ("North Europe system").
- Leakage and fault of long pipeline systems can be monitored using advanced technology, with very high positioning accuracy.
- With high reliability, this system has passed the certification for harsh conditions of Europe, North America, Asia and Middle East.
- XINGBANG intelligent leakage detection system helps you with efficient management of heating supplypipelines.
- The system keeps pace with the times through sustainable development and use of the latest monitoring and communication technologies.

We hope to create a better world for the next generation

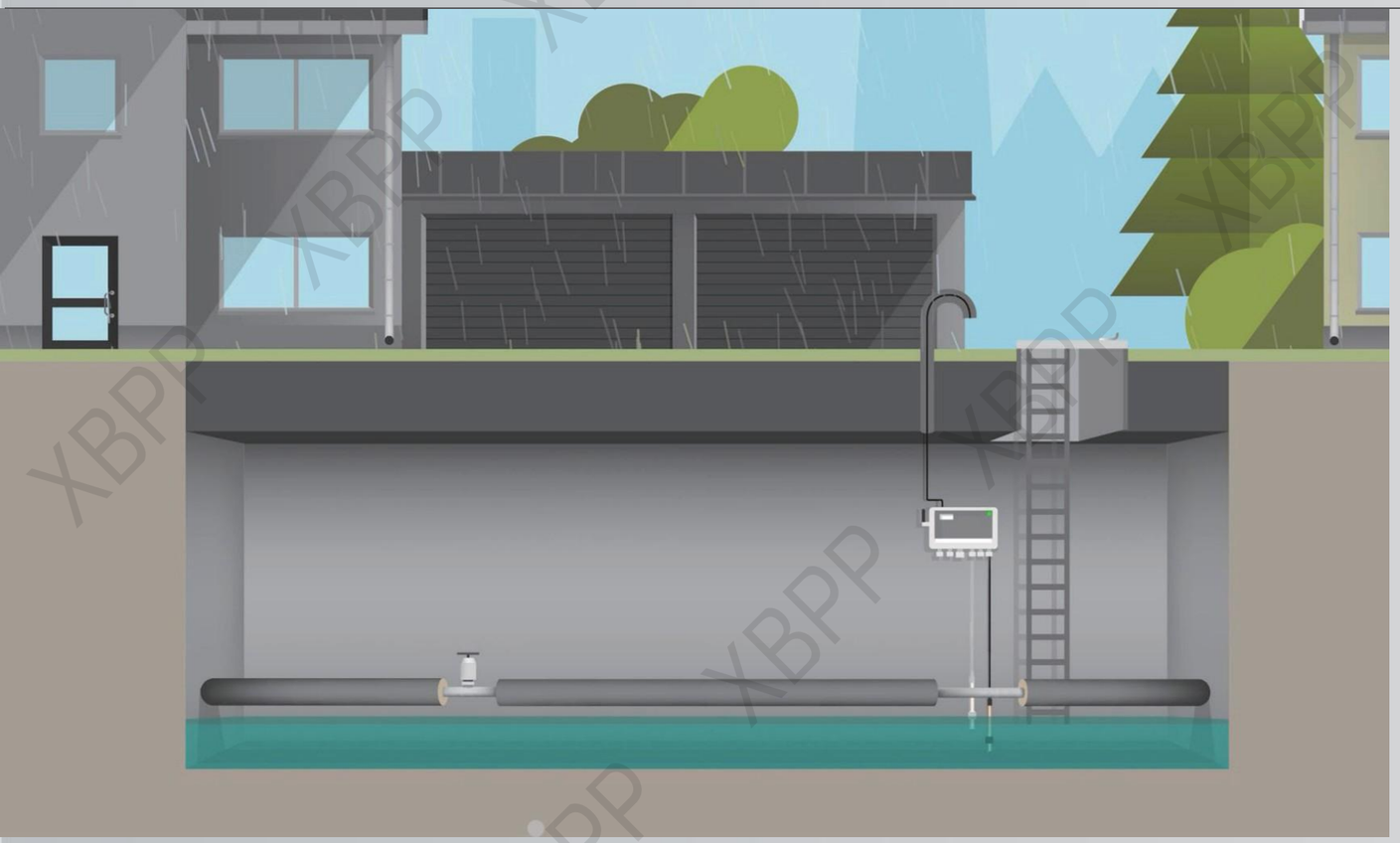
- We are used to facing challenges, breaking up conventional thinking and pursuing the best.
- XINGBANG will run in a sustained way and seek benefits for residents, the environment and the whole society. This includes all activities from raw materials to products. XINGBANG runs healthy and well-developed companies to offer solutions to challenges all over the world.

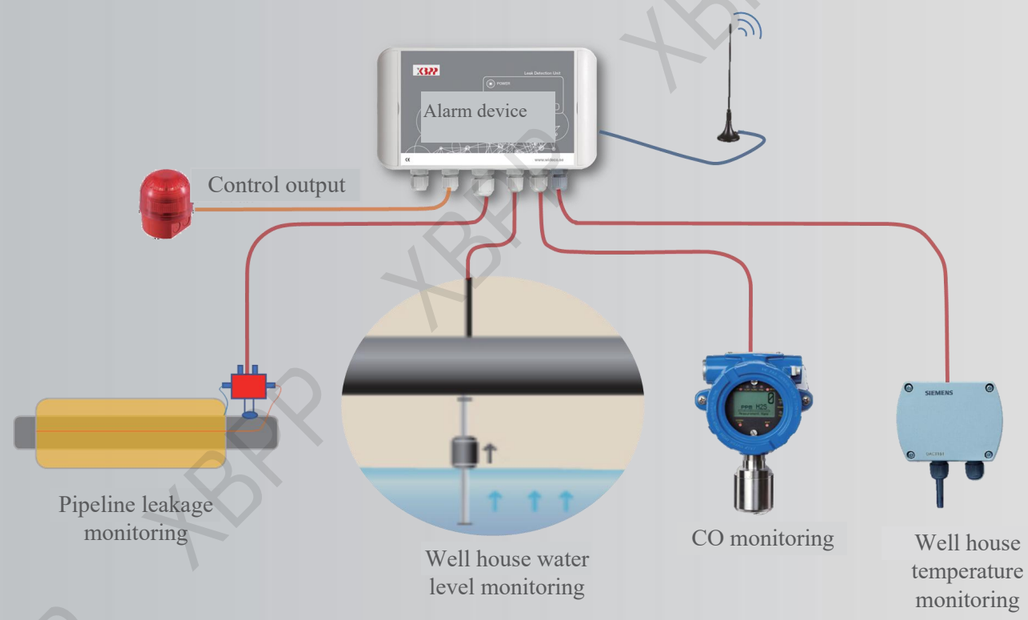
- Thus, sustainable development indicates what to do and how to do in the entire value chain. XINGBANG is composed of employees who promote sustainable development. The internal environmental policy describes how we work, and every employee knows how to take an action. This policy makes suppliers also comply with our environmental requirements.

A1E well house monitoring system

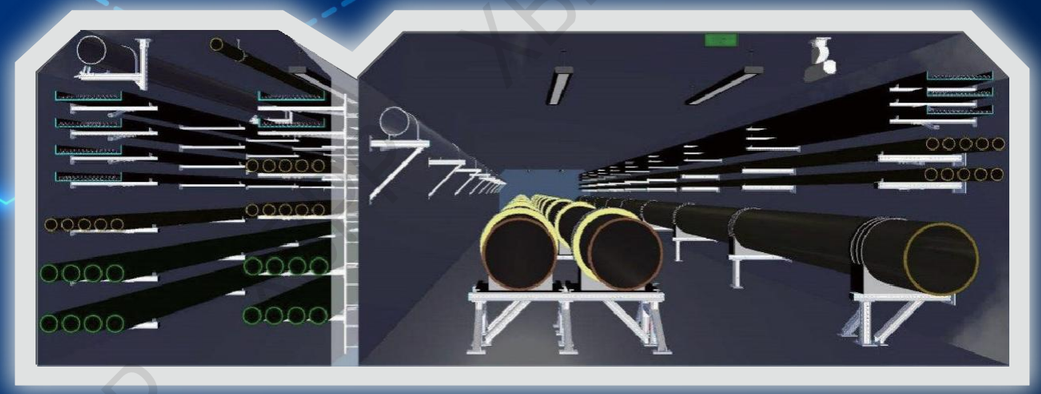
The well house water level is monitored in real time, and the high and low water level sensors are installed. If the low water level sensor is triggered, it will remind the user that there is water in the well house; if the high water level sensor is triggered, it will remind the user that the well house is at a dangerous water level and emergency treatment measures should be adopted.

XINGBANG well house monitoring system can be furnished with temperature and humidity sensors as needed to monitor the well temperature and humidity in real time;
It can also be furnished with various toxic gas sensors to monitor toxic gases such as CO and CH in real time to protect the safety of line inspectors.



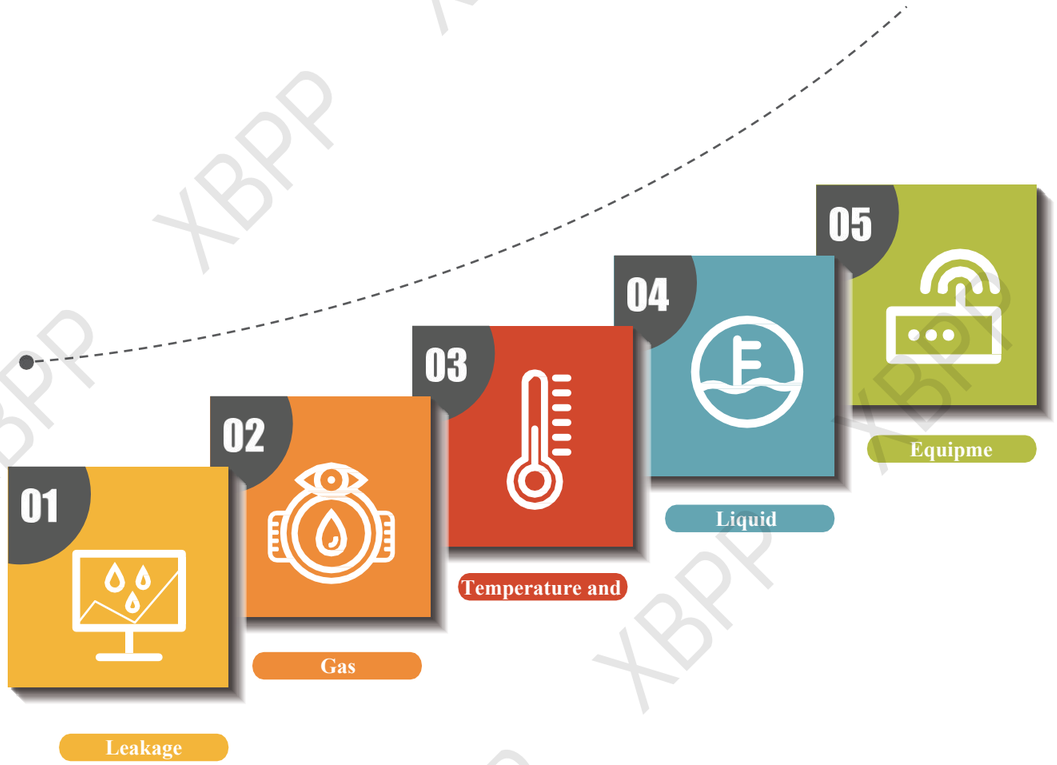


Utility Tunnel Pipeline Leakage and Environmental Monitoring System



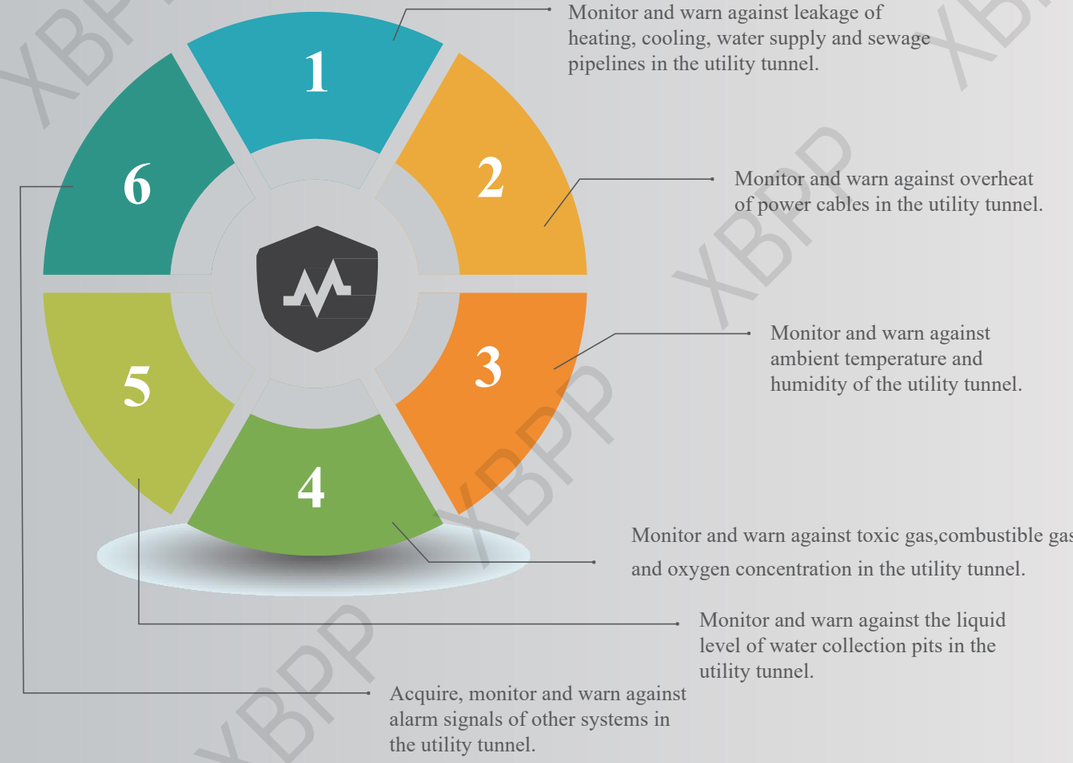
System overview

XINGBANG utility tunnel pipeline leakage and environmental monitoring system is furnished with various sensors and multichannel data acquisition unit in the underground utility tunnel according to the requirements of the utility tunnel monitoring and alarm system in *Technical code for urban utility tunnel engineering* (GB50838-2015), in order to acquire data such as pipeline leakage, toxic and harmful gas concentration, combustible gas concentration, ambient temperature and humidity and water level of water collection pit online and in real time. The multichannel data acquisition unit monitors such data online, gives early warning, and uploads the data to the unified management platform, and the multichannel zone control unit places local automatic and manual control of exhaust fan, water pump and electrical equipment on the site.



System function

Monitoring alarm

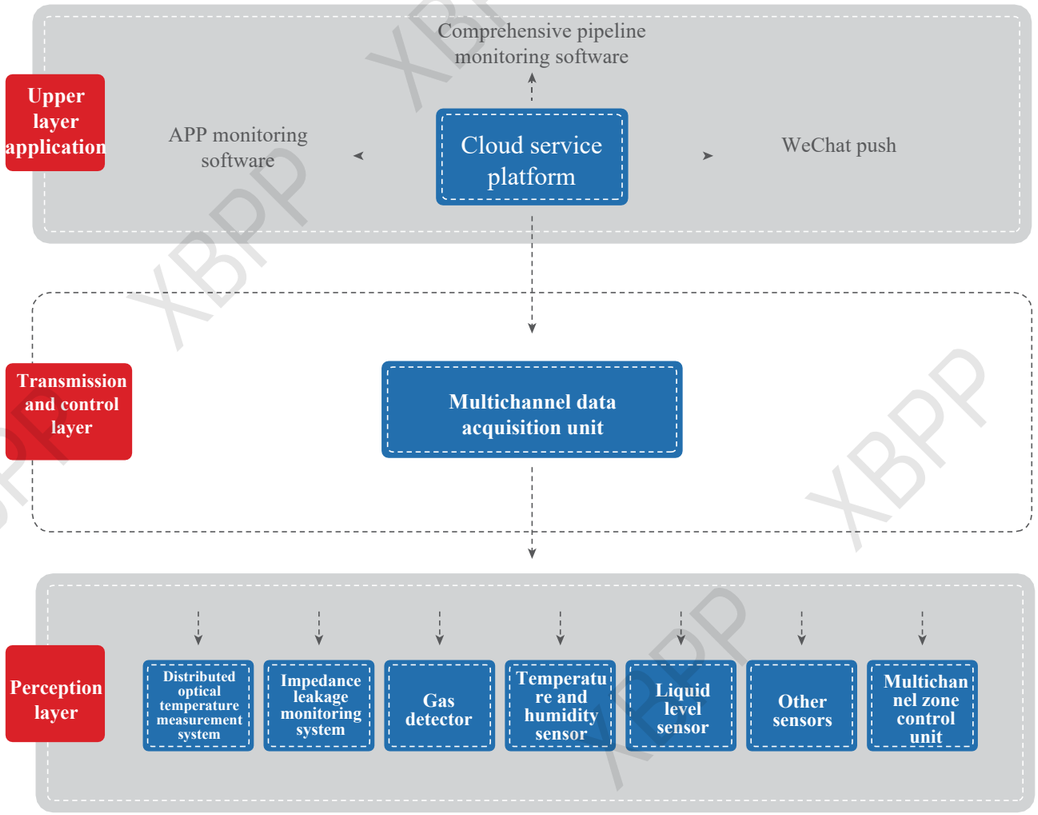


Linkage control

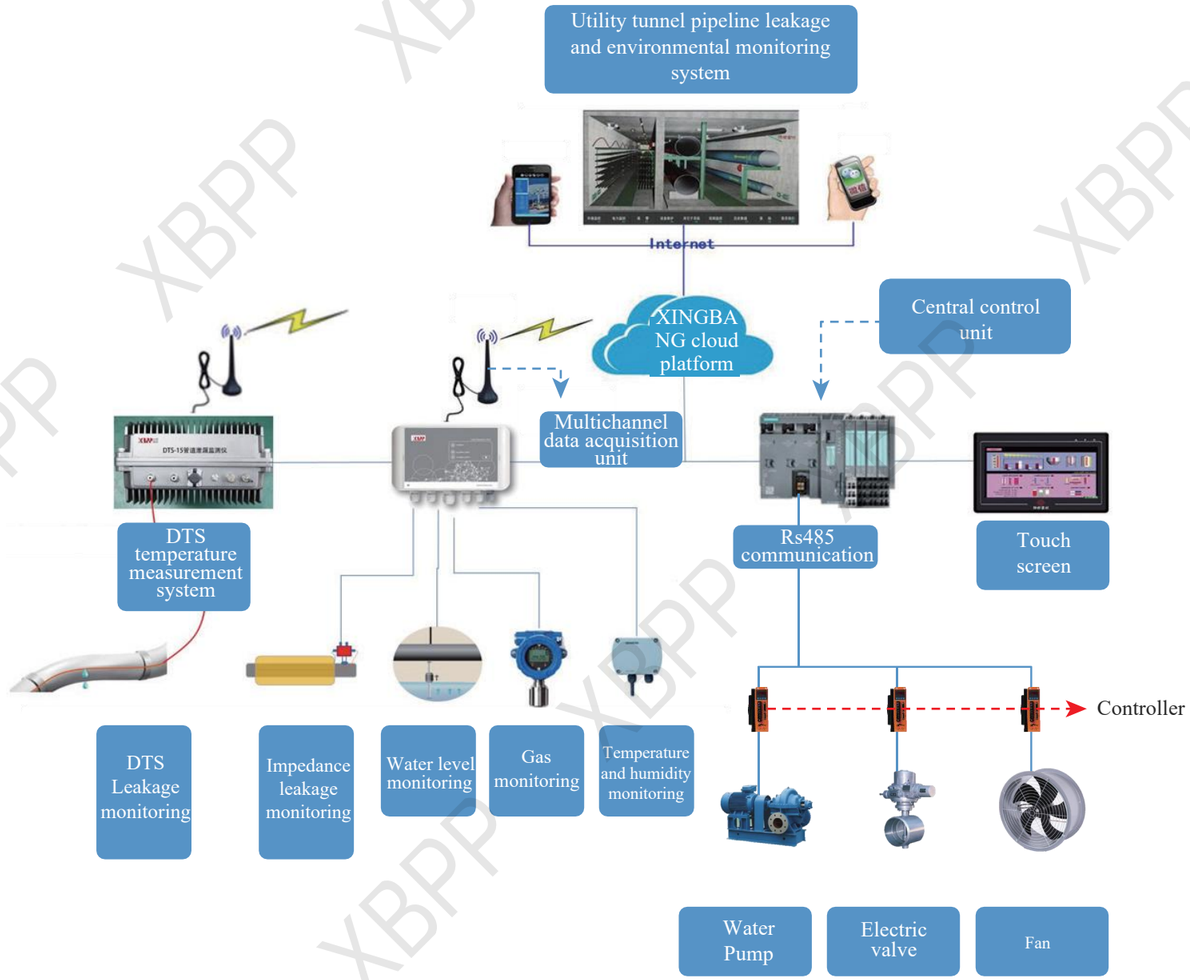
- Realize start/stop control and linkage control of exhaust fans in the utility tunnel.
- Realize start/stop control and linkage control of immersible pumps in the utility tunnel.
- Realize ON/OFF control of lighting distribution facilities in the utility tunnel.
- Acquire and monitor alarm control signals of other systems in the utility tunnel.

System architecture

The system mainly consists of perception layer, transmission and control layer and upper layer applications.



System diagram



Arrangement principle

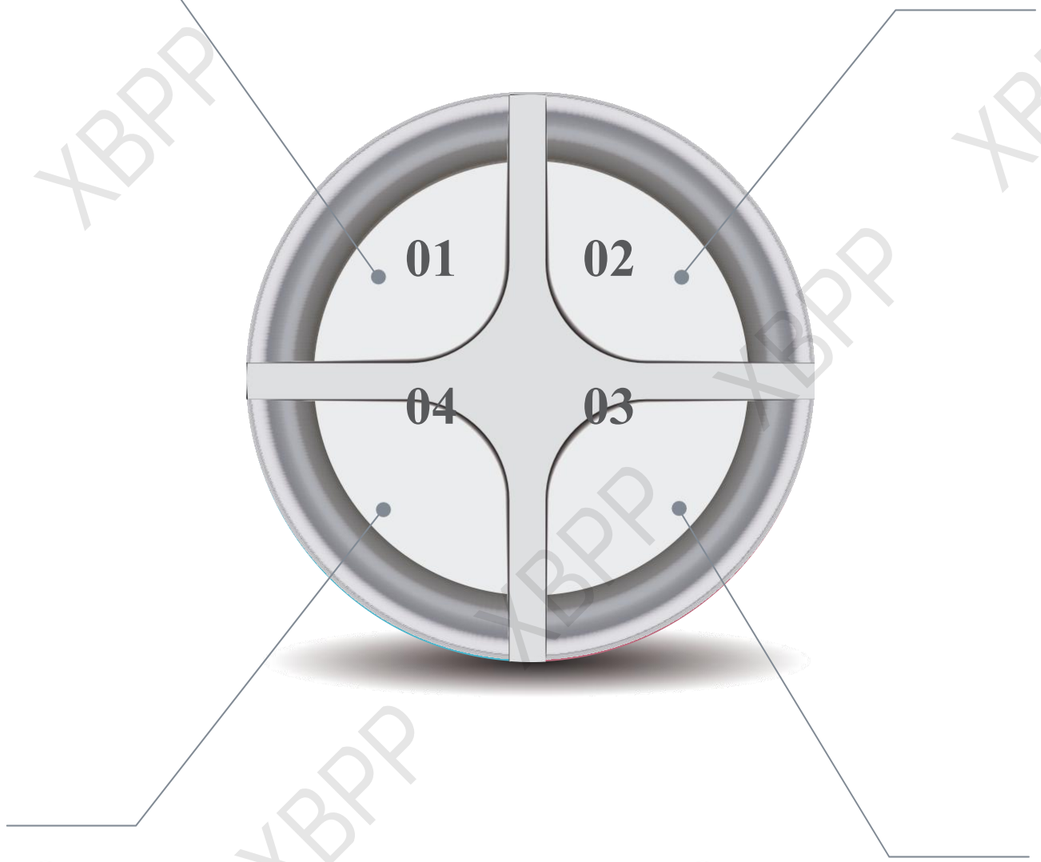
The utility tunnel pipeline leakage and environmental monitoring system monitors and warns against utility tunnel pipeline leakage and environmental parameters, monitors pipeline equipment and is designed with different monitoring devices according to type of pipelines in the cabin.

Cabin capacity Pipeline type	Feed water pipe Reclaimed water pipe Rainwater pipe	Sewer	Natural gas pipeline	Heat distribution pipeline	Power cable Communication cable
Leakage	●	●	●	●	
Temperature	●	●	●	●	●
Humidity	●	●	●	●	●
Water level	●	●	●	●	●
Oxygen	●	●	●	●	●
Sulfuretted hydrogen	▲	●	▲	▲	▲
Methane	▲	●	●	▲	▲
Carbon monoxide	▲	●	●	▲	▲

● —— To be detected ▲ —— Detectable

Leakage of heating and cooling pipelines is monitored using DTS distributed temperature measurement system. Fire disasters can also be monitored; DTS distributed temperature measurement system can also be used for overheat monitoring of power cables. Water supply and sewage pipelines adopt impedance pipeline leakage monitoring system. The impedance pipeline system can also be used to monitor leakage of heating and cooling pipelines.

An environmental monitor is set every 100m in the utility tunnel of every fire compartment to monitor parameters such as temperature and humidity of CO (carbon monoxide), CH (methane), O (oxygen) and H_2S (sulfuretted hydrogen). The fan is controlled by temperature, humidity, oxygen concentration, harmful gas concentration and fire disaster in the utility tunnel. The gas detector is installed at passages and vents in the utility tunnel.



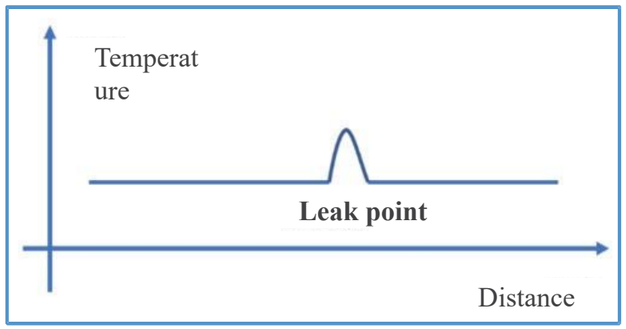
Every multichannel zone control unit can control the start and stop of more than one motors, and a control system is formed for automatic and remote control of drainage pump, fan and light.

The water collection pit of every fire compartment is equipped with a submersible liquid level gauge, and liquid level signals are transmitted to the multichannel data acquisition unit through RS485 bus.

Product introduction

DTS optical distributed pipeline monitoring system

An optical fiber is laid along the outer wall of insulated pipe as the sensor to monitor external temperature variation so as to identify the leak points.



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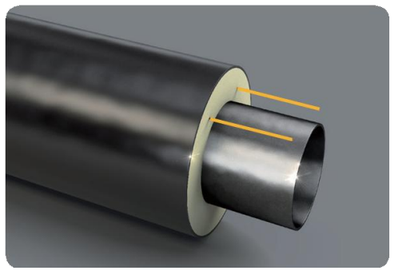
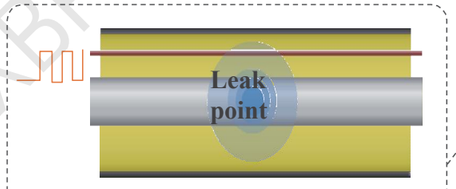
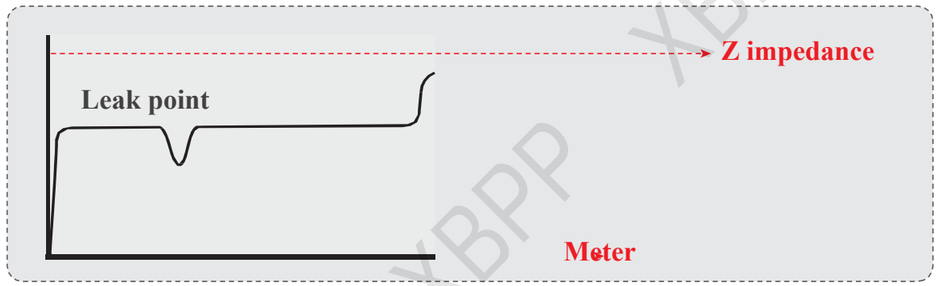
TDR time domain reflective pipeline leakage monitoring unit



A. The bare copper wire embedded in the insulating layer of pipelines is the signal line.



B. The monitoring unit injects a high-frequency signal between the metallic conduit and the signal line and measures the position of leak points using time domain reflection technology.



Underground utility tunnel monitoring system based on XINGBANG cloud platform

Logical control:

Realize remote control over on-site monitoring.

Data storage and analysis:

Quick access and storage of massive data, rich data analysis and real-time control of monitoring data.

Message push:

Push monitoring data by WeChat, SMS and Email in real time.

Remote maintenance:

Upgrade the front end monitoring sensor remotely and practise cloud management of monitoring equipment for ease of maintenance and operation.

Logical control: Carry out cross-platform monitoring, give a warning against monitoring data in real time, and support multilevel warning settings to improve the warning flexibility and efficiency.

Real-time warning: Carry out cross-platform monitoring, give a warning against monitoring data in real time, and support multilevel warning settings to improve the warning flexibility and efficiency.

Customizable business system development: The customizable business system can be developed as needed.