

# TOWN GAS EQUIPMENT PRODUCT GUIDE

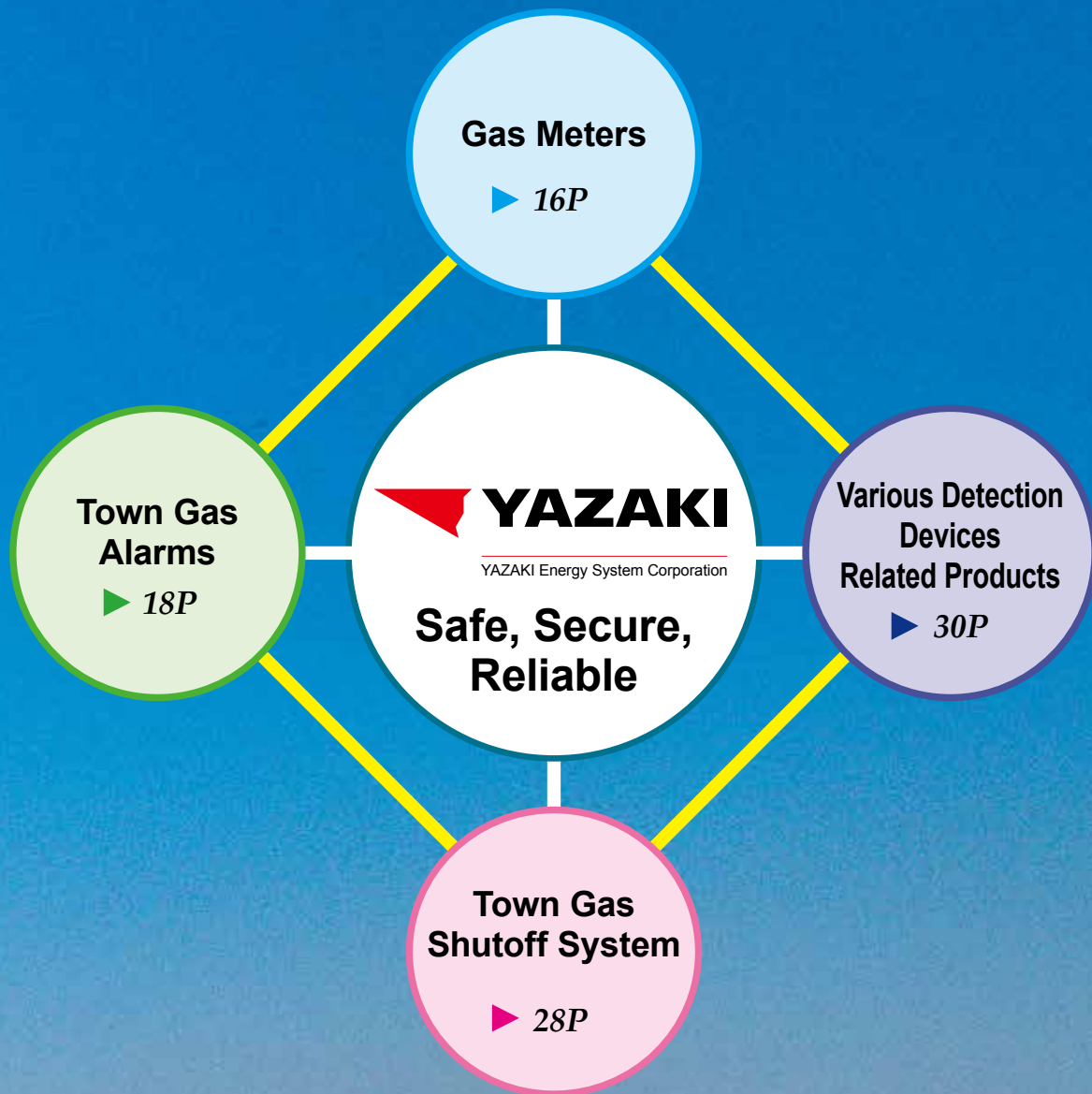
YAZAKI **P**RODUCT **G**UIDE

# At YAZAKI, we support the gas energy business in various product areas to achieve a richer future.

Town gas, an energy that is indispensable for our daily lives. YAZAKI creates a wide range of products, developing products and systems, establishing advanced production capabilities and using a strict quality control system to make your life more comfortable and prosperous through different town gas products. YAZAKI will continue accompanying you in the future.







YAZAKI town gas related products support tomorrow, the future.

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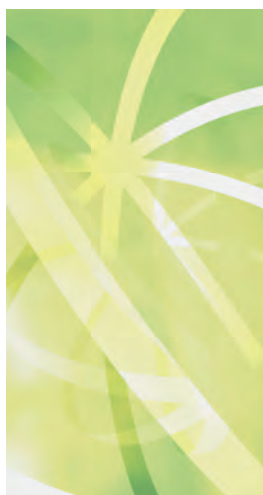
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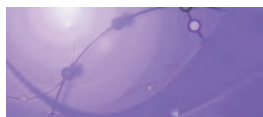
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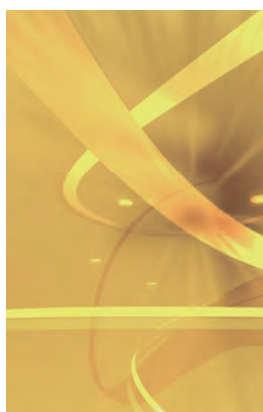
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# A High-performance Ultrasonic Gas Meter enabling the construction of a next generation network

Ultrasonic Gas Meter

## UH / UHP

(with Pulse Output)

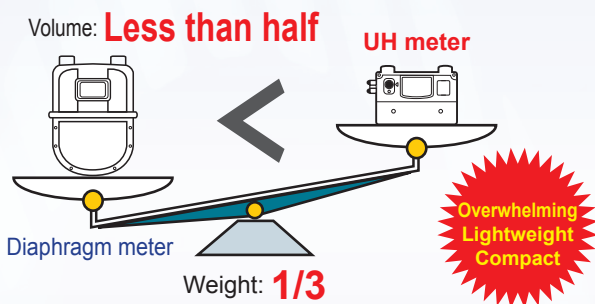
Automatic metering and advanced security through increased work efficiency and networking



### Realization of compact size and light weight

Miniaturization using ultrasonic waves, weight reduction using resin

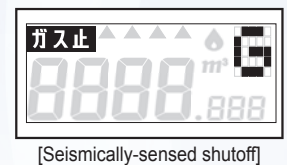
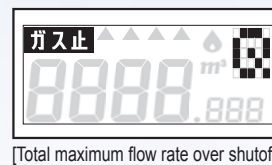
Compared to a typical diaphragm meter, the size is less than half, and the weight is 1/3, realizing a compact and lightweight design. In addition to improving the ease of transporting and mounting it during installation, it can also be used in small properties.



### Easy-to-understand event display

Events are displayed in alphabetical order

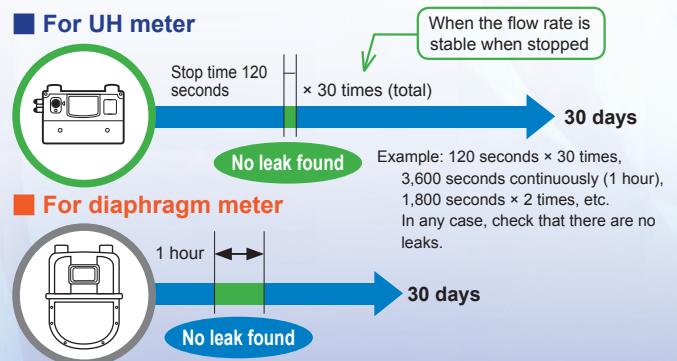
When the gas meter is shut off or when an alarm is activated, the event is displayed in the LCD display in alphabetical order. The system can also respond to inquiries from customers in an easy-to-understand manner, providing a sense of security.



### Reduction in false positives

Improved accuracy of the inner pipe leak alarm

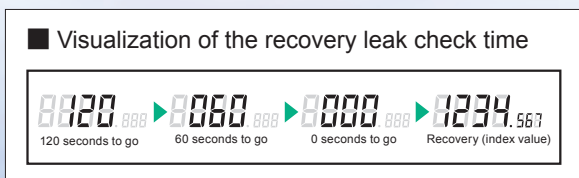
False alarms due to extended usage, etc. can be reduced by improving the accuracy of the inner pipe leak warning. A stop time of 120 seconds is assessed to see if there are any leaks a total of 30 times.



### Recovery check time is easier to see

Recovery check display in the countdown

The remaining time until the leak check recovers after shutting off is counted down (in seconds), providing a convenient means for showing the time remaining until recovery is complete.





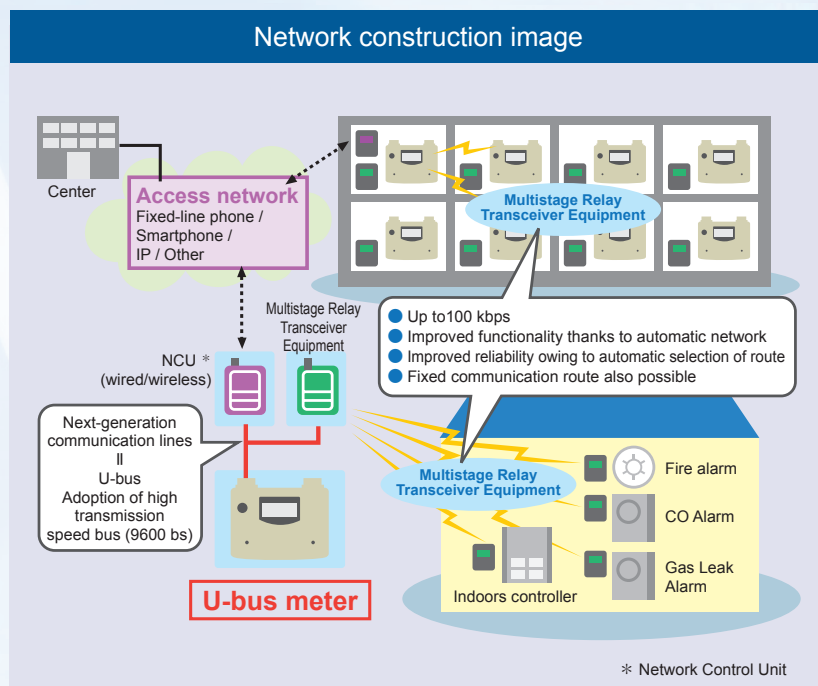
YAZAKI's ultrasonic gas meters are high precision, high performance gas meters that replace conventional diaphragm type meters. In addition to improving workability thanks to their small size, light weight and easy to understand liquid crystal display, our ultrasonic gas meters allow expansion in a number of ways, supporting networking in the IoT era and providing increased work efficiency and advanced security thanks to remote metering and the use of various types of information.

**Also supporting the installation of wireless communication equipment**

**Realization of advanced security**

A network to acquire and transmit large amounts of information at a high speed is realized using next-generation communication lines (U-bus). This contributes to improved security and rationalization of meter reading.

[Rationalization example of meter reading]



**Our lineup of ultrasonic gas meters for LP gas runs from 2.5 m<sup>3</sup>/h household models to 16 m<sup>3</sup>/h models for commercial purposes.**



E-type Security Gas Meter  
**EY25MTH** [High end]  
**EY25MT** [Standard]



E-type Security Gas Meter  
**EY4MTH** [High end]  
**EY4MT** [Standard]



Commercial EB Safety Gas Meter  
**EBY6**



Commercial EB Safety Gas Meter  
**EBY10/16**

**Work efficiency and high precision thanks to a compact size and light weight**  
**High performance security gas meters for the next generation**

**A diverse lineup including both household and commercial models**  
YAZAKI's ultrasonic gas meters for LPG are high performance microcomputer gas meters that are equipped with a high-end device identification function and a variety of other features to make it easy to verify information, reduce erroneous displays, and display the causes of errors, etc.

**Smart LP gas meters through LPWA solutions**

The LTE cat.M1 transceiver streamlines meter reading for improved security. It can also streamline delivery by reading the meter every day, while providing a comprehensive range of services to consumers. Additionally, it contributes to work optimization and strengthening of the business foundation with the communication terminals that it is connected to.

# Town gas and CO alarms with value added functions that deliver additional security such as emergency lights and night lights



Town Gas, CO Alarm  
Catcher

## YP-756FE

In addition to the conventional alarm function, these alarms can also be used as night lights or emergency lights in the event of blackouts, watching over your security on a daily basis



### Clear alarm when abnormal

Alarms are given reliably by voice and light

If there is a gas leak, the red (gas leak alarm) lamp flashes together with a voice alarm that says "Gas-ga-morete-imasenka?" (Check if the gas is leaking). If CO is detected, in addition to a voice alarm "Kuuki-ga-yogorete-kikendesu. Mado-wo-akete-kanki-wo-shitekudasai." (You are in danger of carbon monoxide poisoning. Open the window to ventilate) (CO Alarm), the lamp flashes to ensure that you are notified of the issue.

### Harmonizes with kitchen interior with its simple design

Simple design and colors are adopted

With its smart design and chic colors, the design and colors, the design and colors harmonize with a stylish kitchen too.

### Provides notification of blackouts and power restoration

In the event of a blackout, a voice alarm is given and the emergency light turns on

In the event of a blackout, a voice alarm "Teiden-ga-hassei-shimashita." (A power failure has occurred) will be given powered by the built-in battery, and if the blackout is at night, the emergency light will be lit (at maximum brightness) to provide notification.

In addition, when the power supply is restored, a voice alarm "Teiden-ga-fukkyu-shimashita." (Power is restored) is given, prompting you to take the following actions.

### Use as an emergency light / night light

The light is normally used as a night light and as an emergency light in case of a blackout

When the surrounding area is dark due to a blackout, the light is lit at maximum brightness as an emergency light. Illuminating brightly, it provides customers a sense of security. In addition, as the night light can be adjusted in 3 steps, you can use it at the optimal brightness according to the environment and lifestyle scenario of your installation location.



The lamp at the bottom of the main unit illuminates the surrounding area brightly with a high-luminance LED.

\*This alarm does not satisfy the emergency lighting equipment standard in the building standards.



# Significantly improved visibility and usability for customers

## Super Catcher for monitoring fires, gas leaks and CO



Fire, Town Gas, CO Alarm  
**Super Catcher**

### YP-776



Fire, Town Gas, CO Alarm  
**Super Catcher**

### YP-768

**These alarms monitor constantly for three risks: fire, gas leaks and CO**

### Alarm with a clear sound

Voice notifications are given in a combination of high and low notes

Audio alarms are given in a voice that is easy for seniors to comprehend too.

Fire: "Woo Woo Pee Pee – Kasai-keihou-ga-sadou-shi-mashita. Kakunin-shite-kudasai." (A fire alarm has been activated. Please check)

Gas: "Woo Woo Pee Pee Pee – Gas-ga-morete-imasenka !" (Check if the gas is leaking)

CO: "Woo Woo Pee Po Pee Po - Kuuki-ga-yogorete-kikendesu. Mado-wo-akete-kanki-wo-shitekudasai." (You are in danger of carbon monoxide poisoning. Open the window to ventilate)

### Easy-to-understand alarm lamp

Reliable notification by random flashing of fire lamp

Besides a voice alarm, the flashing red (fire alarm) lamp also provides reliable visual notification.

### Check the product information with the QR code

Product information can be obtained from the QR code on the side of the product

By reading the QR code printed on the product with a smartphone, you can obtain the model, date of manufacture, serial number and other product information.

# A standard town gas and CO alarm that discreetly watches over security at home



**2** Sensor  
Town Gas, CO alarm  
**Catcher**  
**YP-756F**



**2** Sensor  
Town Gas, CO alarm  
**Catcher**  
**YP-764F**

**A casual, simple design**  
Choice of wall mounted and ceiling mounted models

**Harmonious space with a simple design**

A design that harmonizes casually with your room

Both wall-mounted and ceiling-mounted types are simple in design and color so that they can harmonizes well with your room.

**Alarm with a clear sound**

Voice notifications are given in a combination of high and low notes

Audio alarms are given in a voice that is easy for seniors to comprehend too.

Gas: "Woo Woo Pee Pee Pee – Gas-ga-morete-imasenka?" (Check if the gas is leaking.)

CO: "Woo Woo Pee Po Pee Po - Kuuki-ga-yogorete-kikend-esu. Mado-wo-akete-kanki-wo-sitekudasai." (You are in danger of carbon monoxide poisoning. Open the window to ventilate)

**Easy-to-understand alarm lamp**

Improved visibility for reliable notification

In case of an error, besides a voice alarm, a lamp with improved visibility is also used to ensure the alarm is noticed.



# Discreet when monitoring but powerful when alarming!

## A compact town gas alarm with a night light

**1**  
Sensor

Town Gas Leak Alarm  
**Catcher**

**YF-814**

A simple design in a compact body  
Watching over your security and equipped with a night light function



### Clear alarm when abnormal

Notification of gas leak using a large lamp and voice alarm

During monitoring, the white lamp (power supply/night light) is lit, but if a gas leak is detected, in addition to the voice alarm "Pee Po Pee Po; Gas-ga-morete-imasenka?" (Check if the gas is leaking), the red lamp (gas alarm) flashes to provide both audio and visual notification.

### Operating checks can be carried out with simple operations

Operating checks can be carried out normally in case of an emergency

You can press the Inspection/Alarm Stop switch to conduct a simple check and confirm that the alarm sound and red (gas alarm) lamp are working normally at any time.

### The alarm history can be checked

The red lamp indicates whether any alarms were raised in the past 1 year

By pressing the Inspection/Alarm Stop switch during monitoring, you can verify if the red (gas alarm) lamp was lit and if any gas leak alarm has occurred in the past 1 year. It can also be used for confirmation purposes during inspection visits and communication with customers.

### Illuminates the kitchen as a night light

The brightness can be adjusted in 3 steps according to your preference

By pressing the Inspection/Alarm Stop switch, you can adjust the brightness of the white lamp (power supply/night light) in 3 steps according to your preference.

It can be used at an optimal brightness as a night light according to the installation location and living scenario.



The brightness can be changed between 3 different levels.

# Reliable alarms that ward off dangers Smoke Catcher and ventilation warning alarm for commercial purposes

Smoke Type Fire, CO Alarm  
Smoke Catcher

## YK-210A



Ventilation Warning Alarm for  
Commercial

## YZ-165C

### YK-210A

**Early detection of fire and  
immediate alarm!**

#### ● Early detection of fire!

CO (carbon monoxide) is generated at the initial stage of a "smoke fire", etc. An alarm is raised upon detection of CO being generated.

#### ● No electricity is required, so monitoring is maintained even during a blackout

As it is battery-powered, power supply from an electric outlet is not necessary and no electricity cost is incurred. In addition, monitoring can be continued even during a blackout caused e.g. by an earthquake.

#### ● Because it is cordless, it can be installed anywhere

A smart aesthetic appearance is realized by the cordless design. It can be installed anywhere because it does not need to be connected to an outlet.

### YZ-165C

**Highly effective in preventing  
CO poisoning incidents!**

#### ● Reliable alarm without beeping

Due to the adoption of an electrochemical sensor, the alarm does not react to miscellaneous gases and will not be activated unless the CO really reaches a dangerous concentration. In addition, by integrating the CO density and detection time, the COHb (carboxyhemoglobin) concentration in human blood is estimated, and an accurate alarm is given before it exerts a dangerous effect on the human body. (See Page 42)

#### ● Compact and slim design saves space

The system has a compact, space-saving design. In addition, it can be installed anywhere and works even during a blackout as it is a battery type.

#### ● Reliable and easy-to-understand alarm sounds and audio

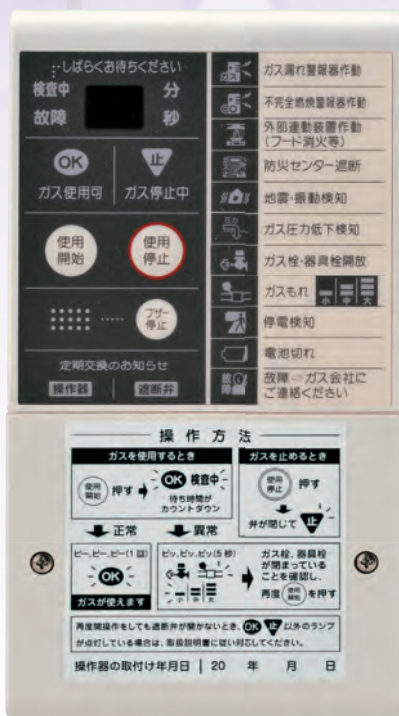
An alarm sound ("Pee Po Pee Po") and voice guidance will inform you of the risk of CO poisoning. Useful in case of emergency.



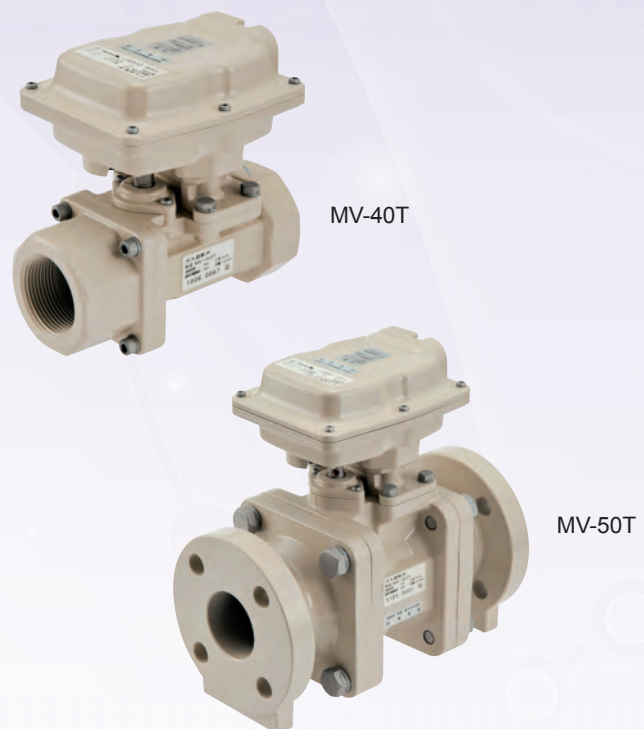
# Automatic town gas shutoff system providing high reliability and workability

## Shutoff Valve Controller YCB-13E

(Built-in seismic sensor)



## Shutoff Valve MV-20T to 80T



### Controller

#### Controller to achieve reliable shutoff

- Built-in seismic sensor for earthquakes**  
 Equipped with a seismic sensing function to detect earthquakes and large sways so you can rest assured even in an emergency.
- Improved visibility using pictograph**  
 Battery alarm reason and opening/closing status are indicated by pictograph. This lets you see at a glance why the shutoff valve was closed. (See Page 44)
- Display of recovery time**  
 Display the remaining time for safety check and leak check as a countdown.



### Shutoff Valve

#### Shutoff valve with improved reliability

- Pressure sensor realizes a high level of detection**  
 A pressure sensor is mounted on the shutoff valve to improve the detection accuracy and other functions and shorten the detection time.
- Improved pressure loss performance**  
 Pressure loss performance has been improved by 12% thanks to the adoption of a ball valve.  
\* Size 40A old and new comparison
- Reliable opening and closing of shutoff valve**  
 The reliability of the opening/closing function has been further improved by installing a mechanism to prevent the valve from getting stuck. The valve can also be mounted in a position that is other than upside down.





# Overturning Conventional Ideas of Water Servers — Its name is “QUOL”

The YAZAKI Water Server “QUOL” is a revolutionary water server built based on thorough market analysis that comes with high added-value advanced features, as well as a design and ease of use that are a cut above the rest, so it can serve cool and delicious **cold water**, **room temperature water**, and **hot water**.



## Making delicious water into easy to use water

Water served at temperature, a revolutionary new function

“Easy to use” room temperature is the perfect addition to conventional hot and cold water, for when you do not want to chill your food or body. We provide new value to delicious water, in the form of good health and safety.



## Fits right in to your daily life High quality design

Winner of the 2018 Good Design Award

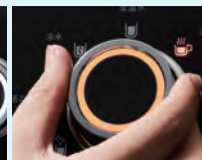
QUOL is made with a slim body that will fit almost anywhere, and a design that will not disrupt your interior decor. It would not be out of place even in your living room.

### Made simple and easy to use for anyone

Turn until you hear the beep! Made to be used intuitively QuOL makes controls easy with the central jog dial. With the easy and intuitive controls, all you have to do is turn the dial until you hear the beep, following the voice guidance.



We use technology cultivated in automotive machinery for better living



A comfortable control setup, made right all the way down to the texture



Announces the operating status with voice

### Suitable for a variety of water pouring scenarios

Made easy to use and with peace of mind, because it is used every day

Comes with an all purpose tray, so you can pour water with the container right where it is. The height is adjustable, so you can operate it with one hand with cup noodles, pans, or water bottles. We paid close attention to eas of use, as well as safety characteristics when pouring hot water and the like.



Pour even hot water safely with the adjustable height function



Place a rice pot or pan on the tray to pour water easily



Use it even dark places with a water faucet light

### Loaded with features for safety, security, and energy saving

Use a variety of functions safely, securely, and easily

QUOL comes with a variety of features that make it economical, safe, hygienic, and useful even in the event of a disaster.



Have peace of mind that you can use water even in case of disasters with blackouts



Double child locks make it safe and secure to use even for children



UV disinfection doesn't change the taste of the water



Easy on your account and the environment Energy Saving Mode

# YAZAKI Gas Equipment Website Introduction

Please use this in combination with our catalog.

On the YAZAKI Energy System Gas Equipment website, you can find information on various gas equipments and Water Server QuOL handled by YAZAKI. There is also a wealth of information useful for daily business, including drawings, pamphlets, and catalogs. On your smartphone, use the QR code below to easily access our website.

Our website is written in Japanese language only. However, you can view this English catalog in our website.

From the URL or QR code below

Access the “YAZAKI Energy System Gas Equipment Homepage”.



<https://gas.yazaki-group.com/>

■ Use the QR here to directly access the following pages linked to our homepage.

## Catalogs / Pamphlets



● “Catalogs / Pamphlets” Download Page

## Product Diagrams / Specifications / Manuals



● “Product Drawings/Specifications/Manuals” Download Page

## YAZAKI Water Server



● “YAZAKI Water Server QuOL” dedicated website

## Disaster Prep Propane Gas Generator



● “Disaster Prep Propane Gas Generator” dedicated website

## LP Gas Safety Guide (METI)



● “3 Minutes LP Gas Safety Guide”... Ministry of Economy, Trade and Industry

## Contact Info

Contact Info / Sales Offices List



● “Contact Info/Sales Offices List” page

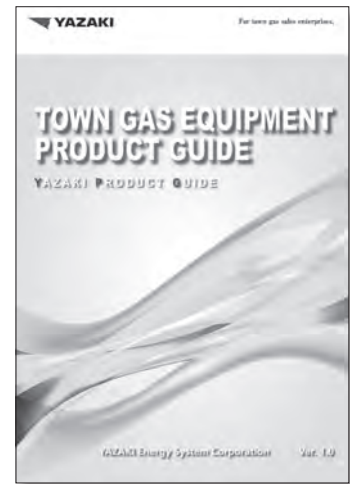
\*The website listed above, as well as the information and photographs in the links are frequently updated, and may differ from what is displayed above.

# How to Use the Catalog

We have revised the structure of our general catalog in order to make our catalogs more efficient.

The YAZAKI Town Gas Equipment Product Guide introduces a variety of town gas equipment handled by YAZAKI Energy System. You can also easily access our website from your smartphone, in order to more conveniently view product information and drawings on the work site. Furthermore, we have included a Technical Documents page at the end, featuring useful information such as related regulations, how to select equipments, and how to install them.

We hope it will be a help for your business.



## Title Page

**Product Categories** (Left sidebar)

- Gas Meters
- Gas Alarms
- Controllers / Shutoff Valves
- Various Auxiliary Equipment
- Technical Documents

**Listed Products** (Top right)

- Super Catcher (TGS, Town Gas, CO Alarm)
- Catcher (Town Gas, CO Alarm)
- Catcher (Town Gas, Leak Alarm)
- Smoke Catcher
- CO Alarm
- Ventilation Warning Alarm for Commercial

**Index** (Middle right)

This index tab makes it easier to search for product categories. The applicable group is made easily visible with green coloration.

**Product Groups** (Bottom left)

- Super Catcher P. 19
- Catcher P. 21
- Catcher P. 23
- Smoke Catcher P. 25
- CO Alarm P. 26
- Ventilation Warning Alarm for Commercial P. 28

**Listed Page** (Bottom right)

## Product Guide Page

**Product Name / Model Number** (Top)

**Description** (Middle)

**Feature Icon** (Left)

Product features are denoted with an icon

- Night Light
- Remote Control
- Rel. Sensing
- Fire
- CO
- Battery Type
- Rel. Sensing

**Product Picture** (Left)

**Specifications** (Right)

**Index** (Right sidebar)

**Comments / Notices** (Bottom right)

\*This catalog contains information about products that is current as of January 1, 2020. Products may differ from the content of the catalog due to specification changes and new printings. We thank you for your understanding.



# Gas Meters

- Ultrasonic Microcomputer Gas Meter
- Ultrasonic Microcomputer Gas Meter (with Pulse Output)
- J-type Microcomputer Gas Meter

## YAZAKI Town Gas Meter Lineup

### Microcomputer Gas Meter UH P.17



UH6

Ultrasonic gas meter

### Microcomputer Gas Meter UH (with pulse output) P.17



UH6P

Ultrasonic gas meter with pulse output

### J-type Microcomputer Gas Meter P.17



JB6

Diaphragm gas meter for household

## Ultrasonic Microcomputer Gas Meter UH/UH-P (with Pulse Output)

**UH1.6, UH2.5, UH4, UH6 / UH1.6P, UH2.5P, UH4P, UH6P**



UH6

Providing improved work efficiency, better security through communication and streamlined metering

**Lightweight Compact**

**Internal leak Accuracy UP**

**Information Utilization**



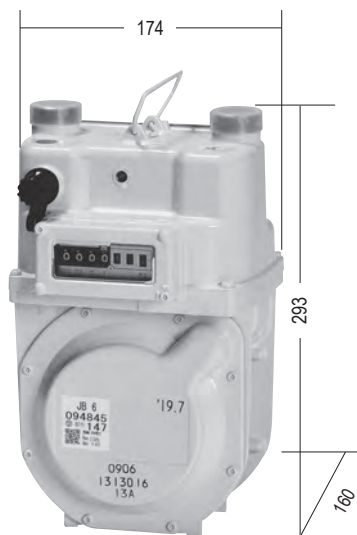
UH6P

• Specifications

Model	Microcomputer Gas Meter UH				Microcomputer Gas Meter UH (with Pulse Output)			
	UH1.6	UH2.5	UH4	UH6	UH1.6P	UH2.5P	UH4P	UH6P
Maximum flow rate	1.6 m <sup>3</sup> /h	2.5 m <sup>3</sup> /h	4 m <sup>3</sup> /h	6 m <sup>3</sup> /h	1.6 m <sup>3</sup> /h	2.5 m <sup>3</sup> /h	4 m <sup>3</sup> /h	6 m <sup>3</sup> /h
Maximum working pressure	3.5 kPa							
Maximum indication	9,999.999 m <sup>3</sup>							
Minimum indication	0.001 m <sup>3</sup>							
Pipe sleeve screw diameter	M34 × 1.5, W36.3 × 11.5 threads, W36.9 × 11 threads/inch							
Pipe sleeve center distance	130 mm							
Outer connection terminal	U-Bus (2P), A line (2P), contact (2P).				U-Bus (2P), A line (2P), contact (2P), pulse (3P)			
Power supply	Lithium battery 3 V							
External dimensions	H140 × W174 + 11 (terminal mounting area) × D115.3 mm							
Weight	Approx. 1.5 kg							
Packaging unit	6 units							

## J-type Microcomputer Gas Meter (Household)

**JB1, JB1.6, JB2.5, JB4, JB6**



JB6

Standard type diaphragm microcomputer gas meter

• Specifications

Model	JB1	JB1.6	JB2.5	JB4	JB6
Maximum flow rate	1 m <sup>3</sup> /h	1.6 m <sup>3</sup> /h	2.5 m <sup>3</sup> /h	4 m <sup>3</sup> /h	6 m <sup>3</sup> /h
Volume per revolution	1.2 L/rev.				
Maximum working pressure	3.5 kPa				
Maximum indication	9,999 m <sup>3</sup>				
Minimum indication	0.002 m <sup>3</sup>				
Pipe sleeve screw diameter	M34 × 1.5				
Pipe sleeve center distance	130 mm				
External dimensions	H293 × W174 × D160 mm				
Weight	Approx. 3.1 g				
Packaging unit	4 units				

# Alarms (Household / Commercial)

- Super Catcher  
(Fire, Town Gas, CO Alarm)
- Catcher  
(Town Gas, CO Alarm)
- Catcher  
(Town Gas Leak Alarm)
- Smoke Catcher
- CO Alarm
- Ventilation Warning Alarm  
for Commercial

Our lineup includes a wide range of variations, for both household and commercial use

## Super Catcher P. 19



YP-776

YP-768

Fire, Town gas, CO alarm

## Catcher P. 21



YP-756FE

YP-764F

Town gas, CO alarm

## Catcher P. 23



YF-517C

YF-814

Town gas leak alarm

## Smoke Catcher P. 25



YK-210A

Smoke type fire, CO alarm

## CO Alarm P. 26



YZ-220

CO alarm for general household and bathroom

## Ventilation Warning Alarm for Commercial P. 26



YZ-165C

Ventilation alarm best suited for commercial facilities



**Super Catcher**  
(Fire, Town Gas, CO Alarm)

**YP-776**



Alarms are given using lamps and audio alarms in a voice that is easy to comprehend.

• Specifications

Model		YP-776		
Fire	Certified model number	Registered No. 26 – 116		
	Sensor	Heat sensing fire sensor		
	Sensing level	Nominal operating temperature: approx. 65 °C		
	Alarm method	Automatic reset, when fire occurs: Red lamp flashes, Voice alarm (more than 70 dB/m)		
	External output signal	No-voltage contact output 1a-contact output (contact capacity: DC 24 V 100 mA)		
Gas leak / CO	Sensor	SnO <sub>2</sub> -based semiconductor sensor (with activated carbon filter)		
	Target gas	Town Gas (for 12A/13A gases lighter than air)	CO in combustion exhaust	
	Gas density for detection	Warning: Less than alarm gas density	Warning: CO density 50 to 300 ppm	
		Alarm: Less than 1/4 of lower limit for gas explosion	Alarm: CO density less than 550 ppm	
	Alarm method	Warning: Red lamp flashes (automatic reset)	Warning: Yellow lamp flashes. After approx. 5 minutes the voice alarm sounds at more than 70 dB/m which is recognized as a hazardous	
		Alarm: Red lamp lit, Voice alarm sounds at more than 70 dB/m (automatic reset)	Alarm: Yellow lamp lit, Voice alarm sounds at more than 70 dB/m (automatic reset)	
	Response time	Within 60 seconds	Warning: Within 10 minutes	Alarm: Within 5 minutes
External output signal	DC 6 V during monitoring; DC 0 V during power-off / failure			
	DC 12 V during alarm		DC 18 V during alarm	
Function	<ul style="list-style-type: none"> <li>• Alarm prevention function when power is on (approx. 60 seconds)</li> <li>• Gas detection function judgment function</li> <li>• Fire detection function judgment function</li> <li>• Lamp / sound / external output check function</li> <li>• Alarm stop function</li> <li>• Temperature compensation function</li> <li>• Failure detection function</li> <li>• Alarm stop function</li> </ul>			
Operating temperature range	0 °C to +40 °C (without condensation)			
Power supply	AC 100 V 50/60 Hz			
Power consumption	Approx. 0.7 W during monitoring; Approx. 1.2 W during alarm			
Power cord	Length 2.5 m, with additional outlet (maximum 1,490 W available)			
Installation method	Wall mounting (mounting plate is usable)			
External dimensions	H125 × W85 × D40.5 mm			
Weight	Approx. 270 g			
Packaging unit	20 pcs			

\* The alarm sound can be stopped for 5 minutes using the alarm stop switch (except for fire + CO, CO high-density alarm).

**Super Catcher**  
(Fire, Town Gas, CO Alarm)

**YP-768**



Alarms are given using lamps and audio alarms in a voice that is easy to comprehend.

• Specifications

Model		YP-768		
Fire	Certified model number	Registered No. 26 – 87		
	Sensor	Heat sensing fire sensor		
	Sensing level	Nominal operating temperature: approx. 65 °C		
	Alarm method	Automatic reset, when fire occurs: Red lamp flashes, Voice alarm (more than 70 dB/m)		
	External output signal	No-voltage contact output 1a-contact output (contact capacity: DC 24 V 100 mA)		
Gas leak / CO	Sensor	SnO <sub>2</sub> -based semiconductor sensor (with activated carbon filter)		
	Target gas	Town Gas (for 12A/13A gases lighter than air)	CO in combustion exhaust	
	Gas density for detection	Warning: Less than alarm gas density	Warning: CO density 50 to 300 ppm	
		Alarm: Less than 1/4 of lower limit for gas explosion	Alarm: CO density less than 550 ppm	
	Alarm method	Warning: Red lamp flashes (automatic reset)	Warning: Yellow lamp flashes. After approx. 5 minutes the voice alarm sounds at more than 70 dB/m which is recognized as a hazardous	
		Alarm: Red lamp lit, Voice alarm sounds at more than 70 dB/m (automatic reset)	Alarm: Yellow lamp lit, at the same time, voice alarm sounds at more than 70 dB/m which is recognized as a hazardous level.	
	Response time	Within 60 seconds	Warning: Within 10 minutes	Alarm: Within 5 minutes
External output signal	DC 6 V during monitoring; DC 0 V during power-off / failure			
	DC 12 V during alarm		DC 18 V during alarm	
Function	<ul style="list-style-type: none"> <li>• Alarm prevention function when power is on (approx. 60 seconds)</li> <li>• Gas detection function judgment function</li> <li>• Fire detection function judgment function</li> <li>• Lamp / sound / external output check function</li> <li>• Alarm stop function</li> <li>• Temperature compensation function</li> <li>• Failure detection function</li> <li>• Alarm stop function</li> </ul>			
Operating temperature range	0 °C to +40 °C (without condensation)			
Power supply	AC 100 V 50/60 Hz			
Power consumption	Approx. 0.7 W during monitoring; Approx. 1.2 W during alarm			
Power cord	Length 2.5 m, with additional outlet (maximum 1,490 W available)			
Installation method	Rotate to hook onto ceiling (using mounting base)			
Mounting Base	YA-100 / YSC-25 (signal converter)			
External dimensions	φ120 × D34.5 mm			
Weight	Approx. 165 g			
Packaging unit	20 pcs			

\* The alarm sound can be stopped for 5 minutes using the alarm stop switch (except for fire + CO, CO high-density alarm).

**Super Catcher**  
(Fire, Town Gas, CO Alarm)

**YP-774**

**Fire**  
(Smoke type)

**Gas**

**CO**  
(carbon monoxide)

**Wall mounting**



Alarms are given using lamps and audio alarms in a voice that is easy to comprehend.

• Specifications

Model		YP-774		
Fire	Certified model number	Registered No. 26 – 91		
	Sensor	Photoelectric fire sensor		
	Sensing level	2 class		
	Alarm method	Automatic reset, red lamp flashes, voice alarm (more than 70 dB/m)		
	Fire interlocking input/output	Less than DC 30 V during monitoring, less than DC 1.2 V during alarm @ 100 mA		
Gas leak / CO	Sensor	SnO <sub>2</sub> -based semiconductor sensor (with activated carbon filter)		
	Target gas	Town Gas (for 12A/13A gases lighter than air)	CO in combustion exhaust	
	Gas density for detection	Warning: Less than alarm gas density	Warning: CO density 50 to 300 ppm	
		Alarm: Less than 1/4 of lower limit for gas explosion	Alarm: CO density less than 550 ppm	
	Alarm method	Warning: Red lamp flashes (automatic reset)	Warning: Yellow lamp flashes. After approx. 5 minutes the voice alarm sounds at more than 70 dB/m which is recognized as a hazardous	
		Alarm: Red lamp lit, Voice alarm sounds at more than 70 dB/m (automatic reset)	Alarm: Yellow lamp lit, Voice alarm sounds at more than 70 dB/m (automatic reset)	
	Response time	Within 60 seconds		Warning: Within 10 minutes
				Alarm: Within 5 minutes
	External output signal	DC 6 V during monitoring; DC 0 V during power-off / failure		
		DC 12 V during alarm		DC 18 V during alarm
Function	<ul style="list-style-type: none"> <li>• Alarm prevention function when power is on (approx. 60 seconds)</li> <li>• Gas detection function judgment function • Temperature compensation function</li> <li>• Fire detection function judgment function • Failure detection function</li> <li>• Lamp / sound / external output check function • Alarm stop function</li> </ul>			
Common specifications	Operating temperature range	0 °C to +40 °C (without condensation)		
	Power supply	AC 100 V 50/60 Hz		
	Power consumption	Approx. 0.7 W during monitoring; Approx. 0.9 W during alarm		
	Power cord	Length 2.5 m, with additional outlet (maximum 1,490 W available)		
	Installation method	Wall mounting (mounting plate is usable)		
	External dimensions	H125 × W85 × D44 mm		
	Weight	Approx. 280 g		
Packaging unit	20 pcs			

\* The alarm sound can be stopped for 5 minutes using the alarm stop switch (except for fire + CO, CO high-density alarm).

**Catcher**  
(Town Gas, CO Alarm)

**YP-756FE**



An alarm with a value-added function that turns on the emergency light in the event of a blackout.

• Specifications

Model	YP-756FE	
Target gas	Town Gas (for 12A/13A gases lighter than air), CO in combustion exhaust	
Sensor	SnO <sub>2</sub> -based semiconductor sensor	
Power indicator	Power lamp (green LED)	
Gas density for detection	Town Gas	Warning: Less than alarm gas density Alarm: Less than 1/4 of lower limit for gas explosion (within 1 minute)
	CO	Warning: 50 to 300 ppm within 10 minutes Alarm: Less than 550 ppm within 5 minutes
Alarm method	Town Gas	Warning: Red (gas leak alarm) lamp flashes Alarm: Red (gas leak alarm) lamp lit, alarm sounds at more than 70 dB/m
	CO	Warning: Yellow (CO alarm) lamp flashes Alarm sound more than 70 dB/m after 5 minutes Alarm: Yellow (CO alarm) lamp lit, alarm sounds at more than 70 dB/m
Operating temperature range	0 to +50 °C (without condensation)	
Power supply	AC 100 V 50/60 Hz	
Power consumption	Approx. 0.7 W during monitoring; Approx. 0.9 W during alarm	
Function	<ul style="list-style-type: none"> <li>• Alarm prevention function when power is on</li> <li>• Gas detection function</li> <li>• Gas sensor temperature compensation function</li> <li>• Failure monitoring function</li> <li>• Speaker disconnection detection function</li> <li>• Alarm stop function</li> </ul>	
External output	DC 6 V during monitoring; DC 0 V during power-off / failure	
	Town Gas: DC 12 V during alarm, CO gas: DC 18 V	
Power cord	Length 2.5 m, with additional outlet (maximum 1,490W available)	
Emergency light	In a blackout: High luminescence with 2 white LEDs at less than 1 lux in front	
Night light	During normal monitoring: 2 white LEDs lit (brightness can be adjusted in 3 steps)	
Installation method	Wall mounting (mounting plate is usable)	
External dimensions	H125 × W85 × D32.5 mm	
Weight	Approx. 250 g	
Packaging unit	20 pcs	

\* The alarm sound can be stopped for 5 minutes using the alarm stop switch (except for CO high-density alert).

**Catcher**  
(Town Gas, CO Alarm)

**YP-756F**



A simple design. Alarms through an easy to understand voice and lamps.

• Specifications

Model	YP-756F	
Target gas	Town Gas (for 12A/13A gases lighter than air), CO in combustion exhaust	
Sensor	SnO <sub>2</sub> -based semiconductor sensor	
Power indicator	Power lamp (green LED)	
Gas density for detection	Town Gas	Warning: Less than alarm gas density Alarm: Less than 1/4 of lower limit for gas explosion (within 1 minute)
	CO	Warning: 50 to 300 ppm within 10 minutes Alarm: Less than 550 ppm within 5 minutes
Alarm method	Town Gas	Warning: Red (gas leak alarm) lamp flashes Alarm: Red (gas leak alarm) lamp lit, alarm sounds at more than 70 dB/m
	CO	Warning: Yellow (CO alarm) lamp flashes Alarm sound more than 70 dB/m after 5 minutes Alarm: Yellow (CO alarm) lamp lit, alarm sounds at more than 70 dB/m
Operating temperature range	0 to +40 °C (without condensation)	
Power supply	AC 100 V 50/60 Hz	
Power consumption	Approx. 0.7 W during monitoring; Approx. 1.0 W during alarm	
Function	<ul style="list-style-type: none"> <li>• Alarm prevention function when power is on</li> <li>• Gas detection function</li> <li>• Gas sensor temperature compensation function</li> <li>• Failure monitoring function</li> <li>• Speaker disconnection detection function</li> <li>• Alarm stop function</li> </ul>	
External output	DC 6 V during monitoring; DC 0 V during power-off / failure	
	Town Gas: DC 12 V during alarm, CO gas: DC 18 V	
Power cord	Length 2.5 m, with additional outlet (maximum 1,490 W available)	
Installation method	Wall mounting (mounting plate is usable)	
External dimensions	H125 × W85 × D32.5 mm	
Weight	Approx. 250 g	
Packaging unit	20 pcs	

\* The alarm sound can be stopped for 5 minutes using the alarm stop switch (except for CO high-density alarm).



## Catcher (Town Gas, CO Alarm)

# YP-764F

Gas

CO  
(carbon monoxide)Ceiling  
mounting

A simple design. Alarms through an easy to understand voice and lamps.

### • Specifications

Model	YP-764F	
Target gas	Town Gas (for 12A/13A gases lighter than air), CO in combustion exhaust	
Sensor	SnO <sub>2</sub> -based semiconductor sensor	
Power indicator	Power lamp (green LED)	
Gas density for detection	Town Gas	Warning: Less than alarm gas density Alarm: Less than 1/4 of lower limit for gas explosion (within 1 minute)
	CO	Warning: 50 to 300 ppm within 10 minutes Alarm: Less than 550 ppm within 5 minutes
Alarm method	Town Gas	Warning: Red (gas leak alarm) lamp flashes Alarm: Red (gas leak alarm) lamp lit, alarm sounds at more than 70 dB/m
	CO	Warning: Yellow (CO alarm) lamp flashes Alarm sounds at more than 70 dB/m after 5 minutes Alarm: Yellow (CO alarm) lamp lit, alarm sounds at more than 70 dB/m
Operating temperature range	0 to +50 °C (without condensation)	
Power supply	AC 100 V 50/60 Hz	
Power consumption	Approx. 0.7 W during monitoring; Approx. 1.0 W during alarm	
Function	<ul style="list-style-type: none"> <li>• Alarm prevention function when power is on</li> <li>• Gas detection function</li> <li>• Gas sensor temperature compensation function</li> <li>• Failure monitoring function</li> <li>• Speaker disconnection detection function</li> <li>• Alarm stop function</li> </ul>	
External output	DC 6 V during monitoring; During power-off / failure: DC 0 V	
	Town Gas: DC 12 V during alarm, CO gas: DC 18 V	
Installation method	Rotate to hook onto ceiling (existing mounting base can be used)	
Mounting base	YA-100 / YSC-25 (signal converter)	
External dimensions	φ120 × D25 mm	
Weight	Approx. 130 g	
Packaging unit	20 pcs	

\* The alarm sound can be stopped for 5 minutes using the alarm stop switch (except for CO high-density alarm).

## Catcher (Town Gas, CO Alarm)

# YF-760MC (Household / YF-761MC Commercial)

Gas

CO  
(carbon monoxide)Household  
CommercialWall mounting  
Ceiling mounting

YF-760MC



YF-761MC

Alarms are issued by buzzer or voice (selectable) and blinking lamps.

### • Specifications

Model	YF-760MC	YF-761MC
Target gas	Town Gas (for 12A/13A gases lighter than air) CO in combustion exhaust	
Sensor	Town Gas	Contact combustion type gas sensor
	CO	SnO <sub>2</sub> -based semiconductor sensor
Power indicator	Power lamp (green LED)	
Gas density for detection	Town Gas	Low density: Approx. more than 1/100 of explosion lower limit High density: Less than 1/4 of lower limit for gas explosion
	CO	Low density: 50 to 300 ppm within 10 minutes High density: Less than 550 ppm within 5 minutes
Alert method*	Town Gas	Low density: Red lamp flashes High density: Red lamp → voice alarm
	CO	Low density: Yellow lamp flashes → voice alarm High density: Yellow lamp → voice alarm
Operating temperature range	0 to +50 °C	
Power supply	AC 100 V 50/60 Hz	
Power consumption	Approx. 2.0 W during monitoring; Approx. 2.3 W during alarm	
Function	<ul style="list-style-type: none"> <li>• Alarm prevention function when power is on (approx. 60 seconds)</li> <li>• Gas detection function check circuit (CO)</li> <li>• Temperature compensation function</li> <li>• Voice message check function (voice/buzzer alarm check)</li> <li>• Buzzer / voice setting function</li> </ul>	
External output	DC 6 V during monitoring; DC 0 V during power-off / failure	
	During alarm: DC 18 V (YF760MC) DC 18 V / DC 6 V (YF-761MC) * Can be selected with the changeover switch	
Installation method	Wall mounting (mounting plate is usable)	Rotate to hook onto ceiling (using mounting base)
Mounting base	—	YA-100 / YSC-25 (signal converter)
External dimensions	H125 × W85 × D51 mm	φ120 × D40 mm
Weight	Approx. 250 g	Approx. 185 g
Packaging unit	20 pcs	

\* Can select from voice alarm / buzzer alarm with the changeover switch.

**Catcher**  
(Town Gas Leak Alarm: Sound Type)

**YP-550A**

Gas

Wall mounting



Slim design. An alarm is given using a voice alarm and by turning on the lamp.

• Specifications

Model	YP-550A
Target gas	Town Gas (for 12A/13A gases lighter than air)
Sensor	SnO <sub>2</sub> -based semiconductor sensor (with activated carbon filter)
Power indicator	Power lamp (green LED)
Gas density for detection	Warning: Less than alarm gas density Alarm: Less than 1/4 of lower limit for gas explosion (within 1 minute)
Alarm method*	Warning: Red (gas Leak alarm) lamp flashes Alarm: Red (gas leak alarm) lamp lit, alarm sounds at more than 70 dB/m
Operating temperature range	-10 to +50 °C (without condensation)
Power supply	AC 100 V 50/60 Hz
Power consumption	Approx. 0.7 W during monitoring; Approx. 1.2 W during alarm
Function	<ul style="list-style-type: none"> <li>● Sound prevention function when power is turned on</li> <li>● Gas detection function</li> <li>● Gas sensor temperature compensation function</li> <li>● Failure monitoring function</li> <li>● Sound circuit monitoring function</li> <li>● Alarm stop function</li> </ul>
External output	Signal output: 0 V during power-off or failure; DC 6 V during monitoring; DC 12 V during alarm Connection method: Connector connection
Power cord	Length 2.5 m, with additional outlet (maximum 1,490 W available)
Installation method	Wall mounting (mounting plate is usable)
External dimensions	H125 × W85 × D32.5 mm
Weight	Approx. 265 g
Packaging unit	20 pcs

\* Alarm sound can be interrupted for 5 minutes by the alarm stop switch.

**Catcher**  
(Town Gas Leak Alarm: Buzzer Type)

**YF-550**

Gas

Wall mounting



An alarm is given using a buzzer sound that is easy-to-understand and a flashing lamp.

• Specifications

Model	YF-550
Target gas	Town Gas (for 12A/13A gases lighter than air)
Sensor	Contact combustion type gas sensor
Power indicator	Indication lamp (red LED) darkly
Gas density for detection	Approx. less than 1/4 of lower limit for gas explosion
Alarm method	Time-lag alarm, automatic reset, indication lamp flashes, alarm buzzer (more than 70 dB/m)
Operating temperature range	-10 to +50 °C
Power supply	AC 100 V 50/60 Hz
Power consumption	Approx. 0.9 W during monitoring; Approx. 1.3 W during alarm
Function	<ul style="list-style-type: none"> <li>● Alarm prevention function when power is on (40 seconds)</li> <li>● Automatic initial inspection function</li> <li>● Failure diagnosis function</li> <li>● Expiration notification function</li> <li>● Inspection mode function</li> </ul>
External output	Two-step voltage two wire type, 0-6-12 V
Power cord	Length 2.5 m, with additional outlet (maximum 1,490 W available)
Installation method	Wall mounting (using mounting plate)
External dimensions	H117 × W74 × D43 mm
Weight	Approx. 260 g
Packaging unit	20 pcs

**Catcher**  
(Town Gas Leak Alarm: Buzzer Type)

**YF-551**

Heavy Gas

Wall mounting



An alarm is given using a buzzer sound that is easy-to-understand and a flashing lamp.

• Specifications

Model	YF-551
Target gas	Town Gas (for gas heavier than air)
Sensor	Contact combustion type gas sensor
Power indicator	Indication lamp (red LED) darkly
Gas density for detection	Approx. less than 1/4 of lower limit for gas explosion
Alarm method	Time-lag alarm, automatic reset, indication lamp flashes, alarm buzzer (more than 70 dB/m)
Operating temperature range	-10 to +50 °C
Power supply	AC 100 V 50/60 Hz
Power consumption	Approx. 0.8 W during monitoring; Approx. 1.1 W during alarm
Function	<ul style="list-style-type: none"> <li>● Alarm prevention function when power is on (40 seconds)</li> <li>● Automatic initial inspection function</li> <li>● Failure diagnosis function</li> <li>● Expiration notification function</li> <li>● Inspection mode function</li> </ul>
External output	Two-step voltage two wire type, 0-6-12 V
Power cord	Length 2.5 m, with additional outlet (maximum 1,490 W available)
Installation method	Wall mounting (using mounting plate)
External dimensions	H117 × W74 × D43 mm
Weight	Approx. 260 g
Packaging unit	20 pcs

## Catcher (Town Gas Leak Alarm: Buzzer Type)

# YF-561A

Gas

Household  
CommercialCeiling  
mounting

Alarms are issued by buzzer or voice (selectable) and blinking lamps.

### • Specifications

Model	YF-561A
Target gas	Town Gas (for both to household and commercial, gas lighter than air)
Sensor	Contact combustion type gas sensor
Power indicator	Power lamp (green LED)
Gas density for detection	Less than 1/4 of lower limit for gas explosion
Alarm method*	Single-step time-lag alarm, automatic reset alarm lamp (red lamp), Buzzer / voice alarm (more than 70 dB/m)
Operating temperature range	-10 to +50 °C
Power supply	AC 100 V 50/60 Hz
Power consumption	Approx. 1.9 W during monitoring; Approx. 2.2 W during alarm
Function	<ul style="list-style-type: none"> <li>● Alarm prevention function when power is on (approx. 60 seconds)</li> <li>● Alarm delay function (approx. 25 seconds)</li> <li>● Gas detection function judgment function</li> <li>● Alarm message confirmation function</li> <li>● Buzzer / voice setting function</li> </ul>
External output	Signal output: 0 V during power-off; DC 6 V during monitoring; DC 12 V during alarm Connection method: mounting base connection
Installation method	Rotate to hook onto ceiling (using mounting base)
Compatible mounting base	YA100 / YSC-25 (Signal Converter)
External dimensions	φ120 × D40 mm
Weight	Approx. 215 g
Packaging unit	20 pcs

\* Can select from voice alarm/buzzer alarm with the changeover switch.

## Catcher (Town Gas Leak Alarm: Buzzer Type)

# YF-517C

Gas

Commercial

24V

Ceiling  
mounting

A 24 V type that alarms through an easy to understand buzzer and lamps.

### • Specifications

Model	YF-517C
Target gas	Town Gas (commercial / household, 12A/13A gases lighter than air)
Sensor	Contact combustion type gas sensor
Power indicator	Power lamp (green LED)
Gas density for detection	Less than 1/4 of lower limit for gas explosion
Alarm method	Single-step time-lag alarm, automatic reset alarm lamp (red LED), Alarm buzzer (intermittent sound: more than 70 dB/m)
Operating temperature range	-10 to +50 °C
Power supply	DC 24 V
Power consumption	Approx. 1.5 W during monitoring; Approx. 1.7 W during alarm
Function	<ul style="list-style-type: none"> <li>● Alarm prevention function when power is on (approx. 40 seconds)</li> <li>● Alarm delay function (approx. 25 seconds)</li> <li>● Bridge function</li> <li>● External output signal short-circuit protection function</li> <li>● Gas sensor failure monitoring function</li> <li>● Electrical circuit failure monitoring function</li> </ul>
External output	Signal output: 0 V during power-off; DC 6 V during monitoring; DC 12 V during alarm Connection method: mounting base connection
Installation method	Rotate to hook onto ceiling (using mounting base for DC 24 V power supply)
Mounting base	SH5910 (commercially available)
External dimensions	φ120 × D34 mm
Weight	Approx. 150 g
Packaging unit	40 pcs



**Catcher**  
(Town Gas Leak Alarm: Voice Sound Type)  
**YF-814**

- Gas
- Night light
- Household Commercial
- Wall mounting



**Alarm equipped with a compact night light function.**

• Specifications

Model	YF-814
Target gas	Town Gas (for 12A/13A gases lighter than air)
Sensor	Contact combustion type gas sensor
Power indicator	White (power/night light) lamp lit
Gas density for detection	Less than 1/4 of lower limit for gas explosion
Alarm method	Instant alarm automatic reset
	Alarm lamp (light emitting diode: red)
	Buzzer + sounds alarm (more than 70 dB/m)
Operating temperature range	0 to +50°C (without condensation)
Power supply	AC 100 V 50/60 Hz
Power consumption	Approx. 0.9 W during monitoring; Approx. 0.9 W during alarm
Function	<ul style="list-style-type: none"> <li>• White (power/night light) lamp brightness adjustment function</li> <li>• Switch inspection function • Alarm history display function</li> <li>• Expiration notification function • Alarm stop function • Failure detection function</li> </ul>
Power cord	Length 2.5 m, with additional outlet
Installation method	Wall hanging type
External dimensions	H78 × W62 × D29.5 mm (excluding protrusion)
Weight	Approx. 160 g
Packaging unit	20 pcs

\* The alarm sound can be stopped for about 5 minutes with the alarm stop switch (alarm sound cannot be stopped when the alarm is activated again)

**Smoke Catcher**  
(Fire, CO Alarm)  
**YK-210A**

- Fire (Smoke type)
- CO (carbon monoxide)
- Battery type
- Wall mounting



**A fire alarm to detect CO and smoke generated in the early stage of a fire.**

Model	YK-210A	
Fire	Model number	Registered No. 27 – 8
	Sensor	Photoelectric fire sensor
	Sensing level	2 class
	Alarm method	Red (fire alarm) lamp flashes twice per second Voice synthesis sound (more than 70 dB/m, automatic reset method)
	Interlocking input/output	Less than DC 30 V during monitoring, less than DC 1.2 V@100 mA during alarm
CO	Target gas	CO in combustion exhaust
	Sensor	Electrochemical CO sensor
	Gas density for detection	CO density 50 to 300 ppm
	Alarm method	Yellow (CO alarm) lamp flashes once every second Voice synthesis sound (more than 70 dB/m, automatic reset method)
Response time	Within 5 minutes	
Operating temperature	0 °C to +40°C (without condensation)	
Power supply	DC 3 V (lithium battery), battery life: about 5 years after startup	
Function	<ul style="list-style-type: none"> <li>• Alarm prevention function when power is on • Stain compensation function</li> <li>• Fire early detection function • Fire/CO sensor failure monitoring function</li> <li>• Fire alarm stop function • Alarm cause display function • Battery voltage monitoring function</li> <li>• Sound circuit monitoring function • Replacement time limit notification function</li> </ul>	
Installation method	Wood screw or attachment fixed	
External dimensions	H100 × W85 × D30 mm (excluding protrusion)	
Weight	Approx. 135 g	
Packaging unit	20 pcs	

\* The alarm sound can be stopped for about 5 minutes with the alarm stop switch (except for CO alarm).

## CO Alarm

YZ-220

CO  
(carbon monoxide)Bathroom  
Concurrent useBattery  
typeWall  
mounting

A CO alarm that can be installed in the bathroom too.

## • Specifications

Model	YZ-220
Target gas	CO in combustion exhaust
Sensor	Electrochemical CO sensor
Gas density for detection	CO 50 to 250 ppm
Alarm method	1) Indication lamp (yellow) flashes (1-second cycle) 2) Alarm sound: sound effect + voice (10-second cycle) more than 70 dB/m (automatic reset)
Operating temperature range	0 to +50 °C (without submersion under water)
Power supply	3 V Lithium battery × 1
Battery life	3 years after installation
Function	<ul style="list-style-type: none"> <li>• Speaker wire breakdown monitoring function</li> <li>• Sound circuit monitoring function</li> <li>• Alarm lamp(LED) monitoring function</li> <li>• Battery voltage monitoring function</li> <li>• Voice message check function</li> <li>• Simple alarm history display function</li> <li>• Expiration notification function</li> </ul>
Installation method	Hanging (using wood screw) Using hook and ball-and-chain for bathrooms
External dimensions	H130 × W92 × D33 mm
Weight	Approx. 195 g
Packaging unit	20 pcs

Ventilation Warning  
Alarm for Commercial

YZ-165C

CO  
(carbon monoxide)

Commercial

Battery  
typeWall  
mounting

A compact model that doesn't sound too soon, warning of danger through an easy to understand alarm sound and voice.

## • Specifications

















Model	YZ-165C
Target gas	CO in combustion exhaust
Sensor	Electrochemical CO sensor
Gas density for detection	CO Hb density of 20% or equivalent in human blood*
Alarm method	1) Display: yellow (ventilation) lamp flashing (1 second period) 2) Alarm sound: sound effect + voice alarm (more than 70 dB/m)
Operating temperature range	0 to +50 °C
Power supply	3 V Lithium battery × 1
Battery life	6 years after installation
External output	a-contact output polarized (DC 24 V, 5 mA) Alarm Instantly ON
Function	<ul style="list-style-type: none"> <li>• Speaker wire breakdown monitoring function</li> <li>• Sound circuit monitoring function</li> <li>• Battery voltage monitoring function</li> <li>• Voice message check function</li> <li>• Alarm stop function</li> <li>• Simple alarm history display function</li> <li>• Expiration notification function</li> <li>• Failure monitoring function</li> </ul>
Installation method	Hanging (using hook)
External dimensions	H100 × W75 × D20.5 (mm)
Weight	Approx. 100 g
Packaging unit	20 pcs

\* However, the alarm will be activated immediately when a density of more than 2,000 ppm is detected twice consecutively (approx. 10 seconds).

Submit a checklist and emergency contact list concerning the "Ventilation Warning Alarm for Commercial" sales regulations. (First time only)

Town Gas Leak Alarm: Function List

Refer to the following list for a summary of the applications and specifications of the town gas leak alarm.

	Model	Application	Mounting location	Alarm	Power supply	Fire		Gas	CO	Additional function	Signal output
						Heat	Smoke				
1	<b>YP-776</b> 	Household	Wall	Voice	AC 100 V	○	-	○	○	-	Voltage
2	<b>YP-768</b> 	Household	Ceiling	Voice	AC 100 V	○	-	○	○	-	Voltage
3	<b>YP-774</b> 	Household	Wall	Voice	AC 100 V	-	○	○	○	-	Voltage
4	<b>YP-756FE</b> 	Household	Wall	Voice	AC 100 V	-	-	○	○	Emergency/ night light	Voltage
5	<b>YP-756F</b> 	Household	Wall	Voice	AC 100 V	-	-	○	○	-	Voltage
6	<b>YP-764F</b> 	Household	Ceiling	Voice	AC 100 V	-	-	○	○	-	Voltage
7	<b>YF-760MC</b> 	Household Commercial	Wall	Voice/Buzzer Switching method	AC 100 V	-	-	○	○	-	Voltage
8	<b>YF-761MC</b> 	Household Commercial	Ceiling	Voice/Buzzer Switching method	AC 100 V	-	-	○	○	-	Voltage
9	<b>YP-550A</b> 	Household	Wall	Voice	AC 100 V	-	-	○	-	-	Voltage
10	<b>YF-550</b> 	Household	Wall	Buzzer	AC 100 V	-	-	○	-	-	Voltage
11	<b>YF-551</b> (For heavy gas) 	Household	Wall	Buzzer	AC 100 V	-	-	○	-	-	Voltage
12	<b>YF-561A</b> 	Household Commercial	Ceiling	Voice/Buzzer Switching method	AC 100 V	-	-	○	-	-	Voltage
13	<b>YF-517C</b> 	Commercial	Ceiling	Buzzer	DC 24 V	-	-	○	-	-	Voltage
14	<b>YF-814</b> 	Household Commercial	Wall	Buzzer + voice	AC 100 V	-	-	○	-	Night light	-
15	<b>YK-210A</b> 	Household	Wall	Voice	Battery type	-	○	-	○	-	-
16	<b>YZ-220</b> 	Bathroom/ Except bathroom	Wall	Voice	Battery type	-	-	-	○	-	-
17	<b>YZ-165C</b> 	Commercial	Wall	Voice	Battery type	-	-	-	○	-	a-contact



# Controllers / Shutoff Valves

- Shutoff Valve Controller
- Shutoff Valve

Controller and shutoff valve that reliably perform control and shutoff

## Shutoff Valve Controller P. 29



YCB-13E

## Shutoff valve, MV Series P. 29



MV-40T



MV-50T

## Shutoff Valve Controller

# YCB-13E (Built-in Seismic Sensor)

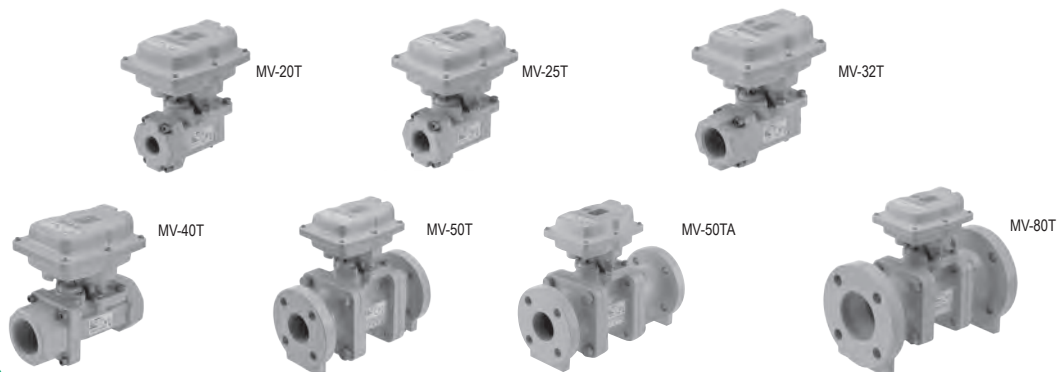


### • Specifications

Model	YCB-13E	
Power supply	AC 100 V 50/60 Hz	
Power consumption	Approx. 2 W at normally (without DC 24 V alarm)	
Operating temperature	-10 to +50 °C	
Input signal	Alarm signal	Three-step voltage signal (0 V-6 V-12 V-18 V), 3 input ports
	External device signal	a-contact: ON during external device operating
	Remote shutoff signal	a-contact: ON when operation switch is operated
Output signal	Valve shutoff signal output	No-voltage (relay a-contact) DC 30 V 1 A ON when all valves closed
	Alarm valve shutoff signal	No-voltage (relay a-contact) DC 30 V 1 A ON when valve closed due to alarm
Seismically-sensed shutoff	Intensity level 5 over or equivalent	
Reason for Shutoff / Reason for Alarm	Character display by pictographic characters	
External dimensions	H216 × W120 × D61 (mm)	
Weight	Approx. 0.8 kg	
Certification	Certified by Japan Gas Appliances Inspection Association Town gas automatic gas shutoff system controller	
Packaging unit	10 pcs	

## Shutoff Valve

# MV-20T - 80T



### • Specifications

Model	MV-20T	MV-25T	MV-32T	MV-40T	MV-50T	MV-50TA	MV-80T
Pipe diameter	20 A	25 A	32 A	40 A	50 A		80 A
Connection screw diameter	Rc 3/4	Rc 1	Rc 1 1/4	Rc 1 1/2	2B Flange		3B Flange
External dimensions	H164 × W100 × D110 (mm) W: mounting dimension		H164 × W120 × D110 (mm) W: mounting dimension	H171 × W170 × D110 (mm) W: mounting dimension	H233 × W230 × D126 (mm) W: mounting dimension	H233 × W270 × D126 (mm) W: mounting dimension	H254 × W280 × D168 (mm) W: mounting dimension
Connection method	Rc screw connection (inlet/outlet)				Flange connection		
Weight	Approx. 1.8 kg		Approx. 2.2 kg		Approx. 6.1 kg	Approx. 6.3 kg	Approx. 7.8 kg
Color	Light gray (Munsell 5Y 7.5/1)						
Rated flow rate (air)	8 m³/h	9 m³/h	10 m³/h	16 m³/h	60 m³/h		70 m³/h
Signal cable	VCTF4C 0.75 cm²						
Operating pressure	No leak, cracks, damage, etc. at 0.1 MPa						
Airtightness	No leak at 0.03 MPa						
	Leak of less than 0.55 L/h at 0.5 and less than 4.2 kPa						
Working pressure range	1.0 to 2.5 kPa						
Operating temperature range	-10 to +60 °C						
Valve Structure	Ball Valve (Motor Drive)						
Pressure-sensitive mechanism	Pressure sensor						
Safety check function	Pressure drop 80 Pa						
Leak testing function	Pressure drop 80 Pa						
Certification	Certified by Japan Gas Appliances Inspection Association Town gas automatic gas shutoff system shutoff valve						
Packaging unit	4 pcs				1 pc		
Accessory	Union with male screws				Flange, gaskets, bolts and nuts		

# Various Auxiliary Equipment

- CO Detector
- Gas Leak Detector
- Mounting Base
- Signal Converter
- Transfer Unit
- Multistage Relay Transceiver

## Product lineup for a safer and more comfortable use of town gas

### CO Detector P. 31



TX-007

CO-FL1

### Gas Leak Detector P. 31



SP-220 (TYPE M/L)

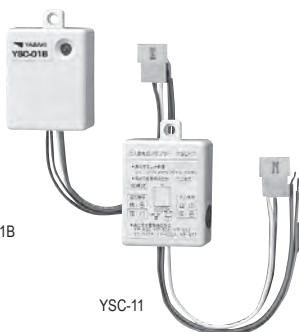
### Mounting Base/Signal Converter P. 32



YSC-25

YA-100

### Signal Converter P. 32



YSC-01B

YSC-11

### Transfer Unit P. 33



ARP-011/ARP-051

### Multistage Relay Transceiver (Separate type) P. 33



YSC-40S/31B

YSC-32



**CO Detector  
TX-007**



• Specifications

Model	TX-007		
Target gas	CO in combustion exhaust		
Detection principle	Controlled potential electrolytic		
Detection type	Suction type		
Gas density for detection	0.000 to 0.500 %		
Indication accuracy	Gas density [%]	-10 to 0 °C	0 to 40°C
	0.000 to 0.020	Indicated value ±0.002 vol%	Indicated value ±0.002 vol%
	0.021 to 0.250	Indicated value ±20%	Indicated value ±10%
	0.251 to 0.500	Indicated value ±30%	Indicated value ±20%
	Display error ±1 digit (0.001%) in addition to the above		
Measuring time	90% response within 15 seconds (from main body suction port)		
Alarm indication	Density value and judgment display, buzzer sound, color screen		
	Open gas instant water heater: Green display (operating precautions) / Orange display (danger) / Red display (use prohibited)		
	Semi-closed gas water heater/bath heater with gas burner: Blue indication (air supply/ventilation precautions) / Orange indication (danger) / Red display (use prohibited)		
Operating temperature range	-10 to +40°C		
Power supply	AA alkaline battery × 4		
External dimensions	Approx. H122 × W70 × D40 mm (without protrusion)		
Weight	Approx. 180 g (excluding batteries)		
Packaging unit	1 pc		

\*This product requires a manufacturer inspection every two years (overhaul including sensor replacement).

**CO Detector  
CO-FL1**



• Specifications

Model	CO-FL1	
Target gas	CO	
Detection principle	Controlled potential electrolytic	
Detection range	0 to 0.500 vol%	
1 digit	0.001 vol% (0.000 to 0.200 vol%) 0.005 vol% (0.200 to 0.500 vol%)	
Indication accuracy (at same conditions)	±0.003 vol% (0.000 to 0.030 vol%)	
	±10 vol% (0.030 to 0.200 vol%)	
	±20 vol% (0.200 to 0.500 vol%)	
Measuring time	Approx. 25 seconds (except for instantaneous value measurement)	
Alarm method	Pump suction type	
Suction flow rate	More than 0.3 L/min	
Density indication	LCD digital display (7 segments)	
Alarm indication	When measuring water boiler or bath boiler: Blue lamp lit (Caution) / Orange lamp lit (Danger) / Red lamp lit (Prohibited) and buzzer	
	When measuring commercial kitchen instrument: Orange lamp lit (Precaution) / red lamp lit (Danger) and buzzer	
Operating temperature range	-10 to +40°C	
Power supply	AA alkaline battery × 4	
Consecutive operating hours	More than 100 hours (25 °C, no alarm, no lighting)	
External dimensions	Approx. H124 × W80 × D36 mm (without protrusion)	
Weight	Approx. 260 g (excluding batteries)	
Functions	Measurement mode change, average / maximum / instantaneous value change, alarm indication change (Lamp + buzzer / lamp only / no alarm)	
Packaging unit	1 pc	

\*This product requires a manufacturer inspection every two years (overhaul including sensor replacement).

**Gas Leak Detector**

**SP-220 (TYPE M/L)**



• Specifications

Model	SP-220 (TYPE M)	SP-220 (TYPE L)
Target gas	Town Gas 13 A	LPG
Detection range	10 to 10000 ppm	
Detection principle	Hot wire semiconductor type	
Detection type	Pump suction type (inserted into the body through a tapered nozzle)	
Density indication	LCD bar meter + scale	
Alarm setting value	Initial value: 30 ppm	
	(Can be set to five levels: 10 ppm, 30 ppm, 150 ppm, 500 ppm, 2,000 ppm)	
Response time (under the same conditions)	Within 3 seconds	
Operating temperature/humidity range	-20 to +55°C, less than 95% RH (without condensation)	
Power supply	AA alkaline battery × 2	
Consecutive operating hours	Approx. 13 hours (with alkaline battery, 20 °C, without alarm)	
Explosion-proof structure	Essentially safe explosion-proof structure (Exia II CT4)	
Waterproof level	Equivalent to IP55	
External dimensions	Approx. H200 × W43 × D39 mm (without protrusion)	
Weight	Approx. 215 g	
Accessory	Protective cover, tapered nozzle, filter, AA alkaline battery (×2), Hand strap	
Packaging unit	1 pc	

Mounting Base / Signal Converter

**YSC-25**

• For ceiling mounting type alarm (AC 100 V)

Signal from voltage output type alarm and associated signal from fire/gas leak complex model alarm are converted to no-voltage signal to output to microcomputer gas meter etc.



• Specifications

Model	YSC-25
Matching alarm	Ceiling mounting type (AC 100 V)
Operating temperature range	-10 to +50 °C
Power supply	AC 100 V 50/60 Hz
Input signal	1. Voltage input 0V: voltage output OFF; DC 6 V: during monitoring; DC 12 V/ 18 V during alarm 2. Fire associated output less than 1.5 V: ON
External output	No-voltage output: Photo transistor open collector ON (Standard delay time: 45 seconds) (Voltage resistance: DC 20 V, actuation power, 1 mA) Voltage output: 0, 6, 12, 18 V (output input signal) Fire interlock signal (output input signal)
External dimensions	φ95 × 20 mm
Weight	Approx. 130 g
Packaging unit	20 pcs

Mounting Base

**YA-100**

• For ceiling mounting type alarm (AC 100 V)



• Specifications

Model	YA-100
Matching alarm	Ceiling mounting type (AC 100 V)
Operating temperature range	-10 to +50 °C
Power supply	AC 100 V 50/60 Hz
External dimensions	φ95 × 18 mm
Weight	Approx. 97 g
Packaging unit	100 pcs

\* A dedicated mounting base for the DC 24 V alarm is also available. (Commercially-available product: SH5910)

Signal Converter

**YSC-01B**

Signal from voltage output gas leak alarm is converted to a no-voltage signal to be output as a relay contact.



• Specifications

Model	YSC-01B
Matching alarm	Voltage type
Operating temperature range	-10 to +40 °C
Input signal	0 V during power-off; DC 6 V during monitoring; DC 12 V during alarm
External output	No-voltage output signal: Contact signal by relay (Contact capacity: Less than AC DC 30 V 0.1 A 0.3 W) OFF during power OFF / Monitoring, ON during alarm, and instant during standard delay time
External dimensions	H50 × W40 × D25 mm
Weight	Approx. 40 g
Packaging unit	10 pcs

Signal Converter

**YSC-11**

Signal from voltage output gas leak alarm is converted to no-voltage signal to output to microcomputer gas meter etc.



• Specifications

Model	YSC-11
Matching alarm	Voltage type
Operating temperature range	-10 to +40 °C
Input signal	0 V during power-off; DC 6 V during monitoring; DC 12 V during alarm
External output	No-voltage output signal: Phototransistor open collector ON (maximum voltage / DC 20 V; drive power / 1 mA) Standard time-lag: Approx. 45 seconds
External dimensions	H50 × W40 × D25 mm
Weight	Approx. 40 g
Packaging unit	10 pcs

## Transfer Unit

## ARP-011 / ARP-051



### Specifications

Model	ARP011-3D (TG)	ARP011-5D (TG)	ARP051-3D (TG)	ARP051-5D (TG)
Operating temperature	-10 to +50 °C			
Equipment connected to input	Alarm (voltage output type)			
Number of input-side connections	3 connections	5 connections	3 connections	5 connections
Input signal	Two-step voltage two wire type Normal: DC 6 V; Signal wire disconnection: DC 0 V; During alarm: DC 12 V			
Output signal	Two-step voltage two wire type Normal: DC 6 V; Signal wire disconnection: DC 0 V; During alarm: DC 12 V			
Equipment connected to output	Receiver or alarm buzzer			
Installation method	Wall hanging type		Embedded type	
External dimensions	H125 × W125 × D65 mm		H125 × W125 × D47 mm	
Weight	Approx. 310 g		Approx. 190 g	
Packaging unit	1 pc			

## Multistage Relay Transceiver (Separate Type)

## YSC-40S / 31S



Can be mounted at the UH meter installation location.



Model	YSC-40S (GW separated type)	YSC-31S (MT separated type)
Applicable standards	ARIB STD-T108	
Connected Equipment	UH meter	
Radio frequency	920 MHz band	
Coverage distance	Maximum 100 m (line of sight distance) * Communication distance varies depending on the operating environment	
Operating temperature range	-30 to +60 °C	
Power supply	DC 3 V (lithium battery) * Replaceable	
Battery life	Approx. 10 years in the normal operating state * May be shorter depending on the stock conditions and wireless communication frequency	
External dimensions	H65 × W203 × D37 (mm)	
Weight	Approx. 270 g	
Accessory	Instruction manual (warranty card), clamping band × 2, tapping screw × 4	

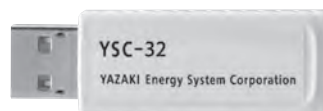


\*Tablet meter reading image (for LP gas)

## Dongle Transceiver

## YSC-32

This dongle transceiver is used in the batch wireless meter reading system.  
\*The tablet unit and connection adapter will be provided by the gas company.



· Interface / USB connector (A Type)



# Technical Information

- Town Gas Supply System
- Gas Leak & Fire Alarm Equipment Laws and Regulations
- Outline of Legal System for Residential Fire Protection
- UH Meter Display Functions
- UH Meter Event Display
- How to Install Gas Leak Alarms
- Importance of Ventilation Warning Alarm for Commercial
- Automatic Gas Shutoff System
- Display Contents of Automatic Gas Shutoff System
- Introduction to Operation Details in Blackout and Recovery, by Product

Technical Information

## Town gas regulations and technical information on products

### Gas Leak & Fire Alarm Equipment Laws and Regulations

Applied laws	Gas business law	Fire services act	Building standards law	Legalized petroleum gas law
<p><b>Target building</b></p> <p>Target building: 1. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part. 2. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part. 3. Target building: 1. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part. 2. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part.</p>	<p>Target building: 1. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part. 2. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part.</p>	<p>Target building: 1. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part. 2. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part.</p>	<p>Target building: 1. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part. 2. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part.</p>	<p>Target building: 1. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part. 2. Total area more than 100㎡ or 50㎡ (excluding underground part) in total with the underground part.</p>

### UH Meter Display Functions

**Indicator value**

- The number of digits for m<sup>3</sup> is 4, while for the decimals (liters) is 3.
- When the indicator value is in the "Closed" position.
- The "ST" (Stop) indicator flashes at 1 Hz (ON for 0.5 second and OFF for 0.5 second) during a shutoff when the recovery operation is impossible.
- The display position should be at the upper left of the indicator value.

**Flow pipe**

- The flow rate pilot display is lit when gas flows under the conditions shown on the right.
- It is displayed at the display position at the upper right of the indicator value.

**Event**

- An identification display appears whenever something goes wrong with the meter.
- The display position should be at the upper right of the indicator value.

**Meter status display**

- The following list modes are provided for displaying the indicator: "▲▲▲▲" (▲: ON, "▲": OFF)

Display	Meaning
▲▲▲▲	Internal status display mode
▲▲▲▲	Recovery leak check display mode

### UH Meter Event Display

Event label	Item	Operating conditions	Event display	
Normal shutoff	Self maximum flow rate over shutoff	The total gas consumption of the combustion appliances at the installation site exceeds the specified shutoff value (0.96 L/h).	Q	
	Individual maximum flow rate over shutoff	The gas flow rate increases. If there is an abnormally large increase in the flow rate, compared to the reference with the target consumption among the combustion appliances at the installation site (7 L/h or 8 L/h).	K	
	Early shutoff over shutoff	The operating time of the combustion equipment is abnormally long. The gas flow exceeds the time limit without any fluctuation in the gas flow rate.	J	
	Backflow detector shutoff	Backflow exceeding the specified value is detected.	R	
	Flow flow during shutoff shutoff	The flow rate is detected in the "ST" (Stop) (Gas Stop) mode due to some event.	Flow rate display after 2 times shutoff (Flow rate display)	
	Recovery leak check shutoff	A shutoff valve that has been shut down is recovered and a pressure drop is detected, indicating that the shutoff valve is closed by a magnet.	Flow rate display	
	Abnormal shutoff	Alarm shutoff	The alarm detects a leak and a signal is input.	A
		Electric shutoff	The electric sensor detects an abnormality with a sensor intensity of more than 5.	P
		Pressure drop shutoff	The pressure value drops below the set value (value set upon request).	G
		Pressure rise shutoff	The pressure value rises above the set value (value set upon request).	O
Abnormal shutoff	Sensor error shutoff	The abnormal sensor becomes abnormal. -Sensor error shutoff (nonstable): "ST" (Stop) is lit. -Sensor error shutoff (reliable): "ST" (Stop) flashes.	X	
	Leak shutoff	The shutoff valve is instructed to close by a magnet.	T (system abnormality)	
	Shutoff mode	40 seconds after test shutoff (shipped state).	Blank	
	Normal battery voltage drop shutoff	The battery voltage checked periodically drops below the prescribed value twice in a row. -Normal battery voltage drop shutoff (reliable): "ST" (Stop) is lit. -Normal battery voltage drop shutoff (non-reliable): "ST" (Stop) flashes.	V	
	Abnormal battery voltage drop shutoff	The battery voltage checked normally drops below the prescribed value twice in a row.	V/V	
	Center shutoff	The shutoff valve is "Closed" by center communication.	C	
	Shutoff by magnet valve shutoff	The specified date and time that you want to perform center shutoff by center communication is reached.	C	
	Shutoff after release	-A message to cancel test shutoff by center communication is received in the test shutoff or shipping mode. -A message to cancel center shutoff is received during a center shutoff.	D	
	Over pipe leak alarm	A meter leak is detected between the meter outlet and the combustion appliance and a remote gas flow rate is obtained for 30 consecutive days.	N	
	Normal battery voltage drop shutoff	Display during gas meter recovery.	L	
Abnormal shutoff	Abnormal battery voltage drop shutoff	The battery voltage drops below the specified value.	V	
	Abnormal battery voltage drop shutoff	The battery voltage drops below the specified value.	V	
	Abnormal battery voltage drop shutoff	The abnormal condition is satisfied after the battery voltage drop shutoff (After a shutoff, the information is carried out every 7 days if special operations are carried out within 14 days).	V	
	Abnormal battery voltage drop shutoff	The measurement mode at the end of recovery due to sensor error in the non-volatile scale.	X	
	Abnormal battery voltage drop shutoff	The error occurs in the non-volatile scale.	E	

Gas Meters

Alarms

Controllers / Shutoff Valves

Various Auxiliary Equipment

Technical Documents

### Mounting of alarm

**For wall-mounted alarm**

**For ceiling-mounted alarm**

**CAUTION**

- Do not touch the heat sensor at the alarm error alarm.
- The sensor circuit or other parts must not be damaged by the alarm error alarm.
- Do not touch the heat sensor at the alarm error alarm.
- The sensor circuit or other parts must not be damaged by the alarm error alarm.

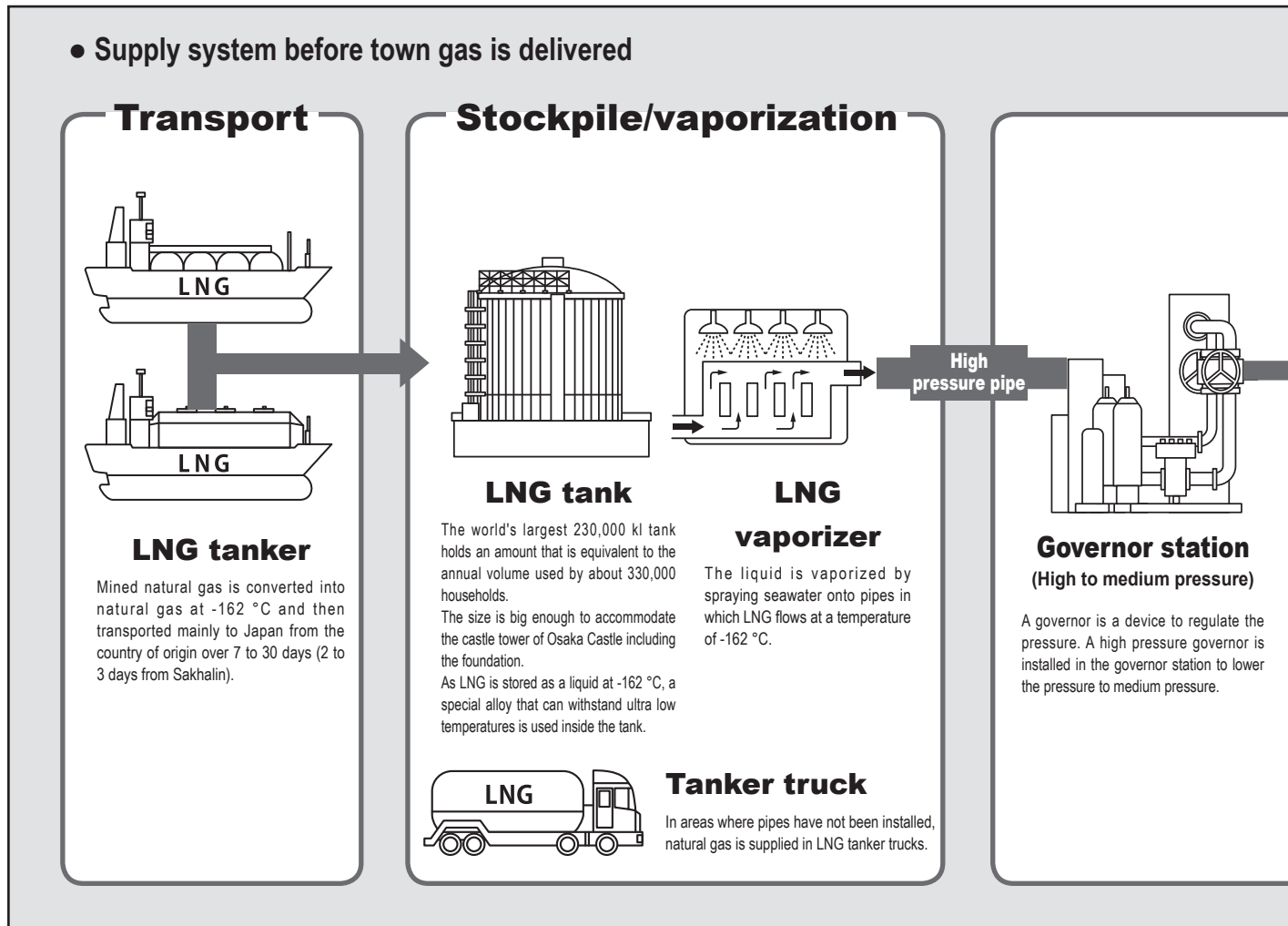
Town Gas Supply System

(Source: Gas Energy Newspaper July 15, 2019 issue)

Before town gas is delivered

Currently, most of the natural gas consumed in Japan is LNG (Liquefied Natural Gas) imported LNG produced overseas is imported in special tankers and received at a LNG terminal. It then factories, buildings, households, etc. via a piping network from high to low pressure. In some areas where there are no connecting pipes or LNG receiving terminals, lorries vaporization, calorific adjustment and odorization before delivery.

• Supply system before town gas is delivered



Trivia Japan's LNG imports

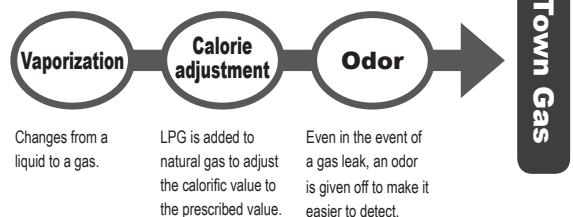
Approx. 80 million tons are imported annually!

Japan imported 80.55 million tons of LNG in 2018. Although the volume has been declining since reaching a peak of 89.07 million tons (FY2014), a high level of imports exceeding 80 million tons has continued since fiscal year 2011 when it surged due to the shutdown of nuclear power plants following the Great Eastern Japan Earthquake. In 2018, there were 18 importing countries, the largest of which was Australia at 29.44 million tonnes, accounting for 36% of all imports.

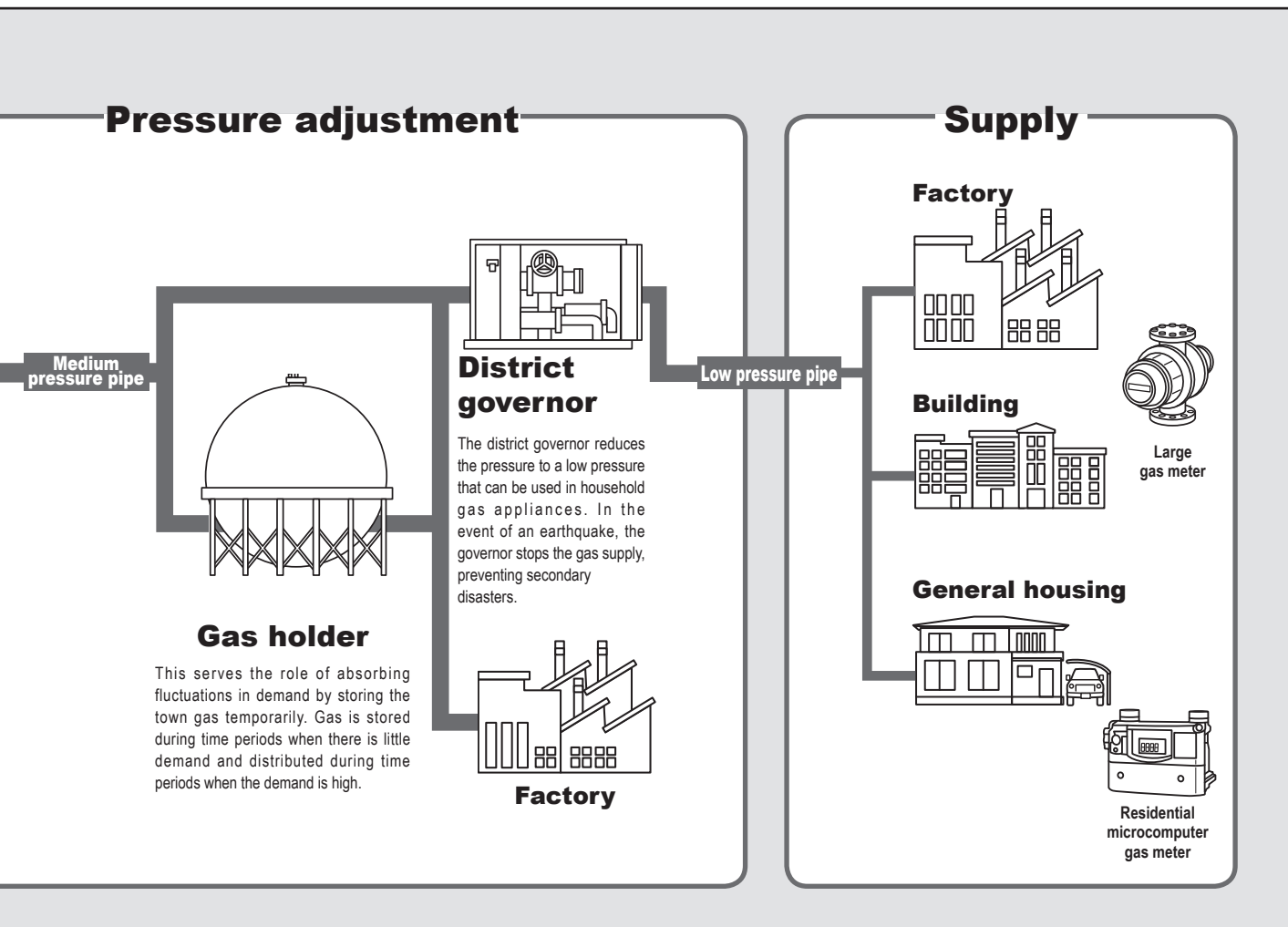
Point Production process of town gas

Before town gas is made

LNG (Liquefied Natural Gas) that has been liquefied and transported is stored in an LNG tank, then vaporized and adjusted for calorific value, before a specific odor is added to turn it into town gas.

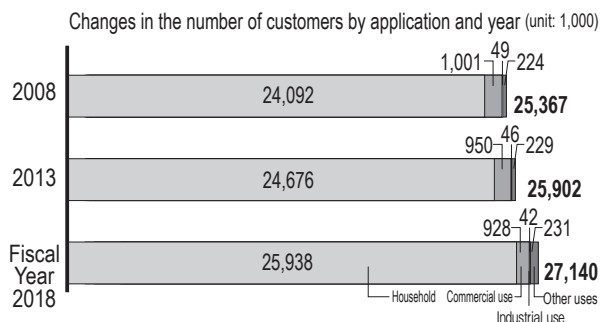


from overseas while some of it is natural gas produced domestically in Niigata and Chiba Prefecture. undergoes vaporization, calorific adjustment and odorization to turn it into “town gas” before it is delivered to and freight cars are used to transport the LNG to satellite terminals and other locations where it undergoes



**Statistics**

**Changes in the number of customers by application**



\* Conciliation quantity at end March of each fiscal year  
\* The total may not add up to 100% due to rounding.

(Source: Gas Industry Statistical Annual Report of the Agency for Natural Resources and Energy)

**Industry**

**Full liberalization of gas retail and separation of pipes**

In April 2017, the gas retail industry was fully liberalized, allowing all businesses to choose a gas retailer, including households who had previously been unable to select their supplier for town gas. In conjunction with this, a licensing system was introduced in the previously regulated town gas industry, which classified the town gas industry into three categories: gas production industry, general gas distribution industry, and gas retail industry. As the three major town gas companies have a large number of customers and an extensive pipeline network, the pipeline sector is expected to be legally separated from the rest from 2022 onwards due to the need for neutrality.

Gas Leak & Fire Alarm Equipment Laws and Regulations

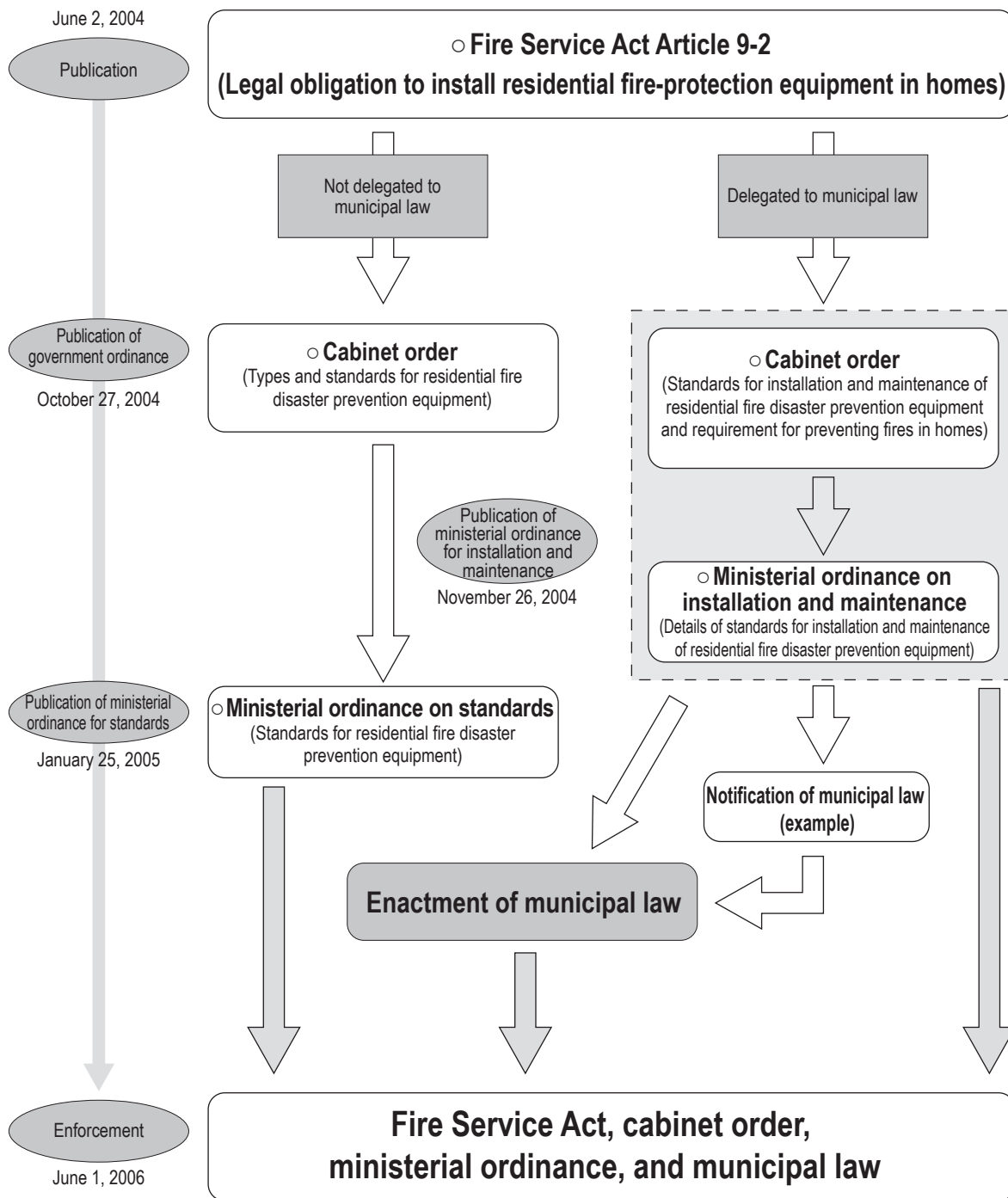
●Reference

Applied laws		Gas business law	Fire services act	Building standards law	Liquefied petroleum gas law	
Target building		(Ministry of Economy, Trade and Industry) Ministerial ordinances 1 and 2, January 20, 1981 Office notice 263, June 3, 1981 Office notice 461, November 15, 1985 Office notice 578, September, 2000	(Ministry of Internal Affairs and Communications) Cabinet order 6, January 23, 1981 Ministerial ordinance 16, June 20, 1981	(Ministry of Land, Infrastructure, Transport and Tourism) Cabinet order 196, July 14, 1980 Office notice 1099, July 1, 1981	(Ministry of Economy, Trade and Industry) Ministerial ordinance 11, March 10, 1997 Official notice 123, March 13, 1997	
<ul style="list-style-type: none"> <li>Underground mall/ Total area more than 1,000 m<sup>2</sup></li> <li>Semi-underground shopping mall/ In contact with the underground passage at the basement floor and having an area of more than 1,000 m<sup>2</sup>, and a total area dedicated for special use has more than 500 m<sup>2</sup></li> <li>Designated basements/  <ul style="list-style-type: none"> <li>Basement subject to fire prevention measures for designated use having a total floor area of more than 1,000 m<sup>2</sup></li> <li>Basement subject to fire protection measures for specific facility use having a total floor area of more than 1,000 m<sup>2</sup>, in which the portion specified for dedicated use has a total floor area of more than 500 m<sup>2</sup></li> </ul> </li> </ul>					LP gas	Gas leak intensive monitoring system
Apartment complex	Houses for more than three families (LP gas) Less than 69 houses within the same estate	There is no legal regulation.	There is no legal regulation.	<p>A Town gas and LP gas</p> <p>① Gas cocks and apparatuses are screw-tightened with metal pipe metal flexible hose or reinforced gas hose (with metal wire).</p> <p>② Use a gas cock with excessive spill prevention mechanism (fuse cock).</p> <p>③ Install a gas leak alarm facility according to the predetermined standards. One of the above is required.</p> <p>Outdoor buzzer type</p> <p>or</p> <p>Gas leak intensive monitoring system</p>	<p>B LP gas</p> <p>Gas leak alarm itself</p> <p>(Automatic gas shutoff system*)</p> <p>or</p> <p>Outdoor buzzer system</p> <p>Gas leak intensive monitoring system</p> <p>(Automatic gas shutoff system*)</p>	
	More than three floors (new building)	There is no legal regulation.	There is no legal regulation.	<p>If both of A and B apply (LP gas is used in newly built houses with more than three floors and in less than 69 houses), then one of following 2 kinds of installation is required.</p> <p>① Install the gas alarm facility as established in the liquefied petroleum gas law even if a reinforced hose or excessive spill prevention valve are installed.</p> <p>② Install the gas alarm facility as established in the building standards law if the reinforced hose or excessive spill prevention valve are not installed.</p>	<p>LP gas</p> <p>Gas leak alarm itself</p> <p>(Automatic gas shutoff system*)</p> <p>or</p> <p>Gas leak intensive monitoring system</p> <p>(Automatic gas shutoff system*)</p>	
Commercial facility	<ul style="list-style-type: none"> <li>Performing theater, film theater, entertainment hall, public hall, and similar facilities</li> <li>Cabaret, nightclub, game hall, and similar facilities</li> <li>Rent space and restaurant</li> <li>Department store and market</li> <li>Inn, hotel, dormitory, and apartment complex</li> <li>Hospital, clinic, midwifery home</li> <li>Elementary school, junior high school, high school, higher professional school, university, blind school, school for the deaf, school for disabled children, kindergarten, and other schools</li> <li>Library, museum, and art museum</li> <li>Public bath</li> <li>Station, arriving and departing port or field for boat or airplane (limited to the construction used for passenger boarding, deboarding, and waiting)</li> <li>Shrines, temples, churches, and similar facilities</li> <li>Offices having a total floor area of more than 1,000 m<sup>2</sup> (except for the facilities listed above)</li> </ul>	There is no legal regulation.	There is no legal regulation.	<p>(Automatic gas shutoff system)</p> <p>or</p> <p>Gas leak alarm itself</p>	There is no legal regulation.	
	<ul style="list-style-type: none"> <li>Skyscraper building (construction with more than 60 m height)</li> <li>Specific massive building <ul style="list-style-type: none"> <li>Performing theater, film theater, entertainment hall, or pavilion</li> <li>Public hall or meeting hall</li> <li>Cabaret, nightclubs or similar facilities</li> <li>Game hall or dance hall</li> <li>Waiting room, restaurant, or similar facilities</li> <li>Restaurant</li> <li>Department store, market, and shop or showroom selling items</li> <li>Inn, hotel, or rest house</li> <li>Steam bath, hot air bath, or similar facilities among public bath</li> </ul> </li> <li>Joint of middle pressure conducting pipe (except for welded joint)</li> </ul>	<p>(Automatic gas shutoff system)</p> <p>or</p> <p>Gas leak alarm itself</p>	There is no legal regulation.			

\*Administrative advice



Outline of Legal System for Residential Fire Protection



(Administrative guidance for existing homes will be given in 2 to 5 years, or 5 years in most cases.)

○ Law

Partial legal revision of Fire Service Act and Disaster Prevention Law for petrochemical complexes, etc. (Law No. 65, 2004)

○ Cabinet order

Cabinet order regarding development of law for partial revision associated with partial enforcement of law for partial revision of Fire Defense Law and Disaster Prevention Law of petrochemical complex etc. (Cabinet order No. 325, 2004)

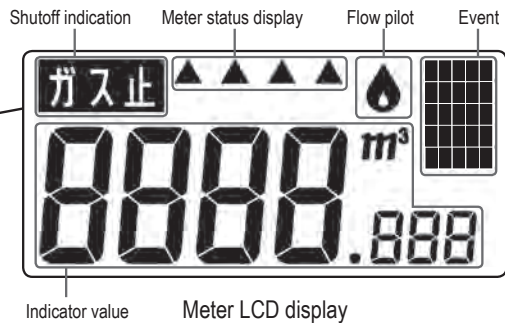
○ Ministerial ordinance

Ministerial ordinance establishing standards relating to establishment of order related to provision and maintenance of disaster prevention devices for residences (Order of Ministry of Internal Affairs and Communications No. 138, revision, 2004; Order of Ministry of Internal Affairs and Communications No. 41, 2005)

○ Municipal law

Regarding partial revision of fire protection regulation (Reg. No. 227, 12-15-2004)

UH Meter Display Functions



■ Indicator value

- The number of digits for m<sup>3</sup> is 4, while for the decimals (liters) it is 3.

■ Recovery leak check time is now "visible".



■ Shutoff indication

- ガ ス 止 is displayed when the shutoff valve is in the "Closed" position.
- The "ガ ス 止" (Gas Stop) indicator flashes at 1 Hz (ON for 0.5 second and OFF for 0.5 second) during a shutoff when the recovery operation is impossible.
- The display position should be at the upper left of the indicator value.

■ Flow pilot

- The flow rate pilot display is lit when gas flows under the conditions shown on the right.
- 水滴 is displayed at the display position at the upper right of the indicator value.

Gas flow rate	More than 1,000 L/h	More than 200 L/h Less than 1,000 L/h	More than 70 L/h Less than 200 L/h	More than 15 L/h Less than 70 L/h	More than 4.5 L/h Less than 15 L/h
Time to turn on (approx.)	4 seconds	8 seconds	10 seconds	20 seconds	30 seconds

■ Event

- An identification display appears whenever something goes wrong with the meter.
- The display position should be at the upper right of the indicator value.

■ Meter status display

- The following two modes are provided for displaying the indicator "▲▲▲▲" ("▲" ON, "△" OFF)

1) Internal status display mode

Indicates the various internal states of the meter except during recovery leak check.

Display	Status name	ON timing	OFF timing
Left ▲	Sleeping	In the shipment mode	In the non-shipment mode
▲		When an internal pipe leak alarms has occurred	When the internal pipe leak alarm is cleared
▲	Pilot light registration	When registration pilot light flow rate 1 is registered	When all registration pilot light flow rates are deleted
Right ▲	Recovery failure	When shut down due to a recovery leak check failure	When recovery leak check is started

\* When "▲ (Recovery failure)" is lit, the event display indicates the shutoff event before recovery leak check. However, if a new shutoff event occurs during the recovery leak check, the latest shutoff event is displayed.

2) Recovery leak check display mode

Indicates a failure to recover and the progress of the operation during recovery leak check.

Display	Description
Recovery check display ▲▲▲▲ △ Lit	When recovery leak check is started
▲▲▲▲ △ Flashing	The ▲ display is turned off in sequence starting from the left whenever 1/3 of the operation time to determine a pressure drop elapses. (Displays the elapsed time.) Flashing time: 0.5 second, OFF time: 0.5 second.
△▲▲▲ △ Flashing	
△△▲▲ △ Flashing	
Event display "L" flashes	
Recovery leak check display △△△△ *1	When recovery leak check is successful *1: Preceding Item 1) Changes to the internal status display mode.
▲▲▲▲ } Flashing	Flashes for 5 seconds when recovery leak check fails. (ON time: 0.5 second, OFF time: 0.5 second, repeated 5 times.)
↓↑ △△△△ }	
↓ △△△▲ *1	
	After flashing ends, "▲ (Recovery failure)" is lit. *1: Preceding Item 1) Changes to the internal status display mode.

## UH Meter Event Display

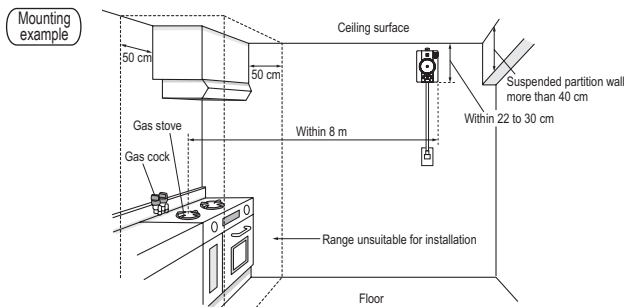
Classification	Item	Operating conditions	Event display
Flow rate shutoff	Total maximum flow rate over shutoff	The total gas consumption of the combustion appliances at the installation site exceeds the specified shutoff value ⇒ UH6:10.8 m <sup>3</sup> /h	<b>Q</b>
	Individual maximum flow rate over shutoff	The gas flow rate increases, if there is an abnormally large increase in the flow rate, compared to the appliance with the largest consumption among the combustion appliances at the installation site ⇒ UH6:8.4 m <sup>3</sup> /H	<b>K</b>
	Safety duration over shutoff	The operating time of the combustion equipment is abnormally long The gas flow exceeds the time limit without any fluctuation in the gas flow rate	<b>J</b>
	Backflow detection shutoff	Backflow exceeding the specified value is detected	<b>R</b>
	With flow during shutoff shutoff	The flow rate is detected in the “ガス止” (Gas Stop) mode due to some event	Pre-shutoff event display After 20 times shutoff output Alternate display with ■
	Recovery leak check shutoff	A shutoff valve that has been shut down is recovered and a pressure drop is detected, indicating that there is a leak	Pre-shutoff event display
Outside sensor shutoff	Alarm shutoff	The alarm detects a leak and a signal is input	<b>A</b>
	Seismic isolation	The seismic sensor detects an earthquake with a seismic intensity of more than 5	<b>G</b>
	Pressure drop shutoff	The pressure value drops below the set value (value set upon request)	<b>P</b>
	Pressure rise shutoff	The pressure value rises below the set value (value set upon request)	<b>O</b>
Other shutoff	Sensor error shutdown	The ultrasonic sensor becomes abnormal • Sensor error shutoff (resettable): “ガス止” (Gas Stop) is lit • Sensor error shutoff (not resettable): “ガス止” (Gas Stop) flashes	<b>X</b>
	Test shutoff	The shutoff valve is instructed to close by a magnet	<b>T</b> (within 40 seconds)
	Shipping mode	40 seconds after test shutoff (plugged state)	Blank
	Normal battery voltage drop shutoff	The battery voltage checked periodically drops below the prescribed value twice in a row • Normal battery voltage drop shutoff (resettable): “ガス止” (Gas Stop) is lit • Normal battery voltage drop shutoff (not resettable): “ガス止” (Gas Stop) flashes	<b>V</b>
	Continuous battery voltage drop shutoff	The battery voltage checked normally drops below the prescribed value twice in a row	<b>Y/V</b>
	Center shutoff	The shutoff valve is “Closed” by center communication	<b>C</b>
	Date/time designation center shutoff	The specified date and time that you want to perform center shutoff by center communication is reached	<b>C</b>
Alarm / display	Shutoff after release	• A message to cancel test shutoff by center communication is received in the test shutoff or shipping mode • A message to cancel center shutoff is received during a center shutoff	<b>D</b>
	Inner pipe leak alarm	A minor leak is detected between the meter outlet and the combustion appliance and a minute gas flow rate is observed for 30 consecutive days	<b>N</b>
	Recovery leak check display	Display during gas meter recovered	<b>L</b>
	Normal battery voltage low alarm (Before successful communication call)	The battery voltage drops below the specified value	<b>V</b>
	Normal battery voltage low alarm (After successful communication call)	The battery voltage drops below the specified value	<b>V</b>
	Battery voltage drop grace period display	The predetermined conditions are satisfied after the battery voltage drop shutoff (After a shutoff, the information is displayed for 7 days if special operations are carried out within 14 days)	<b>V</b>
	Sensor error alarm	The ultrasonic sensor becomes abnormal (In this case, the indicator value flashes)	<b>X</b>
	Waiting for gain to drop after recovery is finished	Appears until status returns to the normal measurement mode at the end of recovery due to sensor error shutoff	<b>X</b>
	Data write error	The indicator value is not written normally in the non-volatile scale	<b>m</b>
	Line A short circuit display	A short circuit occurs due to incorrect connection to Line A etc.	<b>E</b>

## How to Install Gas Leak Alarms

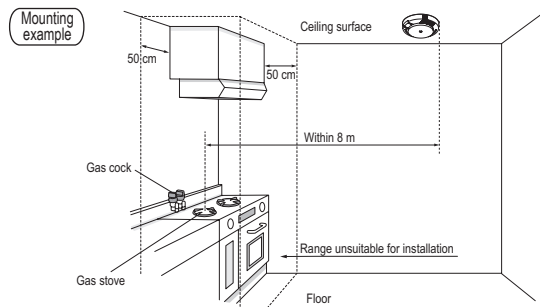
### [Location for Installing Gas Leak Alarms]

Methods for installing gas leak alarm are set forth in Article 3 of the Gas Business Law "Directive Governing the Planning and Installation Method of Gas Leak Alarm Equipment". Install the alarm on the wall or in the ceiling of the same room as the combustion appliance at a horizontal distance of less than 8 m from the combustion appliance, and at a location where the lower edge of the alarm is less than 22 to 30 cm from the ceiling surface.

#### ■ Wall-mounted alarm installation example



#### ■ Ceiling-mounted alarm installation example



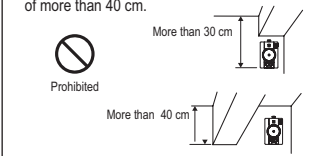
- \* Install the alarm at a distance of more than 1.5 m away from ventilation ports and air outlets of air conditioners, etc.
- \* Keep the alarm more than 40 cm away from suspended partition walls or beams.
- \* If the area is partitioned by a suspended partition wall in which the ceiling surface protrudes out by more than 40 cm, install the alarm on the combustion appliance side rather than the suspended partition wall.

#### ■ Examples of places where it should not be installed

- A well-ventilated place such as near a ventilation fan, air supply port or door.
- A place exposed to drafts.



- Below a suspended partition wall of more than 30 cm (including alarm).
- A place separated by a suspended partition wall of more than 40 cm.



- Places directly exposed to exhaust gases, steam or soot from combustion appliances and the steam of cooking alcohol.



- The upper sections of cupboards or the like.



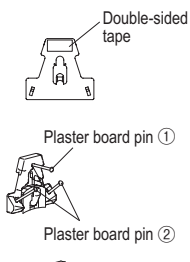
- Installation in a bathroom ... Do not install in a bathroom or in a place where water splashes or where water may drip onto it as this may cause electric shock or electrical failure.

#### ■ Mounting of alarm

- For wall-mounted alarm

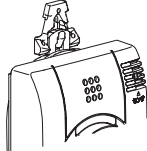
##### When mounting on a gypsum board

- Remove the release liner from the double-sided tape on the back of the attachment.
- Press the attachment against the wall and insert the attachment's plaster board pin ①. At this time, press against the head of the plaster board pin with a commercially available plaster board pin insertion tool or a hard part of the handle of a screwdriver, etc., to insert the pin up to its root.
- Catch the alarm on the attachment's hook. In a position in which the alarm is not tilted, insert the plaster board pins on the left and right sides of the attachment to fasten.



#### ⚠ CAUTION

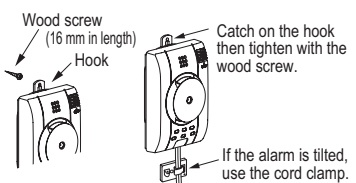
- Be very careful not to stick the pin into your finger.
- To maintain the mounting strength, insert the pins up to their roots.
- If a pin is loose, move the mounting position slightly then re-attach the pin.



##### When mounting on a wall other than a gypsum board

If the wall is concrete, drill a hole with a vibration drill, drive in a curl plug (commercially available) and use a wood screw.

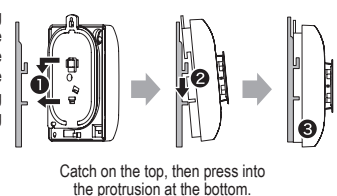
- Screw the wood screw halfway into the wall.
- Catch the alarm's hook on the wood screw.
- Tighten the wood screw to fasten the alarm.



##### When mounting on an existing mounting plate

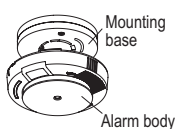
When installing on an existing mounting plate, such as when updating the installation, catch the hook at the top of the mounting plate to the back surface of the alarm, then press the alarm into the fixing protrusion at the bottom of the mounting plate to fasten the alarm in place.

- <Check> Check that the alarm is securely fastened.

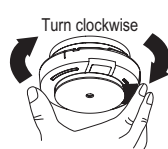


- For ceiling-mounted alarm

- Adjust the body of the alarm with the mounting base and insert it.
  - \* Note that the mounting base is directional.



- Turn the body of the alarm clockwise until it stops to fasten it securely.
  - \* Check that the alarm is securely fastened.



#### ⚠ CAUTION

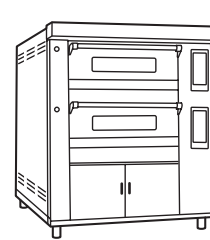
- Be careful not to drop the alarm when installing it. The sensor circuitry or other parts could get damaged and the alarm may no longer work properly.
- Be careful not to turn the alarm too much. Doing so may damage it.
- Do not touch the heat sensor at the center of the alarm. The sensor may be broken and the alarm may no longer work properly.



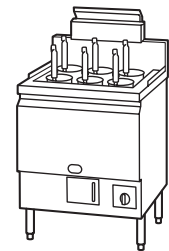
Importance of Ventilation Warning Alarm for Commercial

[Causes of CO Poisoning Incidents in Commercial Kitchens]

- ① Many commercial kitchen appliances are not fitted with safety equipment
- ② Due to the large size of the combustion appliance, the gas consumption is high or the appliance is used indoors in an enclosed place
- ③ Deterioration of gas equipment over time and insufficient maintenance
- ④ As people are not aware of the importance of ventilation, they make mistakes in the arrangements of air supply, air exhaust, etc.



Large oven



Boiled noodle machine

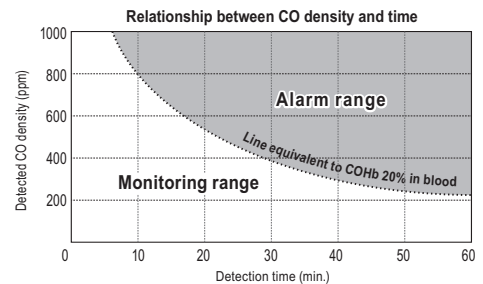
[Ventilation Warning Alarm for Commercial]

A Ventilation Warning Alarm for Commercial is an alarm that generates an alarm upon detecting carbon monoxide (CO) being generated due to incomplete combustion in a commercial kitchen appliance.

By integrating the CO density and detection time, the COHb (carboxyhemoglobin) concentration in human blood is estimated, and an accurate audible alarm is given before it exerts a dangerous effect on the human body.

Installation is easy as it is battery-powered and does not require an electrical outlet.

\*A typical CO alarm is extremely sensitive to CO, so it is frequently triggered by even a small amount of CO generated. Fearing that this will impede operations, there is a risk that the user may turn off the power supply of the alarm.



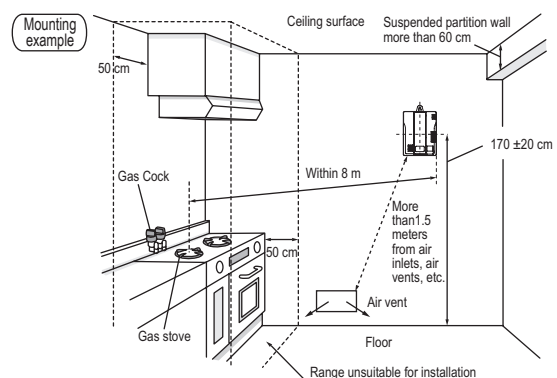
■ Carbon monoxide poisoning symptoms

Carbon monoxide concentration (%) in the air	Inhalation time and poisoning symptoms	Alarm sound start time
0.02	Mild headache in frontal head area in 2 to 3 hours	Approx. 60 minutes
0.04	Frontal headache/nausea in 1 to 2 hours, occipital headache in 2.5 to 3.5 hours	Approx. 26 minutes
0.08	Headache, dizziness, nausea, convulsions in 45 minutes, fainting in 2 hours	Approx. 9 minutes
0.16	Headache, dizziness, nausea in 20 minutes, death in 2 hours	Approx. 3 minutes
0.32	Headache, dizziness in 5 to 10 minutes, death in 30 minutes	Approx. 5 seconds
0.64	Headache, dizziness in 1 to 2 minutes, death in 15 to 30 minutes	
1.28	Death in 1 to 3 minutes	

[Installation of Ventilation Warning Alarm for Commercial]

Install the alarm at a horizontal distance of 50 cm to 8 m from the combustion appliance in the same room where the appliance is installed, and at a range of 170 ±20 cm from the floor at a location where the indicator lamp of the alarm can be easily identified.

- \* Install the alarm at a distance of more than 1.5 m away from ventilation ports and air outlets of air conditioners, etc.
- \* Do not install the alarm in places which are partitioned by suspended partition walls of more than 60 cm.
- \* Do not install near ventilation fans, air inlets, airy places near doors, etc.



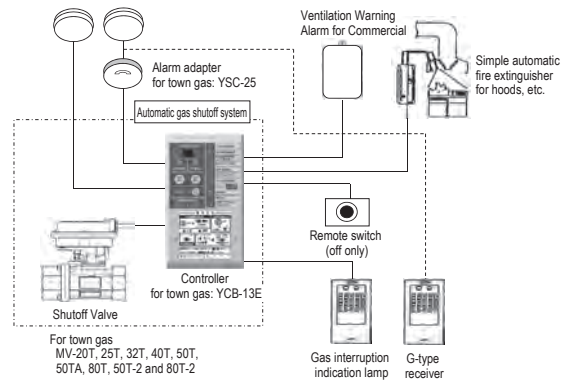
■ Examples of places where it should not be installed

<ul style="list-style-type: none"> <li>• Range hood, ceiling, etc.</li> </ul> <p>The ventilation warning alarm may be delayed or detection may not work.</p> <p>Prohibited</p>	<ul style="list-style-type: none"> <li>• Places directly exposed to exhaust gases, steam or soot from combustion appliances and the steam of cooking alcohol</li> </ul> <p>The sensor's service life may be shortened or there may be false alarms.</p> <p>Prohibited</p>	<ul style="list-style-type: none"> <li>• Places exposed to water</li> </ul> <p>The alarm could be damaged.</p> <p>Prohibited</p>
<ul style="list-style-type: none"> <li>• Places exposed to strong vibrations or impacts</li> </ul> <p>The alarm could be damaged.</p> <p>Prohibited</p>		

## Automatic Gas Shutoff System

### [What is an Automatic Gas Shutoff System]

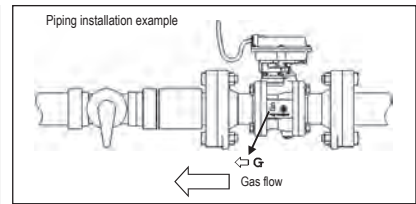
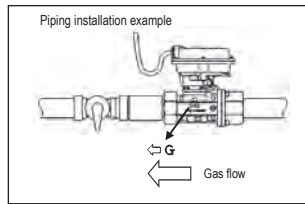
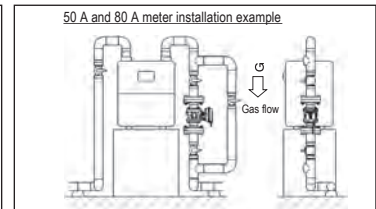
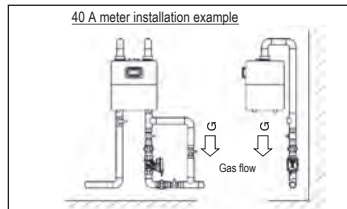
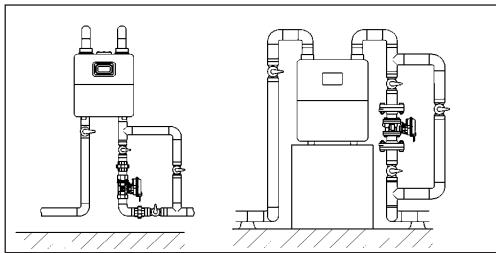
An "Automatic Gas Shutoff System" can automatically shut off the gas in an emergency, e.g. when a gas leak occurs, by being linked to the gas alarm. By linking it to a ventilation warning alarm for commercial, the gas supply can be shut off when there is an imminent danger of poisoning by carbon monoxide. In addition, opening/closing of the shutoff valve and leak inspection of the gas pipes can be automatically performed simply by operating the switches of the controller. Moreover, it is also possible to connect it to a simple automatic fire extinguishing device for hoods, a gas shutoff display panel in the control room, or a remote closing switch. These connections automatically shut off the gas in addition to extinguishing the fire if a hood fire occurs, allowing the opening/closing status of the shutoff valve to be monitored by the controller in the control room. The system also allows the gas to be shut off from the control room.



### [Installation of Shutoff Valve]

#### ■ Mounting Position

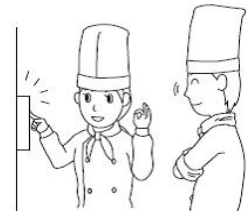
Attach the shutoff valve to the outlet pipe downstream of the gas meter.



#### ■ Examples of places where it should not be installed

<ul style="list-style-type: none"> <li>Concealed places where leaked gas may accumulate</li> </ul> <p>Prohibited</p>	<ul style="list-style-type: none"> <li>Places that are constantly affected by moisture, such as splashed water or steam</li> </ul> <p>Prohibited</p>	<ul style="list-style-type: none"> <li>Places where the temperature reaches less than <math>-10^{\circ}\text{C}</math> or more than <math>60^{\circ}\text{C}</math> (less than <math>-25^{\circ}\text{C}</math> for LP gas)</li> </ul> <p>Prohibited</p> <p>Less than <math>-10^{\circ}\text{C}</math></p> <p>More than <math>60^{\circ}\text{C}</math></p>	<ul style="list-style-type: none"> <li>Places subject to vibrations from motors or vehicles</li> </ul> <p>Prohibited</p>
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### [Installation of Shutoff Valve Controller]




















- Choose an installation position that is easy to see and operate the controller.
- Check the material and strength of the wall at the mounting position.
- Do not install the controller on a clay wall or a plywood or gypsum board that has a low strength.
- Consider an installation location that will ensure that the signal line of the shutoff valve in particular is as short as possible (less than 50 m) so that it will not be affected by strong radio waves near the antenna of a radio or TV.
- Install the mounting plate vertically and in a location where there are no obstacles to the top and bottom. (Within  $\pm 3$  degrees in the vertical direction)

#### ■ Examples of places where it should not be installed

<ul style="list-style-type: none"> <li>Places where the alarm may be touched by many different people</li> </ul> <p>Prohibited</p>	<ul style="list-style-type: none"> <li>Places where fixtures are hidden</li> </ul> <p>Prohibited</p>	<ul style="list-style-type: none"> <li>Unstable places such as places exposed to vibrations, old walls, etc.</li> </ul> <p>Prohibited</p>	<ul style="list-style-type: none"> <li>Locations affected by vibrations and impacts from doors opening and closing</li> </ul> <p>Prohibited</p>
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## Display Contents of Automatic Gas Shutoff System

		Description of failure / alarm			
Pictograph and numbers		Description	Remarks		
Failure		00	Communication is not possible upon turning on the power supply (cannot be set)	Communication fails 3 times continuously when turning on the power supply. Number 02 also appears.	
		01	Unable to communicate with the shutoff valve (when normal)	Communication fails 3 times continuously when normal.	
		02	Pipe diameter and piping volume not set	When the controller and motor drive are replaced at the same time.	
		03	Power supply line for shutoff valve disconnected	Power supply for shutoff valve is normal but stopped on shutoff valve side.	
		11	Controller External device signal input circuit failure	NG (Not Good) result in self-diagnosis carried out every 25 hours.	
		12	Controller Remote signal input circuit failure	〃	
		13	Controller Memory circuit failure	〃	
		14	Controller Blackout detection circuit failure	〃	
		15	Controller Alarm power supply circuit failure	NG (Not Good) result in self-diagnosis (usually).	
		16	Controller Power supply circuit for shutoff valve failure	〃	
		17	Controller DC/DC converter circuit failure	NG (Not Good) result in self-diagnosis carried out every 60 days.	
		18	Controller Battery low  also lit	〃	
		21	Shutoff valve Open operating failure		
		22	Shutoff valve Close operating failure		
		23	Shutoff valve Pressure sensor circuit failure	This function was discontinued starting from the batch produced in December 21, 2011.	
		24	Shutoff valve Memory circuit failure		
		25	Shutoff valve Limit switch circuit failure		
		26	Shutoff valve Blackout detection circuit failure		
		27	Shutoff valve Stuck	NG (Not Good) due to action to prevent stick.	
		3 <input type="checkbox"/>	Failure in alarm <input type="checkbox"/>		Number in <input type="checkbox"/> indicates the number of the terminal block G1 to G3 for the alarm.
		Before the alarm is shutoff			
			4 <input type="checkbox"/>	Alarm <input type="checkbox"/> activated (gas leak alarm)	Number in <input type="checkbox"/> indicates the number of the terminal block G1 to G3 for the alarm.
		When the alarm is shutoff			
			6 <input type="checkbox"/>	Alarm <input type="checkbox"/> activated (gas leak alarm)	When shut off, 4 <input type="checkbox"/> changes to 6 <input type="checkbox"/> .
			7 <input type="checkbox"/>	Alarm <input type="checkbox"/> activated (CO alarm)	Similarly when the ventilation warning alarm for commercial is activated
			81	Outside interlock equipment activated (hood fire extinguisher, etc.)	Similarly when the ventilation warning alarm for commercial is activated
			82	Seismic sensor activated	
	83	Gas pressure drop detected (supply gas pressure drop)	For town gas: 0.8 kPa × more than 5 seconds (Reference) For LP gas: 1.2 kPa × more than 10 seconds		
	84	Blackout detected			
	85	Disaster prevention center shutoff			
Gas leak					
	91	Gas leak detected by leak inspection when use is stopped (large leak)	The initial pressure (pressure at the start of the inspection) P1 is displayed after the number representing the alarm.  Reference: For LPG use (YCB - 12E) Since a "gas leak" is denoted as a "pressure drop downstream of the valve", the expression is therefore as follows  •Large leak → (Downstream of valve) Large pressure drop •Medium leak → (Downstream of valve) Medium pressure drop •Small leak → (Downstream of valve) Small pressure drop		
	92	Gas leak detected by leak inspection when use is stopped (medium leak)			
	93	Gas leak detected by leakage inspection when use is stopped (small leak)			
	94	Gas leak detected by safety check at start of use (recovery leak check) (large leak)			
	95	Gas leak detected by safety check (leak inspection) at the start of use (large leak)			
	96	Gas leak detected by safety check (leak inspection) at the start of use (medium leak)			
	97	Gas leak detected by safety check (leak inspection) at the start of use (small leak)			

## Introduction to Operation Details in Blackout and Recovery, by Product

As blackouts frequently occur during recent natural disasters and during blackouts, we have explained the operation of gas equipment products normally, immediately after blackouts, during recovery, and in long term blackouts.

	Product category	Product name (Name)	Normally	Immediately after blackouts	During recovery from blackout	During long term blackouts
1	Gas Alarm	YP-776	Green lamp on	The lamp will turn off and the alarm will not be activated.	The green lamp will flash, a red/yellow/green lamp will light up subsequently, and a voice will announce "Seijo-desu." (Normal) before the green lamp is lit and the unit returns to the monitoring mode.	The function will stop and the alarm will not be activated.
2		YP-768				
3		YP-774				
4		YP-756FE	Green lamp on	A "Teiden-shimashita." (Blackout) announcement is made and the white lamp (emergency light) will turn on if it is dark. * Gas detection function will not work.	A voice announcement "Dengen-gafukkyu-shimashita." (Power is restored) is made while the green lamp flashes and the white lamp turns on. The red/yellow/green lamp then turns on and a voice announcement "Seijo-desu." (Normal) is made before the green light turns on and the device returns to the monitoring mode.	The white lamp is lit when it is dark. *The lamp goes out when the battery runs out. *Gas detection function will not work.
5		YP-756F	Green lamp on	The lamp will turn off and the alarm will not be activated.	The green lamp will flash, a red/yellow/green lamp will light up subsequently, and a voice will announce "Seijo-desu." (Normal) before the green lamp is lit and the unit returns to the monitoring mode.	The function will stop and the alarm will not be activated.
6		YP-764F				
7		YF-760MC	Green lamp on	The lamp will turn off and the alarm will not be activated.	The green lamp will flash, then stay on and the alarm will return to monitor mode.	The function will stop and the alarm will not be activated.
8		YF-761MC				
9		YP-550A	Green lamp on	The lamp will turn off and the alarm will not be activated.	The red lamp will flash, then stay on and the alarm will return to monitor mode.	The function will stop and the alarm will not be activated.
10		YF-550	Red lamp lit	The lamp will turn off and the alarm will not be activated.	The red lamp will flash, then stay on and the alarm will return to monitor mode.	The function will stop and the alarm will not be activated.
11		YF-551				
12		YF-561A	Green lamp on	The lamp will turn off and the alarm will not be activated.	Green lamp flashes, returning to the monitor mode when it is lit.	The function will stop and the alarm will not be activated.
13		YF-517C	Green lamp on	The lamp will turn off and the alarm will not be activated. (Excluding backup power supply)	Green lamp flashes, returning to the monitor mode when it is lit.	The function will stop and the alarm will not be activated.
14		YF-814	White lamp on	The lamp will turn off and the alarm will not be activated.	The white lamp will flash, a startup sound will play, and a voice will announce "Seijo-desu." (Normal) before the lamp flashes and the unit returns to the monitoring mode.	The function will stop and the alarm will not be activated.
15		YK-210A	Lamp off	*Not affected by blackouts as it is battery-operated.	*Not affected by blackouts as it is battery-operated.	*Not affected by blackouts as it is battery-operated.
16		YZ-220				
17		YZ-165C				
18	Shutoff Valve Controller	YCB-13D (Production stopped)	Display the usage status	The shutoff valve will maintain the normal state.	The status before the blackout will be kept.	When using gas in the event of a blackout while the shutoff valve is closed, the valve must be opened manually.
19		YCB-13E		Shutoff valve is activated and remains closed * The initial settings can be changed with a switch.	Since the shutoff valve is closed, press the Reset button when using gas.	When using gas in the event of a blackout while the shutoff valve is closed, the valve must be opened with a spanner.



# YAZAKI Energy System Corporation



YAZAKI Energy System Corporation

## ■ Company Overview

Establishment: Established in 1963 as Yazaki Electric Cable Co., Ltd.  
 2012: Changed company name  
 Representative: President Ko Yazaki  
 Head Office Address: Mita Kokusai Building 17F, 1-4-28  
 Mita, Minato-ku, Tokyo 108-8333  
 TEL: (81)3-3455-5661 (Operator)  
 Capital: 310 Million Yen

## ■ Development, manufacture, and sale of living environment equipment. Rapid responses to meet your needs.

YAZAKI Energy System operates business based on gas equipments represented by gas meter, electrical power cables, general electrical cables, communications wires, environmental systems including air conditioning and solar heat, and instrumentation equipment such as taxi meters, forms an integrated system for developing, manufacturing, and selling living environment equipments of the YAZAKI Group, and provides products and services that meet customer's needs.

## ■ Gas Equipment Operations / Tenryu Factory

■ Address: 23 Minami Kajima, Futamata-cho, Tenryu-ku, Hamamatsu, Shizuoka 431-3312  
 ■ TEL: (81)53-925-4511 (Operator)  
 ■ Major Products:  
 Gas Meters, LPG Gas Alarms, Town Gas Alarms, Gas Shutoff Valves, Regulators, High Pressure Hoses, Outdoor Low Pressure Rubber Hoses, Gas Multi-Security Systems, Atmospheric Environment Sensors (Carbon Monoxide Detectors, etc.)

## ■ Gas Equipment Operations Website

<https://gas.yazaki-group.com/>

Search for "YAZAKI Gas"



\*Download product drawings, CAD data, instruction manuals, catalogs and more from our website.



## YAZAKI Energy System Corporation

### Head office

Mita Kokusai Building 17F, 1-4-28 Mita, Minato-ku,  
Tokyo 108-8333

### Gas equipment operations

23 Minami Kajima, Futamata-cho, Tenryu-ku, Hamamatsu, Shizuoka 431-3312  
TEL: (81)53-925-4511

Tohoku sales dept. TEL: (81)22-284-9114

Kyushu sales dept. TEL: (81)92-411-4834

Kanto sales dept. TEL: (81)3-5782-2702

YAZAKI Hokkaido sales co. TEL: (81)11-852-2914

Chubu sales dept. TEL: (81)52-769-1532

YAZAKI Shikoku sales co. TEL: (81)87-833-3335

Kansai Chugoku sales dept. TEL: (81)6-6458-8185

\* Consult our LP gas dealer or nearest sales office if you notice a problem with this equipment.

Do not attempt to repair the equipment on your own.

\* Addresses and phone numbers may change.

\* Please note that changes may be made to product specifications or descriptions without prior notice.

Dealers

- ISO 9001/ ISO 14001 (Quality and Environmental Management Systems) scope of products/services  
To design and manufacture gas meters (including safety gas meters), gas leakage alarms (including complex alarms, residential fire and gas leakage alarms, and wireless interlock systems), fire alarms (including wireless interlock systems), gas shut-off valves, LP gas regulators, transmission devices, shut-off valve controllers, high-pressure hoses, self-recording pressure meters, leak detection parts of leak detectors, LP gas evaporators and LP gas liquid automatic change over devices.