

With the highest technology and quality based on the safety of customers as the top priority,
NCT Co., Ltd., grows together with its customers.

NCT Co., Ltd.

#101, 3rd floor, Chungnam Technopark Beonyeong Hall, 136 Jiksan-ro,
Jiksan-eup, Seobuk-gu, Cheonan-si, Chungcheongnam-do, Korea
TEL. +82-41-589-0815 / E-mail. cushim@nctech.co.kr
www.nctech.co.kr

NANO COMPOSITE TECHNOLOGY

A Hazardous Chemical Detection Sensor Total Solution

- ❖ Hazardous chemical leak detection sensor (acid, alkali, oil, etc.)
- ❖ Sensor Controllers and Connectors
- ❖ Manufacture of reactive sensing material for hazardous chemicals
- ❖ Manufacture of conductive paste materials



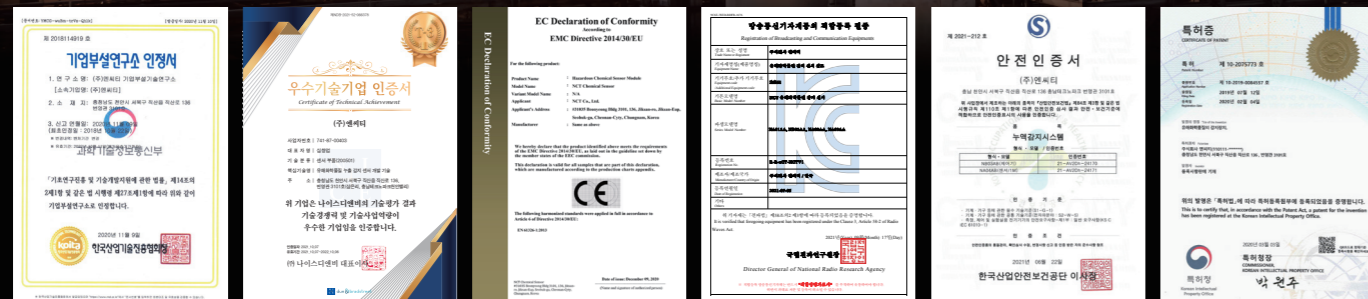
CEO's Greeting

NCT Co., Ltd., has successfully mass-produced highly sensitive sensors that directly react to hazardous chemicals by using nano materials-based reactive materials, a first in Korea, and has related essential patents, patents for core technologies, and certifications. Having secured long-term research and technology in the field of hazardous chemical and conductive materials detection, we at NCT will grow together with customers through the best technology and quality, with customer safety as the top priority.

About Us

| | |
|-----------------------|---|
| CEO | Chang-Eup Shim |
| Date of establishment | Mar. 8, 2016 |
| Address | #3101, Chungnam Technopark Beonyeong Hall, 136 Jiksan-ro, Jiksan-eup, Seobuk-gu, Cheonan-si, Chungcheongnam-do, Korea |
| Contact | +82-41-589-0815 (E-mail : cushim@nctech.co.kr) |
| Website | www.nctech.co.kr |
| Certification status | Affiliated research institute, Company with excellent corporate capability, CE, KC, safety certification |
| Patents | Six registered patents, one overseas patent application filed |

Certifications / Patents



Affiliated Research Institute Company with excellent corporate capability CE KC Safety certification Patent

Nano Composite Technology

A Hazardous Chemical Detection Sensor Total Solution

Smart Hazardous Chemical Detection Sensor

Main Features



Function of detecting even a very small amount of leakage

Instantly detects even a small amount of hazardous chemicals and generates an alarm. Convenient management and monitoring suitable for all sites with the function of adjusting the sensitivity of the changes in chemical measurements.



Fast response speed

Technology for detecting hazardous chemicals (not an electrical short method) Perforated contact section for hazardous substances to directly contact and react to reactants.



Selective reaction to hazardous substances

A smart sensor that can react to selected chemicals such as acids, alkali, and oils and does not react to substances other than designated ones.



Direct installation at the leak location

Flexible film type (thickness 0.28 mm) Design and manufacture of site-customized sensor mounting parts Infinite scalability in the form of liquid paste.



Direct-reading chemical sensor

A sensor that responds to chemicals by combining reactive materials the respond to chemicals with a conductive material base to differentiate them from existing products.

Smart Hazardous Chemical Detection Sensor

Our smart sensor VS Existing products

| | Our smart sensor | Existing products |
|---|-------------------------|--------------------------------------|
| Response speed Reaction within a second | Within a second | Within 60 seconds |
| Reaction concentration Reaction even at a concentration of less than 1% of hazardous substances | 1% or less possible | 50% or more (different by substance) |
| Minimum amount of detection Reaction even with the smallest amounts of harmful substances | 0.5 ml or less possible | 5 ~ 10ml |



Smart Hazardous Chemical Detection Sensor

1. Acid detection sensor

Before detection



After detection



Operating temperature : $-20 \sim 80 \text{ }^{\circ}\text{C}$ / When the acid reacts : The cover film turns red /

Substances subject to detection : Hydrofluoric acid, sulfuric acid, nitric acid, hydrochloric acid, chromic acid, etc.

2. Sensor for detecting alkaline substances

Before detection



After detection



Operating temperature : $-20 \sim 80 \text{ }^{\circ}\text{C}$ / When the alkaline substance reacts : The cover film turns purple /

Substances subject to detection : Ammonia, sodium hydroxide, etc.

3. Sensor for detecting oils



Operating temperature : $-20 \sim 80 \text{ }^{\circ}\text{C}$ /

Substances subject to detection : Gasoline, kerosene, diesel, etc.

4. Leak detection sensor



Operating temperature : $-20 \sim 80 \text{ }^{\circ}\text{C}$ /

Substances subject to detection : Conductive liquids

5. Point sensor



Hazardous Chemical Controller

Features

The main control is a device developed to detect leaks of hazardous chemicals, generate an alarm, and deliver the alarm to the monitoring device to check the damage caused by such leak at the location where the sensor is installed. In addition, it is possible to check real-time data values (concentration, leakage amount) in the field and there is a data accumulation function in case of a sensor abnormality.



| | |
|-----------------------|---|
| Power supply | 12V DC / 200mA |
| Communication method | RS-485 MODBUS communication (Possible to convert optical module cable), 9600BPS / 2 channels Internet of Things (IoT) : Using an LoRa communication network, it is possible to control and monitor the status of the sensor in real time through the mobile app. |
| Operating temperature | $-20 \sim 50^{\circ}\text{C}$ |
| Parallel connection | Parallel connection with scalability of up to 32 controllers (linking to 64 sensors/unlimited length) |

Hazardous chemical Connector



Normal



Normal



Elbow type



Controller for leak detection sensor

Features

The controller for the leak detection sensor detects all types of leaks, generates alarms, and delivers the alarms with the monitor. It is a device developed to check damage caused by leakage where the sensor is installed at an early stage.



| | |
|-----------------------|---|
| Power supply | 12V DC / 200mA |
| RELAY OUTPUT | 1 FORM C (NO, NC, COM), 1A 24VDC, 0.5A 125VAC |
| SENSOR INPUT | 100K ~ 7000KΩ (measured in the unit of 1 KΩ) |
| Operating temperature | -20 ~ 50℃ |
| Channel Configuration | 1CH ~ 4CH |

Leak detection connector



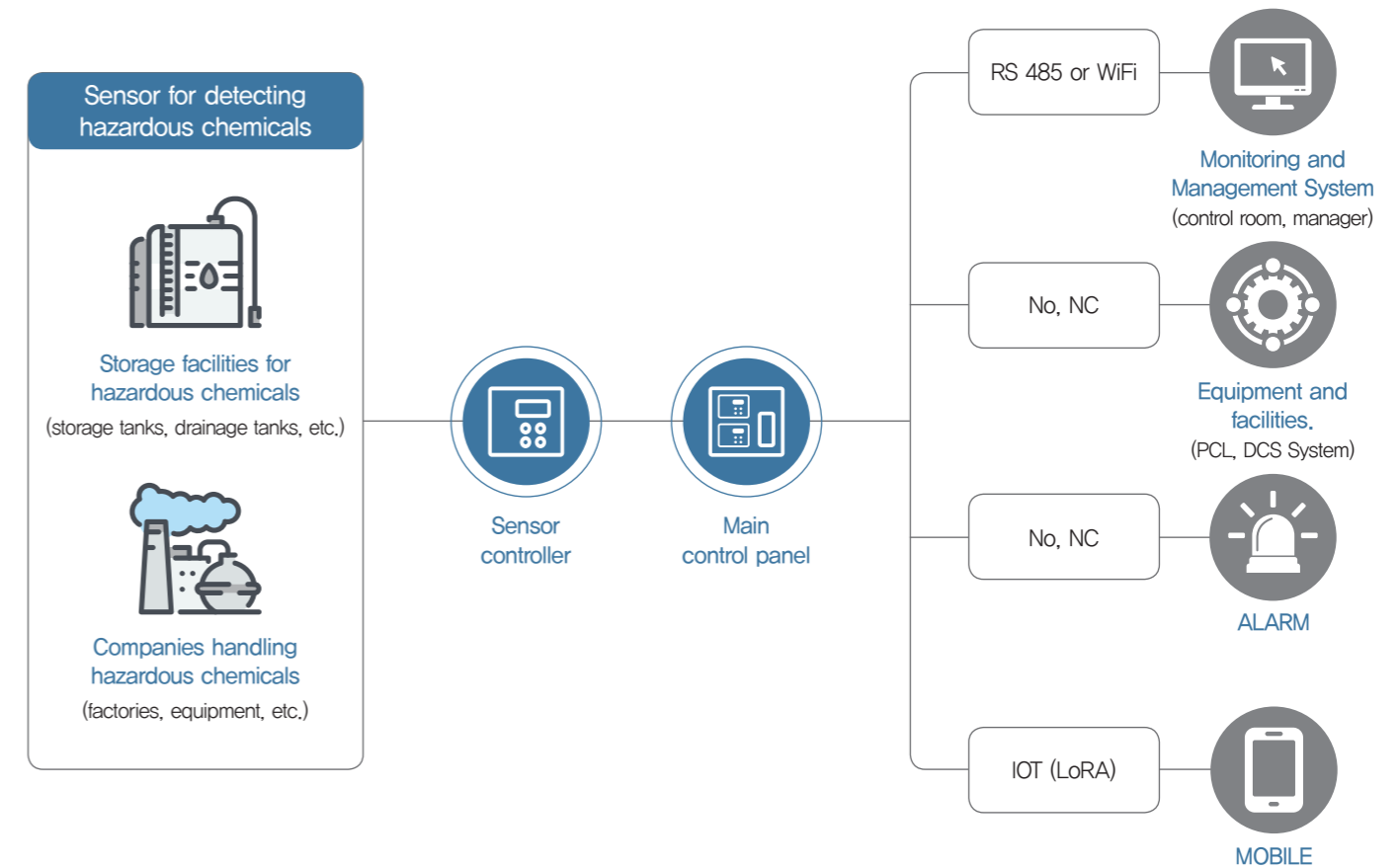
START

END

Elbow

Overview of the System of Detecting Hazardous Chemicals in Real Time

It consists of sensors, detection/controllers and networks, and monitoring devices. It detects the leakage of hazardous chemicals and prevents, monitors, and responds to leakage by informing the supervisor.



Fields of Installation and Application

