ISA100 Wireless Gas Detector
for Safety Applications

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Agenda

• Reason why ISA100 Wireless is the best choice for gas detection

• ISA100 Wireless gas detector

• Solution examples

• Summary
Reason why ISA100 wireless is the best choice for gas detection
Current state of Japanese industrial field

- Old facility buildings
- More demanded technical transfer due to aging workers
- Increased importance of disaster countermeasures

IIoT, AI, and Big data analysis are key solutions.

Introduction of IIoT at the Japanese government level (e.g. revision of laws) is going on.

Wireless is a key technology for IIoT because of its low installation cost
Expectation for wireless gas detectors

• **No cabling and low initial cost**
  - Temporary use (constriction, maintenance work)
  - Enhanced monitoring by increased number of detection points

• **Easy and flexible installation**
  - Added gas detection at key facilities or remote/inaccessible area

• **Can be used as wireless routers (relay points) thanks to a large number of installation points**
  - Increased investment effect by introducing wireless network at plant

• **Fast response time specified by laws in Japan**
  - Combustible gas: 30 seconds or less
Why is ISA100 Wireless the best choice for gas detection?

- **Best latency time**
  - Constant communication
  - Communication time configured by second

- **High connectivity and less downtime**
  - Disconnection prevented by redundancy paths/connections
  - Easy troubleshooting by manual routing

- **Interoperability by global standardization**
  - International standard (IEC 62734)
  - High infrastructure investment (different devices can be connected to the same network)

Low risk, high investment effect
ISA100 Wireless gas detector
Requirements for wireless gas detector

• Early detection of a gas leak
  - High frequency communication (5 sec or less)
  - Low concentration detection

• Can be installed at most suitable location
  - Flexible installation because of battery-powered
  - Installation at a remote/inaccessible location where difficult to maintain

• Gas leak alert to workers
  - Controls warning lights and buzzers
Select a gas detector in accordance with your purpose.

<table>
<thead>
<tr>
<th>Power</th>
<th>Built-in Battery</th>
<th>External power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor</td>
<td>Built-in sensor</td>
<td>Built-in sensor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sensor in external device</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product sample</th>
<th><img src="image1" alt="Image" /></th>
<th><img src="image2" alt="Image" /></th>
<th><img src="image3" alt="Image" /></th>
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</table>

<table>
<thead>
<tr>
<th>Installation cost</th>
<th>Low (No cabling work)</th>
<th>Middle (Power cabling work needed)</th>
<th>Middle (Power/external device cabling needed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery management</td>
<td>Required</td>
<td>Not required</td>
<td>Not required</td>
</tr>
<tr>
<td>Suitable configuration</td>
<td>Middle/long freq. communication, IO</td>
<td>High freq. communication, routing and IO</td>
<td>High freq. communication, routing and IO</td>
</tr>
<tr>
<td>Installed limitation</td>
<td>No</td>
<td>Yes</td>
<td>Yes, but suitable for high maintenance location</td>
</tr>
</tbody>
</table>
ISA100 Wireless is key technology to safety management

- Stable communication by extending wireless module
- Suitable for routing because no need of battery replacement
- Remote monitoring by connecting external pump type detector
- Install at desired location because it is battery-powered
- Suitable for routing because no need of battery replacement
- Install at desired location because it is battery-powered
- Remote monitoring by using routers
- Possible to connect other devices
- Detection at ppm level as well as H2 detection
- Controlling warning lights by built-in relay contacts

Temperature, Pressure device etc.

Wireless system

ISA100 Wireless gas detection network

Be sure, be safe.
Example of solutions
**Target:** Safety monitoring during work

**Solution:** Visualization with signal tower, warning lights, etc.

Lights are controlled with relay contacts.

Safety monitoring during work

Safety barrier
Target: Detection at a location where it is difficult to maintain

Solution: By making another pump type gas detector to wireless

Pump and gas sensor build-in external device

Sampling gas in a remote area

Wirelessly sends gas concentrations.

Inside a pit

Small and enclosed space
Summary
Be sure, be safe.

Summary

Increased number of detection points for larger monitoring coverage

Monitoring at inaccessible location

Enhanced data collection for risk analysis

Risk reduction during maintenance work

For safety applications, ISA100 Wireless is the best solution!!
Thank you