www.a-mers.com

AMERS

ALIVE MATERIALS

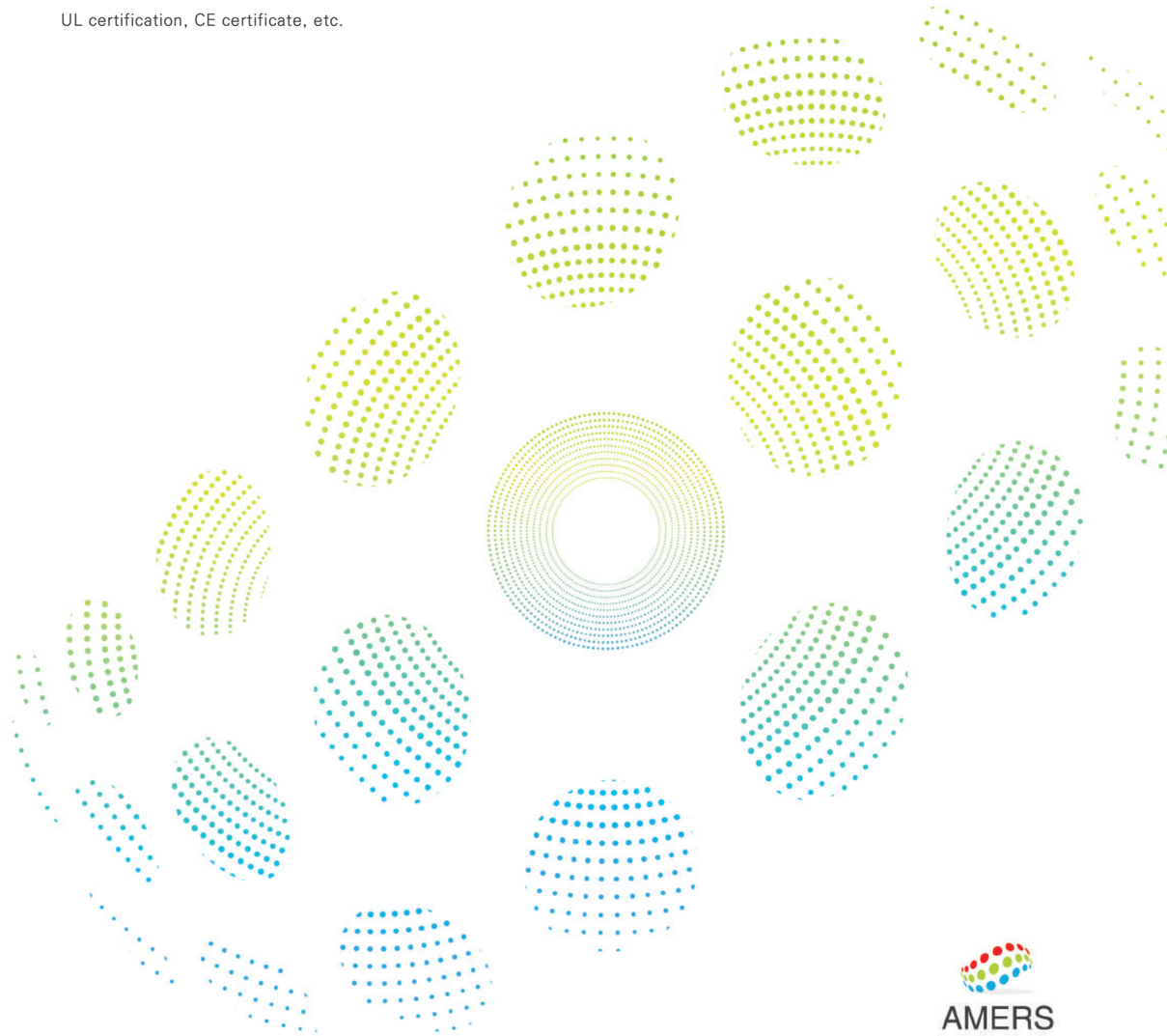
AMERS PRODUCT

Safety device products

Innovative and proprietary technologies

Product Reliability and Price Competitiveness

UL certification, CE certificate, etc.



AMERS

AMERS Inc.

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AMERS

Human

Humanity

AMERS is a beautiful company that creates tomorrow with people-centered technology.

Technology

Value Creation

AMERS is a company that continuously develops and specializes in new fields.

Trust

Honesty and trust

AMERS is a company that is fair to become an honest company trusted by its customers and partners.

[CEO Message

Before launching the first phase of the chemical safety project, AMERS will conduct management that emphasizes the basic relationship of society.Going one step further, we will realize the value of" togetherness" with those who share the same goal by being moved by the sincerity toward people.

AMERS always think of customers as family. and we want to work hard together with those who want to make our customers and customers co-exist to the same goal.

AMERS' corporate value is a company with common sense, a company with fair distribution, and a company with a smile culture. This is sure that the company's internal stable power is the company's external harmonious energy. AMERS will develop into a managerial center focused on people.

AMERS is a specialized company in leak detection sensor business, which is popular and has excellent service. We will challenge ourselves as a Korean company for a global company in domestic market with better quality and reasonable price than other brands such as chemical leak sensor and wireless leak sensor.

Business Area

01 Leak sensor

Flexible Flat Component Sensor

- Indoor/outdoor type
- chemical leak sensor
- Technology and commercialization monopoly
- Reusable and Easy installation
- Patent

02 Controller

- Indoor/outdoor type
- Sensor sensitivity control function
- No false alarms
- Technology and commercialization monopoly
- UL, CE and certifications
- Patent

03 Monitoring system

ALMS

- AMERS Leak Sensor Monitoring System
- Self Development Program
- Wireless Tracking Monitoring system
- EVENT(leak/broken) History management
- Receive real-time event data

04 TSCH Wireless leak sensor

- 2.4Ghz wireless communication
- Sensor for Flange Integration
- Reliability 99.999%

05 ApCE

- AMERS pH-Sensor Cleaning Equipment
- Technology and commercialization monopoly
- Patent

LEAK SNESOR | Flexible Flat Component Sensor

The leak sensor detects leakage in the industrial field and prevents damage.AMERS LEAK SENSOR can be used in outdoor environment (snow / rain, etc.) because it can discriminate water and chemicals.It has chemical resistance / heat resistance / strong durability and can be used in various industries.

ApplicationeId

Chemical / Plant

Power plant, refinery

Electronics / IT industry

LCD, Semiconductor, Chemical solution supplier

Heavy industry

Shipbuilding, steel / steelmaking

Pharmaceuticals / Drinks

Food and beverage manufacturing facilities, BIO

AMERS SENSOR Necessity

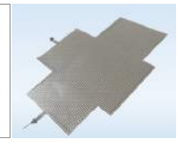
1 Reorganization of Hazardous Chemical Substance Control Act in 2018

2 Comparison of other products

1st 

2nd 

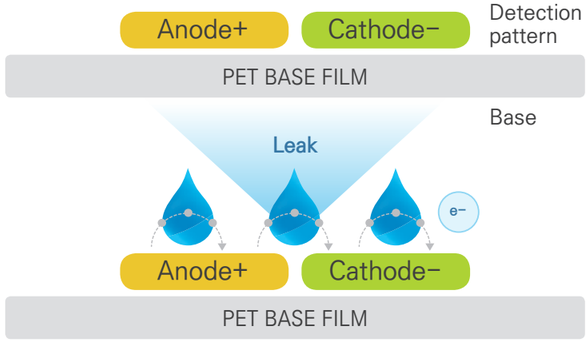
3rd 

4th 

5th 

Generation	Type	Recycle	Durability	Persistence	Phase Separate	Detection area	Cost
1st	Cable	possible	middle	low	impossible	narrow	heavy
2nd	Point	possible	middle	low	impossible	narrow	low
3rd	Film	impossible	low	low	impossible	narrow	high
4th	Area/Line (PTFE Sensor)	possible	low	low	impossible	wide(Area)	high
Our products 5th	Phase Separate	possible	high	high	possible	wide(Area)	low

AMERS Principle



01
Detection of chemical by potential difference of redox reaction occurring between detection patterns

02
Small amount of chemical (acid, base) leak detection even in flooded condition

03
The base (PET) and the metal plate are integrated with a synthetic resin (mold)

AMERS Sensor System Features

AMERS Sensor Features

Accurate sensing capability
Accurate sensing with small amount of chem-icalsSensors can be detected when water is immersed in water

Reuse
Semi-permanent life sensor

Durability, stability
Using PET material, using metal plate

Detection of distinction
Detecting water and chemical distinc-tionUsed in outdoor industrial sites

Excellent installation
Sensor installation direction can be changed by unused connector.
Easy installation

Controller Features

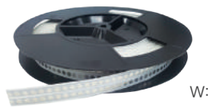
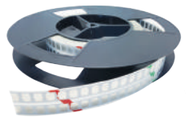
Sensor sensitivity control function
Sensitivity can be set according to installation environment

Anti-caution alarm function
Preventing leak alarm by bolts and tools

Monitoring system
Leak detection history manage-ment,Receive text when a leak occurs

LEAK SNESOR | Flexible Flat Component Sensor

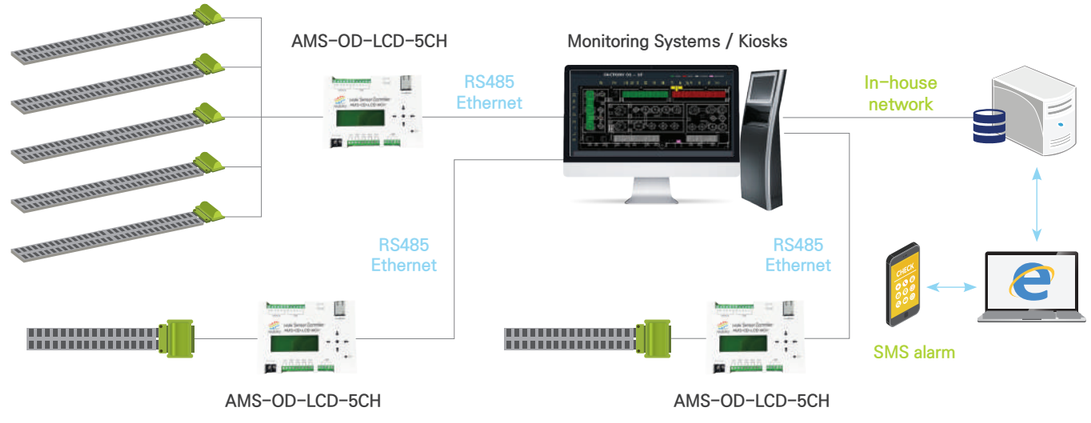
LEAK SENSOR Specifications

Model	AMS-FFS(44/26)	AMS-FFCS(44/26)
Picture	 W: 26mm	 W: 44mm
Type	Conductive liquid sensor	Chemical(Acid. Alkali) sensor (outdoor type)
Material	PET insulation film / anode, cathode metal	
Size	44 or 26 mm(W) * 0.6mm(H)	
Length	Max.20m (Contact us when installation more than 20m)	
Installation method	Fixed bracket (AMS-SP-CV)	
Cable	Max. 500m	Max. 500m
Rated voltage	24V(DC) / ≤ 50㎂	24V(DC) / ≤ 50㎂
Power Consumption	≤ 0.0012W	≤ 0.005W
Operating / Storagetemperature	-20℃ ~ 80℃	
Chemical resistance	Excellent	
Recycle	Available	
Leak / Broken detection time	Within 1 seconds	Within 3 seconds
Applicable controller	AMS-IG series	AMS-OD series

Controller Specifications

Model	AMS-IG-1CH	AMS-OD-FND-1CH	AMS-OD-LCD-1CH	AMS-OD-LCD-5CH
Product Photos				
Detection liquid	Conductive Liquid	Chemical (Acid, Alkali)		
Sensor input channel	1CH	1CH	1CH	5CH
Size(㎜)	75*50*15	110*75*20	120*110*30	160*115*30
Rated voltage / Rated current	24±1V (DC) / 40㎃	12~ 24±1V (DC) / 30mA	12~ 24±1V (DC) / 70mA~300mA	12~ 24±1V (DC) / 70mA~1000mA
Power Consumption	0.96W	0.72W	7.2W	24W
Communication specification	Relay Contact Output (Leak/Broken individual output) -COM, NO, NC(dry contact)			Ethernet, RS-485, Relay Contact Output (Leak/Broken individual output) -COM, NO, NC(dry contact)
Operating / Storage temperature	-25℃ ~ 85℃, ~ 95%R.H.			
Sensitivity stage	Setting yourself (see Owner's Manual)			

Sensor system layout



1. Sensor - Connector (Start Connector) - Controller - ALMS Monitoring System - PLC
2. Real time character data reception and history management when leak alarm occurs
3. AMERS has its own monitoring system, and can perform mapping work for each site (model name: ALMS)

Installation pictures

TSCH Wireless leak sensor | WIRELESS LEAK SENSOR

TSCH (time slotted channel hopping) is a wireless communication technology with a reliability of 99.999% in the place where the environment is the worst in wireless communication (FAB, PLENUM).By combining TSCH wireless communication technology and AMERS leak sensors, you can reduce the initial installation cost by wirelessly installing in places where sensor installation is difficult.

product composition

Slave Mote Series

AMS-SM-OD-1CH, AMS-SM-IG-1CH(Indoor)

- A device that is connected to the controlled equipment and exchanges status monitoring information.
- 100% Mesh Network ensures 99.999% data reliability.
- If the communication is disconnected due to interference, it can communicate through other motes.
- TDMA-based Channel Hopping and Diversity Wireless network battery operation, 7 years of operation time guarantee.
- Built-in Temperature / Humidity / Acceleration Sensor (Option), Interlocked with external sensor via AI / DI port.
- Enables wired communication with external controller using RS232 / 422/485 port
- Durability required by industry (operating range -40 ℃ ~ 85 ℃).
- IP65 waterproof grade for outdoor.
- 128bit AES encryption processing.

Master Mote Series

AMS-MMB(Basic type)/AMS-MMW(Outdoor)

- Device that communicates with Slave Mote
- Up to 100 slave motes can be connected when using IEEE802.15.4e TSCH communication. (Option to support various communication methods such as WLAN and LTE by replacing extension board)
- Built-in 10 / 100M Dual LAN
- CAN communication support.
- Built-in powerful and secure passwords (SSL, RSA, TLS, etc.).
- Full aluminum anodizing case for enhanced design and durability.
- Durability required by industry (operating range -40 ℃ ~ 85 ℃)
- DC 9V ~ 48VOperating Range
- Built-in POE environment

Installation Cases

Flange / Wireless leak sensor

Flange type

Effect

Reliability

- Communication reliability 99.999%
- End Node Level Full Mesh
- Communication path diversity
- Frequency Channel Diversity
- Coexistence with other wireless technologies
- Industry Standard Operating Environment

Security

- Ensure confidentiality, integrity and authenticity
- Strong encryption and random number generator
- Access control list

Scalability

- Multi-Hop capability for a wide range of applications
- millions of Nodes Management
- Various interlocking specifications for facility / sensor interlocking

Ultra low power

- Operates below 50 μA
- DC3.3 ~ 5V power, battery or natural power available
- Operated with AA batteries for more than 7 years

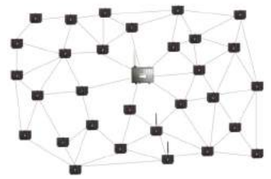
Convenience

- Interlocked with existing facilities and sensors
- Automatic network configuration and automatic recovery and reporting when problems occur
- Application of various fields by programming environment supportEasy to build and operate

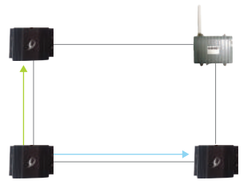
Technical summary

Reliability

01 · END Node Level Full Mesh



02 · Communication path diversity and frequency channel diversity



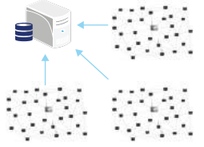
Path and Frequency Diversity
If the communication of the green arrow fails, node D uses the other channel to retry communication with the blue arrow

Expandability

01 · Multi-Hopping

- With a powerful multi-hop function, it can support up to 8Hop and extend wireless coverage.
- Distance between 1hop:general environment - average 50m, poor environment - average 17m

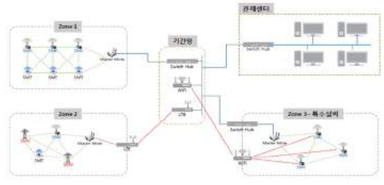
02 · Vmanager Server



- When deploying thousands of sensor nodes, Vmanager is used to manage them as a single network. (Single NetID)
- The master mote acts as a repeater and sends the sensor node data to the Vmanager server.
- The master mote will be redirected to another Master mote automatically when Master Mote Fail occurs.
- Vmanager manages more than 100,000 sensor nodes as long as the capacity of the server allows.
- The user can load / use the desired software in the Vmanager Server.
- Even if Master Moter is in the other region, it uses GPS to construct a single network.

03 · SIve Mote's various interfaces

04 · Organically interworking with customer backbone system



Application example

IT industry

Linear Technology Silicon Valley FAG Gas Supply System Control - USA

Aviation industry

Aircraft lubrication facility control and prventive maintenance system construction - United States

GAS / OIL Industry

Storage Management

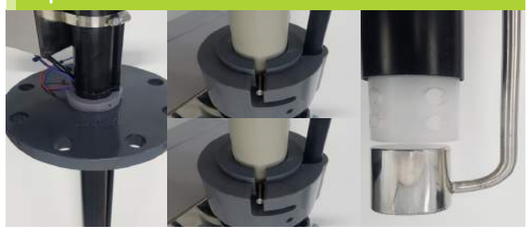
BIO Industry

Pharmaceutical process monitoring

ApCE | pH Cleaning equipment

ApCE (AMERS pH Cleaning Equipment) uses ultrasonic wave to prevent sludge adsorbed on pH sensor, and it saves costs such as sensor replacement and labor cost in industrial field.

ApCE



Controller

Development background

01

When PH sensor is cleaned, chemical (hydrochloric acid, etc.) is added and cleaning is performed for 30 minutes per sensor → Difficulty of management, personnel expenses, holidays and night workforce are needed.

pH SENSOR Sludge Cleaning

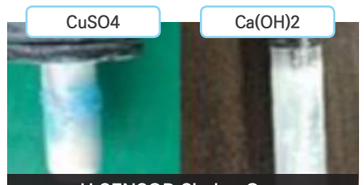
02

Waste TANK pH sensor for pH measurement has a sludge attached, so accurate measurement is impossible. → It is necessary to clean in 6 ~ 10hr period and labor costs will be incurred.

Waste TANK

03

The pH sensor will be changed periodically (2 weeks ~ 4 weeks) → Replacement costs are incurred.



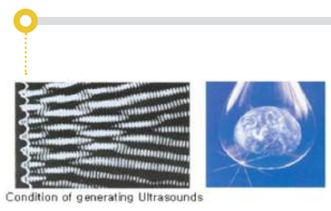
pH SENSOR Sludge Occur

Specifications

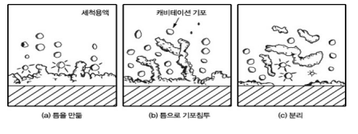
Model		ApCE-150	ApCE-200	ApCE-250	ApCE-300
Size	sus outer pipe	1500mm/Ø50.8	2000mm/Ø50.8	2500mm/Ø50.8	3000mm/Ø50.8
	pp pipe	2000mm/ Ø32	2300mm/ Ø32	2800mm/ Ø32	3500mm/ Ø32
Option	Flange Size (*Customer order)	100A/10Kg 125A/10Kg 150A/10Kg 200A/10Kg			
	Remarks	Flange cover size is selected as an option after selecting the model by length according to the waste liquid tank size.			
material		SUS304-PTFE(Black)Coating, P.P			
Input voltage		AC220V/60Hz			
Rated / Power Consumption		AC220V/0.14A, 30W			
Operating temperature		-5℃ ~ 90℃ (Not frozen)			
Ultrasonic output and vibrator		1) 70Khz Sign Wave (40Khz) 2) Transducer 35mm B.L. T Piezoelectric element 3) Transducer diameter 40mm SUS304 1.5T			

Principle

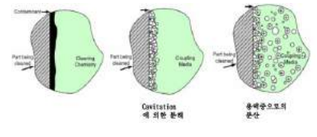
The principle uses ultrasonic wave cavitation effect and particle acceleration effect.
(* Cavitation effect: a phenomenon of making micro cavities in solution by ultrasonic waves)



Applies non-audible frequency ultrasonic at 20Khz or higher.



Liquid radiation is more than several thousand times per second, and cavitation occurs / disappears.



When destroyed, Bubble destruction is accompanied by chemical and thermal action, which increases chemical reaction promoting / dispersing action. Washable The product is washable without surface damage and internal damage.

Effect

Safety

The number of toxic contacts is reduced to one every two weeks. (Twice a day before use) Low toxicity contact frequency

Convenience

Use the patented Easy Lock for maintenance.

Economy

Cost competitiveness and economical cost without maintenance

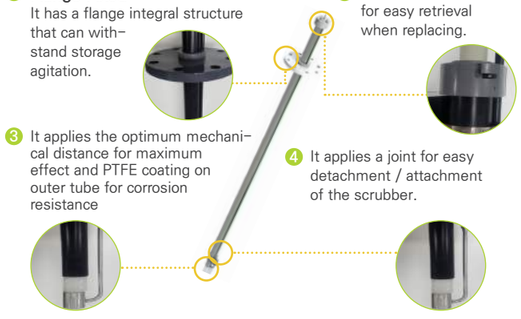
Characteristic

1 Flange Fixed
It has a flange integral structure that can with-stand storage agitation.

2 It uses EASY LOCK for easy retrieval when replacing.

3 It applies the optimum mechani-cal distance for maximum effect and PTFE coating on outer tube for corrosion resistance

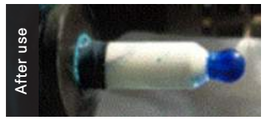
4 It applies a joint for easy detachment / attachment of the scrubber.



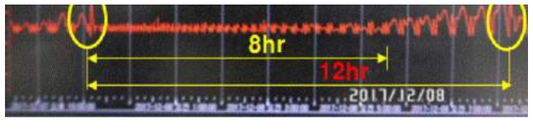
Installation Cases

"S Display" company's CuSO4 waste liquid tank validated

PH sensor according to whether ApCE is used or not



Before use: Cleaning cycle About 8 ~ 12hr



After use: Cleaning cycle more than about 222hr

In the CuSO4 waste TANK, the cycle of the sensor change due to the sludge increased from about 8 hrs to about 12hr by about 222hr. /
In addition, the sludge of slaked lime (Ca (OH) 2) TNAK is effective for about 48 hours or more.