

# INFRARED GAS ANALYZER



Type: ZRE

A maximum of 5 gas components (of NO<sub>x</sub>, SO<sub>2</sub>, CO, CO<sub>2</sub>, CH<sub>4</sub>, and O<sub>2</sub>) can be measured simultaneously and continuously.



***Simultaneous and continuous measurement of the concentration of up to 5 gas components***

***Excellent prolonged stability***

***Compact size and simple operation***

***Virtually unaffected by the interference of moisture.***

***Substantial functions, including automatic calibration, communications, and alarms (Option)***

Measurement of  
**5** components  
with just one unit

# Compact body packed with abundant functions Fuji infrared gas analyzer

19" rack mount structure  
Panel-mount and desktop types are also available.

Sample gas flowmeter

Power switch

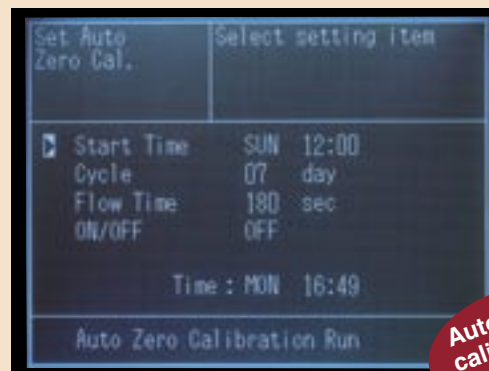
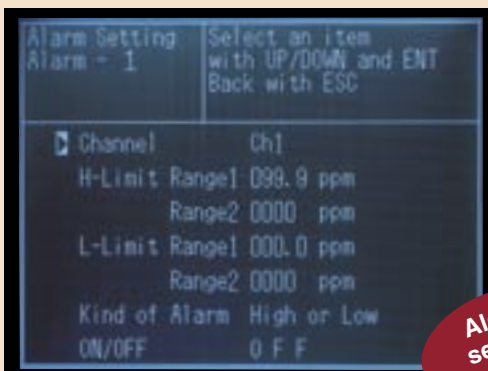
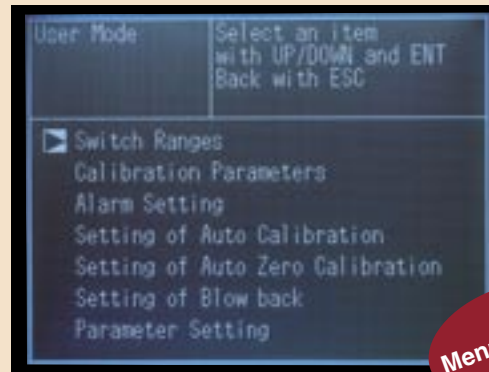
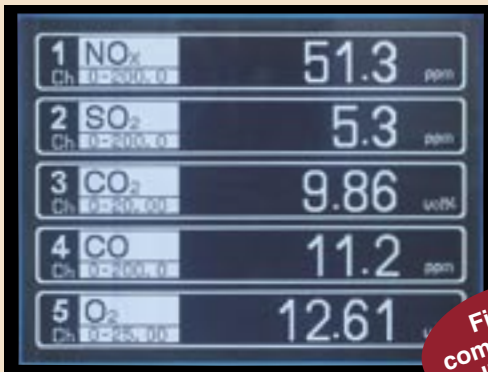
USB connector (Type B) for RS-485 (Modbus) communications

Large LCD (with auto OFF function)

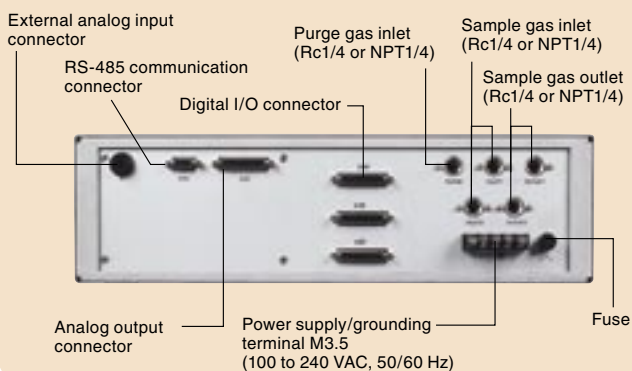
### Simple key operation

- Mode select switch**  
Used to switch modes.
- Zero calibration key**  
Used for manual zero calibration.
- Span calibration key**  
Used for manual span calibration.
- Enter key**  
Used to confirm the selected items and numeric values.
- Up/down key**  
Used to switch the items to be selected.
- Escape key**  
Used to return to the previous screen or abort setting midway.

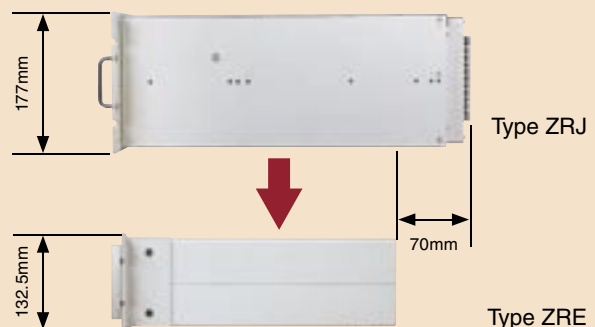
## Easy-view large LCD Instruction in English facilitates operation.



## Neat rear face to facilitate connection



## Short depth Light weight (approximately 8 kg)

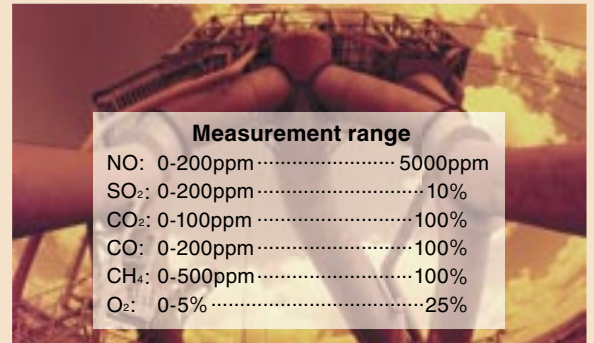


# Adoption of our unique infrared ray single-beam system

## Measures the concentration of up to 5 gas components simultaneously and continuously.

The concentration of five gas components (of SO<sub>2</sub>, NO<sub>x</sub>, CO, CO<sub>2</sub>, CH<sub>4</sub>, and O<sub>2</sub>) can be measured. For example, the components in flue exhaust gas (SO<sub>2</sub>, NO<sub>x</sub>, CO, CO<sub>2</sub>, and O<sub>2</sub>) can be measured simultaneously and continuously.

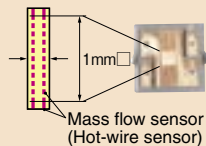
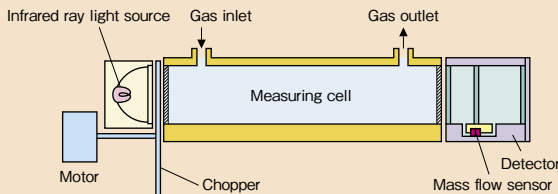
	NO	SO <sub>2</sub>	CO	CO <sub>2</sub>	CH <sub>4</sub>	O <sub>2</sub>
Single-component analyzer	○	○	○	○	○	Can be added by designation
Double-component analyzer	○ ○	○	○ ○	○ ○	○	Can be added by designation
Three-component analyzer	○	○	○ ○	○	○	Can be added by designation
Four-component analyzer	○	○	○	○		Can be added by designation



## Excellent prolonged stability, easy maintenance, and high-precision measurement with repeatability of 0.5%

### Principle

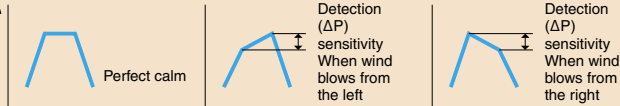
The amount of infrared ray absorbed in the measuring cell is detected with the mass flow sensor.



### <Mass flow sensor>

The mass flow sensor, with low impedance, has excellent noise resistance, while the sensor, with no movable parts, is impervious to vibration and can be used on a semi-permanent basis.

### Hot-wire temperature

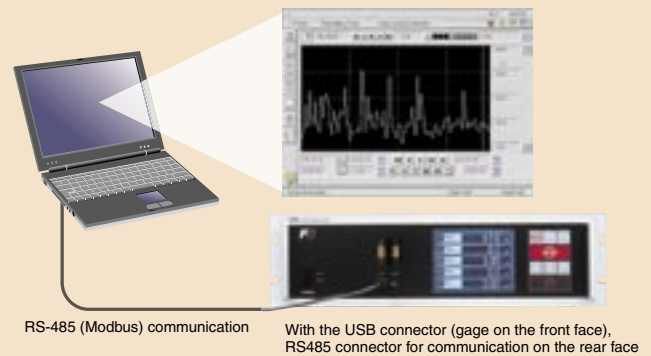


## Virtually unaffected by the interference of moisture

Analysis is almost unaffected by any moisture present in the sample gas. Our unique interference correcting function has significantly reduced the effect of moisture.

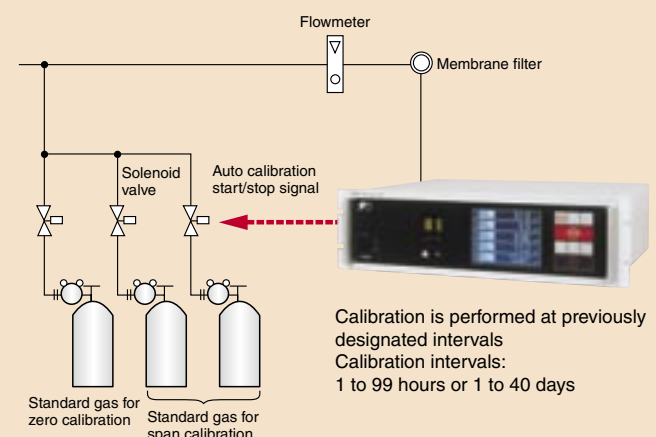
Interference component	CO <sub>2</sub> sensor	CO sensor	CH <sub>4</sub> sensor	SO <sub>2</sub> sensor	NO sensor
H <sub>2</sub> O saturation at 20°C	1% or lower	1% or lower	1% or lower	-	-
H <sub>2</sub> O saturation at 2°C	-	2.5% or lower	-	2% or lower	2% or lower
CO 1000ppm	1% or lower	-	1% or lower	1% or lower	1% or lower
CO <sub>2</sub> 15%	-	1% or lower	1% or lower	1% or lower	2% or lower
CH <sub>4</sub> 1000ppm	1% or lower	1% or lower	-	50ppm or lower	-

## Communication with a PC achieved with RS485 (Modbus) communication function (Option)



Details of communication: Read/write of various settings, output of measured concentration value and instrument status

## Zero/span auto calibration function (option) eliminates irksome calibration work.



## Abundant digital I/O signals (Option)

### External digital input signal

Range switching, auto calibration start, output signal hold, average value reset

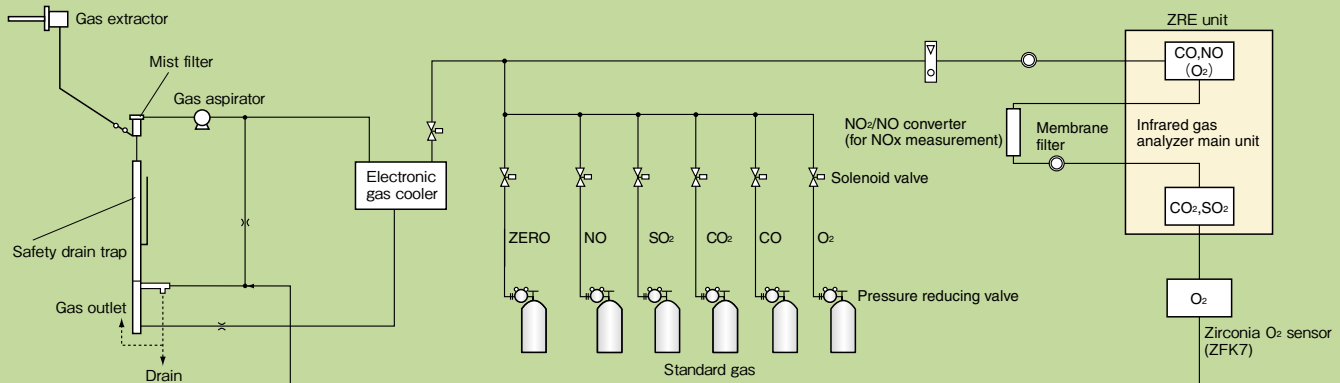


### Digital output signal (1c relay contact)

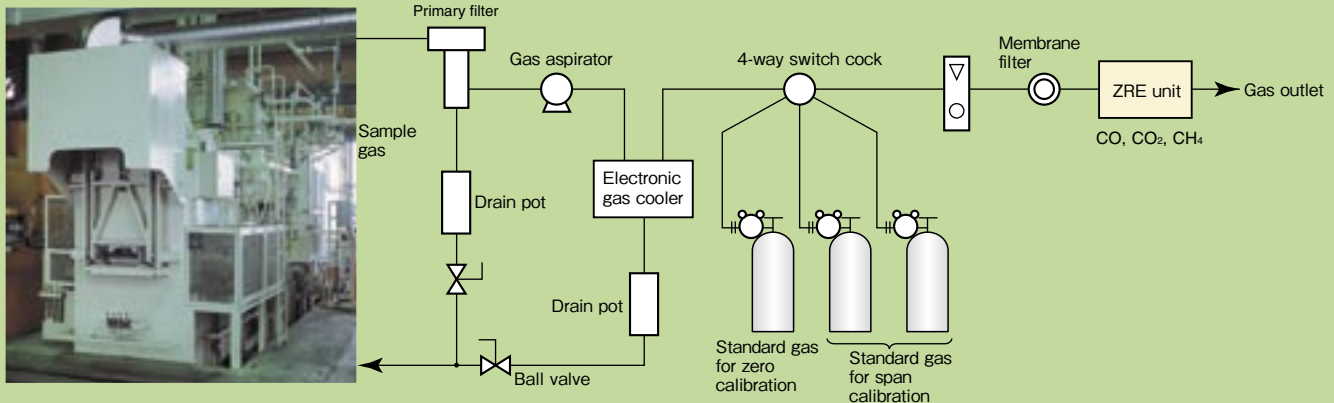
Identification of each component range, instrument failure, calibration error, auto calibration in progress, upper/lower limit alarm for each component, pump ON/OFF, solenoid valve drive for auto calibration

# Simple gas sampling system backed by a substantial track record

## Example of measurement of exhaust gas from a boiler or refuse incinerator (NO, SO<sub>2</sub>, CO, CO<sub>2</sub>, and O<sub>2</sub> measurement)



## Example of measurement of CO, CH<sub>4</sub>, and CO<sub>2</sub> from an industrial furnace



### Easy installation to equipment

#### NO<sub>2</sub> → NO gas converter (Type: ZDLO4)



- Target gas: Exhaust gas from general boilers, atmosphere
- Catalyst usage: 2 cm<sup>3</sup>
- Catalyst replacement interval: Approximately 1 year
- Flow rate of the gas to be analyzed: 0.5 L/min or lower
- Conversion efficiency: 90% or higher (conforming to JIS)
- Temperature control: Built in
- Power supply voltage: 100 to 240 VAC, 50/60 Hz
- External dimensions: 212(H)x148(W)x130(D) mm

#### Zirconia oxygen sensor (Type: ZFK7)

- Measurement range: 0 to 25%
- Repeatability: Within ±0.5% of full scale
- Zero drift: Within ±1% of full scale/week
- Span drift: Within ±2% of full scale/week
- Response time: Approximately 20 sec (90% response)
- Temperature control: Built in
- Oxygen concentration display: Displayed on the gas analyzer connected
- Flow rate of the gas measured: 0.5±0.25 L/min
- Power supply voltage: 100 to 115 VAC, 50/60 Hz
- External dimensions: 140(H)x170(W)x190(D) mm



### Gas extractor applicable up to 1300°C

#### (Type: ZBAK2)

- System: Electrical heating
- Maximum temperature of the gas used: 800°C or 1300°C
- Material of the gas-contacting area: SUS316, Viton
- Extractor material: SUS316 or SiC
- Mounting method: Flange
- Sample gas outlet: Rc1/2
- Filter: SUS316 wire mesh (40 μm)
- Power supply voltage: 100 VAC, 50/60 Hz, 100 VA



### Electronic gas cooler

#### (Type: ZBC9)

- Fixed dehumidification flow rate (Max.): 1.5 L/min
- Inlet gas temperature: 40°C or lower
- Output gas dew point: 0.5°C to 3°C
- Pressure: 50 kPa (Max.)
- Power supply voltage: 100 VAC, 50/60 Hz
- Gas outlet/inlet: Rc1/4
- Dehumidification check function: With check terminal
- External dimensions: 250(H)x200(W)x167(D) mm



## • Code symbols



ZRE 

4	5	6	7	8
A				1

 - 

9	10	11	12	13

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14	15	16	17	18	19	20

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21	22	23	24	25
		Y		

Digit	Description	Note	Code			
4	Standard		A			
5	<Installation structure>					
	19" rack mount type, Conforming to EIS		B			
	19" rack mount type, Conforming to JIS		C			
	Panel mount type		D			
6	<Measurable components (NO, SO <sub>2</sub> , CO, CH <sub>4</sub> )>					
	1st	2nd	3rd	4th	Note 1	
	None					Y
	NO					P
	SO <sub>2</sub>					A
	CO <sub>2</sub>					D
	CO					B
	CH <sub>4</sub>					E
	NO	SO <sub>2</sub>				F
	NO	CO				G
	CO <sub>2</sub>	CO				J
	CH <sub>4</sub>	CO				K
	CO <sub>2</sub>	CH <sub>4</sub>				L
	NO	SO <sub>2</sub>	CO			N
CO <sub>2</sub>	CO	CH <sub>4</sub>			T	
NO	SO <sub>2</sub>	CO <sub>2</sub>	CO		V	
Others					Z	
7	<Measurable component (O <sub>2</sub> )>					
	None		Y			
	External O <sub>2</sub> sensor (0 to 1 VDC)	Note 2	1			
	External zirconia O <sub>2</sub> sensor (Type ZFK7) Built-in fuel cell O <sub>2</sub> sensor		2 3			
9	<1st component, 1st measurement range> See attached sheet.	Note 3	<input type="checkbox"/>			
10	<1st component, 2nd measurement range> See attached sheet.	Note 3	<input type="checkbox"/>			
11	<2rd component, 1st measurement range> See attached sheet.	Note 3	<input type="checkbox"/>			
12	<2rd component, 2nd measurement range> See attached sheet.	Note 3	<input type="checkbox"/>			
13	<3rd component, 1st measurement range> See attached sheet.	Note 3	<input type="checkbox"/>			
14	<3rd component, 2nd measurement range> See attached sheet.	Note 3	<input type="checkbox"/>			
15	<4th component, 1st measurement range> See attached sheet.	Note 3	<input type="checkbox"/>			
16	<4th component, 2nd measurement range> See attached sheet.	Note 3	<input type="checkbox"/>			
17	<Measurable range (O <sub>2</sub> sensor)>					
	None		Y			
	0 to 5/10%		A			
	0 to 5/25%		B			
	0 to 10/25%		C			
	0 to 5%		L			
	0 to 10%		M			
	0 to 25%		V			
	0 to 50%		P			
	0 to 100%		R			
Others		Z				
18	<Gas outlet/inlet connection>					
	Rc1/4		1			
	NPT1/4		2			

Digit	Description	Note	Code		
19	<Output signal>				
	0 to 1 VDC		A		
	4 to 20 mA DC		B		
	0 to 1 VDC + RS485 communication function		C		
20	<Display>				
	Japanese		J		
	English		E		
	4 to 20 mA DC + RS485 communication function		D		
21	<O <sub>2</sub> collection and O <sub>2</sub> average value output>	Note 4			
	None		Y		
	With O <sub>2</sub> correction output		A		
	With O <sub>2</sub> correction and average output		B		
22	<Optional function (DI, DO)>				
	FAULT	Auto calibration	Upper/lower limit alarm	Range identification/Remote	
	None				Y
	○	○			A
	○		○		B
	○			○	C
	○			○	D
	○	○	○		E
	○	○	○	○	F
	○	○	○	○	G
○	○	○	○	H	
24	<Unit>				
	ppm, %		A		
25	<Adjustment>	Note 7			
	Standard		A		
	For heat treatment furnace		C		
	For converter		D		
	Others		Z		

<Measurement range code table>

Measurement range	Code
0 to 100ppm	B
0 to 200ppm	C
0 to 250ppm	D
0 to 300ppm	S
0 to 500ppm	E
0 to 1000ppm	F
0 to 2000ppm	G
0 to 2500ppm	U
0 to 3000ppm	T
0 to 5000ppm	H
0 to 1%	J
0 to 2%	K
0 to 3%	Q
0 to 5%	L
0 to 10%	M
0 to 20%	N
0 to 25%	V
0 to 40%	W
0 to 50%	P
0 to 70%	X
0 to 100%	R
Others	Z

- Note 1: Specify code "Y" when the O<sub>2</sub> sensor only is required. When NO, SO<sub>2</sub> measurement is specified [Auto calibration] must be specified 22th digit.
- Note 2: Feed input signals from the external O<sub>2</sub> sensor linearly within the range 0 to 1 VDC against the full scale. Our exclusive zirconia O<sub>2</sub> sensor (ZFK7) and external oxygen sensor are also optionally available.
- Note 3: Select the measurable component and range from the table on pages 6 and 7. If code "Y" is selected for the 6th digit, specify "Y" for all of the digits from the 9th to 16th.
- Note 4: O<sub>2</sub> correction output and O<sub>2</sub> correction average output are made for NO, SO<sub>2</sub>, and CO only.
- Note 5: Not applicable to the 5-component sensor. The number of output points for upper/lower limit alarms is 3 for the 4-component sensor.
- Note 6: Even if code "B" is specified, select the measurement range in unit of ppm. A value converted into the mg/m<sup>3</sup> range will be delivered. Applicable only to NO, SO<sub>2</sub>, and CO sensors. See the following table for correspondence between ppm and mg/m<sup>3</sup>.
- Note 7: Adjustment will be made using the following balance gas for all the codes from "A" to "D" before delivery. Specify "Z" if adjustment with other gases is desired. Standard "A": Balance gas N<sub>2</sub>, "C" for heat treat furnace: Balance gas 30% H<sub>2</sub>/70% N<sub>2</sub>, "D" for converter: Balance gas CO, CO<sub>2</sub>. Attach a table that lists the components contained in the gas to be measured if "Others" is specified.

If mg/m<sup>3</sup> is selected, specify the minimum to maximum range in ppm that corresponds to your desired range expressed in mg/m<sup>3</sup>. Delivery will be made with adjustment made to satisfy the corresponding mg/m<sup>3</sup> range.

Range code	Unit: ppm	Corresponding range expressed in mg/m <sup>3</sup>		
		NO	SO <sub>2</sub>	CO
C	0 to 200ppm	0 to 260mg/m <sup>3</sup>	0 to 570mg/m <sup>3</sup>	0 to 250mg/m <sup>3</sup>
D	0 to 250ppm	0 to 325mg/m <sup>3</sup>	0 to 700mg/m <sup>3</sup>	0 to 300mg/m <sup>3</sup>
S	0 to 300ppm	0 to 400mg/m <sup>3</sup>	0 to 850mg/m <sup>3</sup>	0 to 375mg/m <sup>3</sup>
E	0 to 500ppm	0 to 650mg/m <sup>3</sup>	0 to 1400mg/m <sup>3</sup>	0 to 600mg/m <sup>3</sup>
F	0 to 1000ppm	0 to 1300mg/m <sup>3</sup>	0 to 2800mg/m <sup>3</sup>	0 to 1250mg/m <sup>3</sup>
G	0 to 2000ppm	0 to 2600mg/m <sup>3</sup>	0 to 5600mg/m <sup>3</sup>	0 to 2500mg/m <sup>3</sup>

# Measurable component and range (Select the 1st and 2nd ranges.)

## Single-component analyzer

### CO

1st range	2nd range
0 to 200ppm	None, 0 to 250ppm, 300ppm, 500ppm, 1000ppm, 2000ppm
0 to 250ppm	None, 0 to 300ppm, 500ppm, 1000ppm, 2000ppm, 2500ppm
0 to 300ppm	None, 0 to 500ppm, 1000ppm, 2000ppm, 2500ppm
0 to 500ppm	None, 0 to 1000ppm, 2000ppm, 2500ppm, 3000ppm, 5000ppm
0 to 1000ppm	None, 0 to 2000ppm, 2500ppm, 3000ppm, 5000ppm, 1%
0 to 2000ppm	None, 0 to 2500ppm, 3000ppm, 5000ppm, 1%, 2%
0 to 2500ppm	None, 0 to 3000ppm, 5000ppm, 1%, 2%
0 to 3000ppm	None, 0 to 5000ppm, 1%, 2%
0 to 5000ppm	None, 0 to 1%, 2%, 3%, 5%
0 to 1%	None, 0 to 2%, 3%, 5%, 10%
0 to 2%	None, 0 to 3%, 5%, 10%, 20%
0 to 3%	None, 0 to 5%, 10%, 20%, 25%
0 to 5%	None, 0 to 10%, 20%, 25%, 40%, 50%
0 to 10%	None, 0 to 20%, 25%, 40%, 50%, 70%, 100%
0 to 20%	None, 0 to 25%, 40%, 50%, 70%, 100%
0 to 25%	None, 0 to 40%, 50%, 70%, 100%
0 to 40%	None, 0 to 50%, 70%, 100%
0 to 50%	None, 0 to 70%, 100%
0 to 70%	None, 0 to 100%
0 to 100%	None

### NO

1st range	2nd range
0 to 200ppm	None, 0 to 250ppm, 300ppm, 500ppm, 1000ppm, 2000ppm
0 to 250ppm	None, 0 to 300ppm, 500ppm, 1000ppm, 2000ppm, 2500ppm
0 to 300ppm	None, 0 to 500ppm, 1000ppm, 2000ppm, 2500ppm
0 to 500ppm	None, 0 to 1000ppm, 2000ppm, 2500ppm, 3000ppm, 5000ppm
0 to 1000ppm	None, 0 to 2000ppm, 2500ppm, 3000ppm, 5000ppm
0 to 2000ppm	None, 0 to 2500ppm, 3000ppm, 5000ppm
0 to 2500ppm	None, 0 to 3000ppm, 5000ppm
0 to 3000ppm	None, 0 to 5000ppm

### SO<sub>2</sub>

1st range	2nd range
0 to 200ppm	None, 0 to 250ppm, 300ppm, 500ppm, 1000ppm, 2000ppm
0 to 250ppm	None, 0 to 300ppm, 500ppm, 1000ppm, 2000ppm, 2500ppm
0 to 300ppm	None, 0 to 500ppm, 1000ppm, 2000ppm, 2500ppm
0 to 500ppm	None, 0 to 1000ppm, 2000ppm, 2500ppm, 3000ppm, 5000ppm
0 to 1000ppm	None, 0 to 2000ppm, 2500ppm, 3000ppm, 5000ppm, 1%
0 to 2000ppm	None, 0 to 2500ppm, 3000ppm, 5000ppm, 1%, 2%
0 to 2500ppm	None, 0 to 3000ppm, 5000ppm, 1%, 2%
0 to 3000ppm	None, 0 to 5000ppm, 1%, 2%
0 to 5000ppm	None, 0 to 1%, 2%, 3%, 5%
0 to 1%	None, 0 to 2%, 3%, 5%, 10%
0 to 2%	None, 0 to 3%, 5%, 10%
0 to 3%	None, 0 to 10%
0 to 5%	None

### CO<sub>2</sub>

1st range	2nd range
0 to 100ppm	None, 0 to 200ppm, 250ppm, 300ppm, 500ppm, 1000ppm
0 to 200ppm	None, 0 to 250ppm, 300ppm, 500ppm, 1000ppm, 2000ppm
0 to 250ppm	None, 0 to 300ppm, 500ppm, 1000ppm, 2000ppm, 2500ppm
0 to 300ppm	None, 0 to 500ppm, 1000ppm, 2000ppm, 2500ppm
0 to 500ppm	None, 0 to 1000ppm, 2000ppm, 2500ppm, 3000ppm, 5000ppm
0 to 1000ppm	None, 0 to 2000ppm, 2500ppm, 3000ppm, 5000ppm, 1%
0 to 2000ppm	None, 0 to 2500ppm, 3000ppm, 5000ppm, 1%, 2%
0 to 2500ppm	None, 0 to 3000ppm, 5000ppm, 1%, 2%
0 to 3000ppm	None, 0 to 5000ppm, 1%, 2%
0 to 5000ppm	None, 0 to 1%, 2%, 3%, 5%
0 to 1%	None, 0 to 2%, 3%, 5%, 10%
0 to 2%	None, 0 to 3%, 5%, 10%, 20%
0 to 3%	None, 0 to 5%, 10%, 20%, 25%
0 to 5%	None, 0 to 10%, 20%, 25%, 40%, 50%
0 to 10%	None, 0 to 20%, 25%, 40%, 50%, 75%, 100%
0 to 20%	None, 0 to 25%, 40%, 50%, 75%, 100%
0 to 25%	None, 0 to 40%, 50%, 75%, 100%
0 to 40%	None, 0 to 50%, 75%, 100%
0 to 50%	None, 0 to 75%, 100%
0 to 70%	None, 0 to 100%
0 to 100%	None

### CH<sub>4</sub>

1st range	2nd range
0 to 500ppm	None, 0 to 1000ppm, 2000ppm, 2500ppm, 3000ppm, 5000ppm
0 to 1000ppm	None, 0 to 2000ppm, 2500ppm, 3000ppm, 5000ppm, 1%
0 to 2000ppm	None, 0 to 2500ppm, 3000ppm, 5000ppm, 1%, 2%
0 to 2500ppm	None, 0 to 3000ppm, 5000ppm, 1%, 2%
0 to 3000ppm	None, 0 to 5000ppm, 1%, 2%
0 to 5000ppm	None, 0 to 1%, 2%, 3%, 5%
0 to 1%	None, 0 to 2%, 3%, 5%, 10%
0 to 2%	None, 0 to 3%, 5%, 10%, 20%
0 to 3%	None, 0 to 5%, 10%, 20%, 25%
0 to 5%	None, 0 to 10%, 20%, 25%, 40%, 50%
0 to 10%	None, 0 to 20%, 25%, 40%, 50%, 70%, 100%
0 to 20%	None, 0 to 25%, 40%, 50%, 70%, 100%
0 to 25%	None, 0 to 40%, 50%, 70%, 100%
0 to 40%	None, 0 to 50%, 70%, 100%
0 to 50%	None, 0 to 70%, 100%
0 to 70%	None, 0 to 100%
0 to 100%	None

## Double-component analyzer

\*The 2nd range is selectable from 1st range to 2nd range (max) in following tables.

### NO+SO<sub>2</sub>

1st component: NO	
1st range	2nd range (Max.)
0 to 200ppm	0 to 2000ppm
0 to 250ppm	0 to 2500ppm
0 to 300ppm	0 to 2500ppm
0 to 500ppm	0 to 5000ppm
0 to 1000ppm	0 to 5000ppm
0 to 2000ppm	0 to 5000ppm
0 to 2500ppm	0 to 5000ppm
0 to 3000ppm	0 to 5000ppm
0 to 5000ppm	None

+

2nd component: SO <sub>2</sub>	
1st range	2nd range (Max.)
0 to 200ppm	0 to 2000ppm
0 to 250ppm	0 to 2500ppm
0 to 300ppm	0 to 2500ppm
0 to 500ppm	0 to 5000ppm
0 to 1000ppm	0 to 5000ppm
0 to 2000ppm	0 to 5000ppm
0 to 2500ppm	0 to 5000ppm
0 to 3000ppm	0 to 5000ppm
0 to 5000ppm	None

+

### NO+CO

1st component: NO	
1st range	2nd range (Max.)
0 to 200ppm	0 to 2000ppm
0 to 250ppm	0 to 2500ppm
0 to 300ppm	0 to 2500ppm
0 to 500ppm	0 to 5000ppm
0 to 1000ppm	0 to 5000ppm
0 to 2000ppm	0 to 5000ppm
0 to 2500ppm	0 to 5000ppm
0 to 3000ppm	0 to 5000ppm
0 to 5000ppm	None

+

2nd component: CO	
1st range	2nd range (Max.)
0 to 200ppm	0 to 2000ppm
0 to 250ppm	0 to 2500ppm
0 to 300ppm	0 to 2500ppm
0 to 500ppm	0 to 5000ppm
0 to 1000ppm	0 to 5000ppm
0 to 2000ppm	0 to 5000ppm
0 to 2500ppm	0 to 5000ppm
0 to 3000ppm	0 to 5000ppm
0 to 5000ppm	None

### CO<sub>2</sub>+CO

1st component: CO <sub>2</sub>		2nd component: CO	
1st range	2nd range (Max.)	1st/2nd range (Max.)	
0 to 100ppm	0 to 1000ppm	0 to 200/2000ppm, 250/2500ppm, 300/2500ppm, 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 0 to 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 2/20%	
0 to 200ppm	0 to 2000ppm		
0 to 250ppm	0 to 2500ppm		
0 to 300ppm	0 to 2500ppm		
0 to 500ppm	0 to 5000ppm	0 to 200/2000ppm, 250/2500ppm, 300/2500ppm, 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 0 to 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 2/20%, 3/5%, 5/50%	
0 to 1000ppm	0 to 1%		
0 to 2000ppm	0 to 2%		
0 to 2500ppm	0 to 2%		
0 to 3000ppm	0 to 2%	0 to 200/2000ppm, 250/2500ppm, 300/2500ppm, 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 0 to 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 2/20%, 3/5%, 5/50%, 0 to 10/100%, 20/100%, 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 5000ppm	0 to 5%		
0 to 1%	0 to 10%		
0 to 2%	0 to 20%		
0 to 3%	0 to 25%	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 0 to 2/20%, 3/5%, 5/50%, 10/100%, 20/100%, 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 5%	0 to 50%		
0 to 10%	0 to 100%	0 to 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 2/20%, 0 to 3/25%, 5/50%, 10/100%, 20/100%, 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 20%	0 to 100%		
0 to 25%	0 to 100%		
0 to 40%	0 to 100%		
0 to 50%	0 to 100%		
0 to 70%	0 to 100%		
0 to 100%	None		

## Double-component analyzer

\*The 2nd range is selectable from 1st range to 2nd range (max) in following tables.

### CH<sub>4</sub>+CO

1st component: CH <sub>4</sub>		2nd component: CO	
1st range	2nd range (Max.)	2nd range (Max.)	
0 to 500ppm	0 to 5000ppm	0 to 200/2000ppm, 250/2500ppm, 300/2500ppm, 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 0 to 2500ppm/2%, 3000ppm/2%, 5000ppm/5%	
0 to 1000ppm	0 to 1%	0 to 200/2000ppm, 250/2500ppm, 300/2500ppm, 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 0 to 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%	
0 to 2000ppm	0 to 2%	0 to 200/2000ppm, 250/2500ppm, 300/2500ppm, 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 0 to 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 2/20%	
0 to 2500ppm	0 to 2%	0 to 200/2000ppm, 250/2500ppm, 300/2500ppm, 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 0 to 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 2/20%, 3/25%	
0 to 3000ppm	0 to 2%	0 to 200/2000ppm, 250/2500ppm, 300/2500ppm, 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 0 to 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 2/20%, 3/25%	
0 to 5000ppm	0 to 5%	0 to 200/2000ppm, 250/2500ppm, 300/2500ppm, 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 0 to 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 2/20%, 3/25%, 5/50%, 10/100%, 20/100%, 0 to 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 1%	0 to 10%	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 0 to 2/20%, 3/25%, 5/50%, 10/100%, 20/100%, 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 2%	0 to 20%	0 to 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 0 to 2/20%, 3/25%, 5/50%, 10/100%, 20/100%, 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 3%	0 to 25%	0 to 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 1/10%, 0 to 2/20%, 3/25%, 5/50%, 10/100%, 20/100%, 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 5%	0 to 50%	0 to 5000ppm/5%, 1/10%, 2/20%, 3/25%, 5/50%, 10/100%, 20/100%, 0 to 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 10%	0 to 100%		
0 to 20%	0 to 100%		
0 to 25%	0 to 100%		
0 to 40%	0 to 100%		
0 to 50%	0 to 100%		
0 to 70%	0 to 100%		
0 to 100%	None		

### CO<sub>2</sub>+CH<sub>4</sub>

1st component: CO <sub>2</sub>		2nd component: CH <sub>4</sub>	
1st range	2nd range (Max.)	2nd range (Max.)	
0 to 100ppm	0 to 1000ppm	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%	
0 to 200ppm	0 to 2000ppm	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 2500ppm/2%	
0 to 250ppm	0 to 2500ppm		
0 to 300ppm	0 to 2500ppm		
0 to 500ppm	0 to 5000ppm	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 5000ppm/5%, 1/10%	
0 to 1000ppm	0 to 1%	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 5000ppm/5%, 1/10%, 0 to 2/20%	
0 to 2000ppm	0 to 2%		
0 to 2500ppm	0 to 2%	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 5000ppm/5%, 1/10%, 0 to 2/20%, 3/25%	
0 to 3000ppm	0 to 2%		
0 to 5000ppm	0 to 5%	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 5000ppm/5%, 1/10%, 0 to 2/20%, 3/25%, 5/50%	
0 to 1%	0 to 10%		
0 to 2%	0 to 20%	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 5000ppm/5%, 1/10%, 0 to 2/20%, 3/25%, 5/50%, 10/100%, 20/100%, 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 3%	0 to 25%		
0 to 5%	0 to 50%	0 to 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 5000ppm/5%, 1/10%, 0 to 2/20%, 3/25%, 5/50%, 10/100%, 20/100%, 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 10%	0 to 100%	0 to 2000ppm/2%, 2500ppm/2%, 5000ppm/5%, 1/11%, 2/20%, 3/25%, 5/50%, 0 to 10/100%, 20/100%, 25/100%, 40/100%, 50/100%, 70/100%, 100%/None	
0 to 20%	0 to 100%		
0 to 25%	0 to 100%		
0 to 40%	0 to 100%		
0 to 50%	0 to 100%		
0 to 70%	0 to 100%		
0 to 100%	None		

## Three-component analyzer

\*The 2nd range is selectable from 1st range to 2nd range (max) in following tables.

### NO+SO<sub>2</sub>+CO

1st component: NO		2nd component: SO <sub>2</sub>		3rd component: CO	
1st range	2nd range (Max.)	1st range	2nd range (Max.)	1st range	2nd range (Max.)
0 to 200ppm	0 to 2000ppm	0 to 200ppm	0 to 2000ppm	0 to 200ppm	0 to 2000ppm
0 to 250ppm	0 to 2500ppm	0 to 250ppm	0 to 2500ppm	0 to 250ppm	0 to 2500ppm
0 to 300ppm	0 to 2500ppm	0 to 300ppm	0 to 2500ppm	0 to 300ppm	0 to 2500ppm
0 to 500ppm	0 to 5000ppm	0 to 500ppm	0 to 5000ppm	0 to 500ppm	0 to 5000ppm
0 to 1000ppm	0 to 5000ppm	0 to 1000ppm	0 to 5000ppm	0 to 1000ppm	0 to 5000ppm
0 to 2000ppm	0 to 5000ppm	0 to 2000ppm	0 to 5000ppm	0 to 2000ppm	0 to 5000ppm
0 to 2500ppm	0 to 5000ppm	0 to 2500ppm	0 to 5000ppm	0 to 2500ppm	0 to 5000ppm
0 to 3000ppm	0 to 5000ppm	0 to 3000ppm	0 to 5000ppm	0 to 3000ppm	0 to 5000ppm
0 to 5000ppm	None	0 to 5000ppm	None	0 to 5000ppm	None

### CO<sub>2</sub>+CO+CH<sub>4</sub>

1st component: CO <sub>2</sub>		2nd component: CO		3rd component: CH <sub>4</sub>		Manufacturability
1st range	2nd range (Max.)	1st/2nd range (Max.)		1st range	2nd range (Max.)	
0 to 500ppm	0 to 5%	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 3000ppm/2%, 0 to 5000ppm/5%, 1/10%, 2%/20%, 3%/25%, 5%/50%		0 to 5000ppm	0 to 5%	Can be manufactured.
0 to 1%	0 to 10%			0 to 1%	0 to 10%	
0 to 2%	0 to 20%	0 to 500/5000ppm, 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 3000ppm/2%, 0 to 5000ppm/5%, 1/10%, 2/20%, 3/25%, 5/50%, 10/100%, 20/100%, 25/100%, 0 to 40/100%, 50/100%, 70/100%, 100%/None		0 to 2%	0 to 20%	Can be manufactured only when a CO sensor measurement range of 0 to 1,000 ppm or larger is selected.
0 to 3%	0 to 25%	0 to 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 0 to 1/10%, 2/20%, 3/25%, 5/50%, 10/100%, 20/100%, 25/100%, 40/100%, 0 to 50/100%, 70/100%, 100%/None		0 to 3%	0 to 25%	
0 to 5%	0 to 50%	0 to 1000ppm/1%, 2000ppm/2%, 2500ppm/2%, 3000ppm/2%, 5000ppm/5%, 0 to 1/10%, 2/20%, 3/25%, 5/50%, 10/100%, 20/100%, 25/100%, 40/100%, 0 to 50/100%, 70/100%, 100%/None		0 to 5%	0 to 50%	Can be manufactured only when a CO sensor measurement range of 0 to 5,000 ppm or larger is selected.
0 to 10%	0 to 100%			0 to 10%	0 to 100%	
0 to 20%	0 to 100%			0 to 20%	0 to 100%	
0 to 25%	0 to 100%			0 to 25%	0 to 100%	
0 to 40%	0 to 100%			0 to 40%	0 to 100%	
0 to 50%	0 to 100%			0 to 50%	0 to 100%	
0 to 70%	0 to 100%			0 to 70%	0 to 100%	
0 to 100%	None			0 to 100%	None	

## Four-component analyzer

\*The 2nd range is selectable from 1st range to 2nd range (max) in following tables.

### NO+SO<sub>2</sub>+CO<sub>2</sub>+CO

1st component: NO		2nd component: SO <sub>2</sub>		3rd component: CO <sub>2</sub>		4th component: CO	
1st range	2nd range (Max.)	1st range	2nd range (Max.)	1st range	2nd range (Max.)	1st range	2nd range (Max.)
0 to 200ppm	0 to 2000ppm	0 to 200ppm	0 to 2000ppm	0 to 1%	0 to 10%	0 to 200ppm	0 to 2000ppm
0 to 250ppm	0 to 2500ppm	0 to 250ppm	0 to 2500ppm	0 to 2%	0 to 20%	0 to 250ppm	0 to 2500ppm
0 to 300ppm	0 to 2500ppm	0 to 300ppm	0 to 2500ppm	0 to 3%	0 to 25%	0 to 300ppm	0 to 2500ppm
0 to 500ppm	0 to 5000ppm	0 to 500ppm	0 to 5000ppm	0 to 5%	0 to 50%	0 to 500ppm	0 to 2500ppm
0 to 1000ppm	0 to 5000ppm	0 to 1000ppm	0 to 5000ppm	0 to 10%	0 to 50%	0 to 1000ppm	0 to 2500ppm
0 to 2000ppm	0 to 5000ppm	0 to 2000ppm	0 to 5000ppm	0 to 20%	0 to 50%	0 to 2000ppm	0 to 2500ppm
0 to 2500ppm	0 to 5000ppm	0 to 2500ppm	0 to 5000ppm	0 to 25%	0 to 50%	0 to 2500ppm	None
0 to 3000ppm	0 to 5000ppm	0 to 3000ppm	0 to 5000ppm	0 to 25%	0 to 50%		
0 to 5000ppm	None	0 to 5000ppm	None	0 to 50%	None		

## • Major specifications

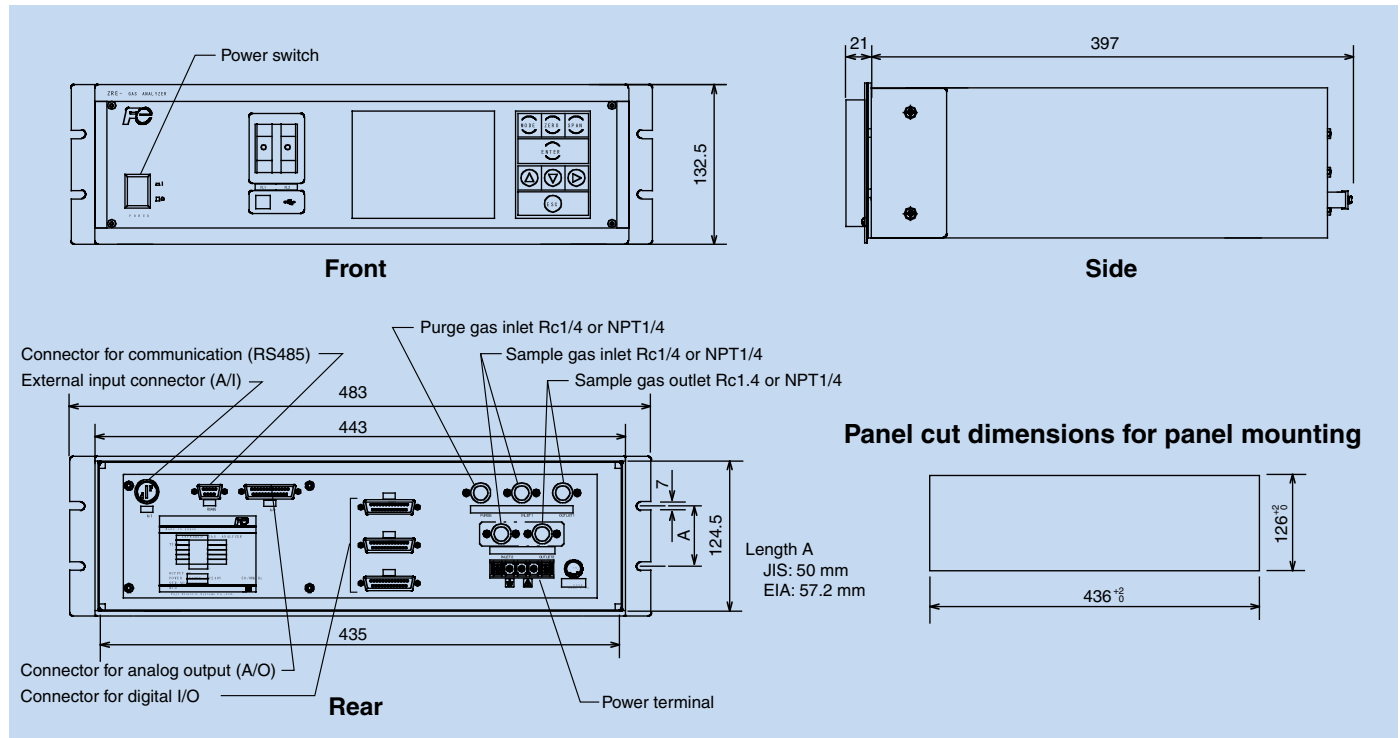
Measurement principle	NO, SO <sub>2</sub> , CO, CO <sub>2</sub> , CH <sub>4</sub> : Non-dispersive infrared ray absorption (Single-beam system) O <sub>2</sub> : Fuel cell (built in) or zirconia (externally installed ZFK7 by Fuji)		
Measurable component and range	Measured component	Minimum range	Maximum range
	NO	0-200ppm	0-5000ppm
	SO <sub>2</sub>	0-200ppm	0-10 vol%
	CO <sub>2</sub>	0-100ppm	0-100 vol%
	CO	0-200ppm	0-100 vol%
	CH <sub>4</sub>	0-500ppm	0-100 vol%
	O <sub>2</sub>	0-10 vol%	0-25 vol%
	Fuel cell (built in) O <sub>2</sub> Zirconia	0-5 vol%	0-25 vol%
Repeatability	±0.5% FS		
Linearity	±1.0% FS		
Zero drift	Within ±2%FS/week		
Span drift	Within ±2%FS/week		
Response time	Within 60 sec (90% response from gas inlet) Varies depending on the components to be measured and the measurement range.		
Analog output signal	4 to 20 mA or 0 to 1 VDC (12 points at max.) Instantaneous value output (Concentration of each gas component measured) Option: O <sub>2</sub> correction instantaneous value output, O <sub>2</sub> correction average output, O <sub>2</sub> average output		
Display	LCD with backlight (Japanese or English by designation) Instantaneous value of each component, O <sub>2</sub> correction instantaneous value. O <sub>2</sub> correction average, O <sub>2</sub> average, parameter setting, with auto OFF function		
Range switching	Manual switching by key operation, auto switching, external contact input switching (option)		
External digital input (option)	Voltage contact (supply 12 to 24 VDC/15 mA max. at ON) 9 points at max. Range switching, auto calibration start, output signal hold, average value reset		

Contact output function (option)	1c relay contact (15 points at max.) Identification of each component range, instrument failure, calibration error, auto calibration in progress, upper/lower limit alarm for each component, pump ON/OFF, solenoid valve drive for auto calibration
Communication function (option)	RS-485 (MODBUS protocol) Details of communication: Read/write of each setting, output of measured concentration and instrument status Type-B with USB connector (front face) and USB driver
Sample gas flowmeter	Built in
Gas outlet/inlet dimension	Rc1/4 or NPT1/4
Purge gas flow rate	1 L/min (Performed as required.)
Structure	Indoor type with steel case
Ambient temperature/humidity	-5°C to 45°C, 90 RH or lower (No condensation allowed.)
Mounting method	19" rack mount, panel mount, desktop
Power supply voltage	100 to 240 VAC, 50/60 Hz, 100VA
Outside dimension	133×483×418 mm (19" rack mount) 133×440×418 mm (Panel mount)
Mass	Approximately 8 kg (5-component analyzer)
Applicable standard	CE mark

### <Measured gas conditions>

Flow rate	0.5L/min±0.2L/min
Temperature	0°C to 50°C
Pressure	10 kPa or lower
Dust	100 µg/Nm <sup>3</sup> or lower (Particle size: 0.3 µm or smaller)
Mist	Not allowed.
Moisture	Saturation at room temperature or lower (No condensation allowed.) Saturation at 2°C or lower (No condensation allowed.)
Corrosive component	HCl: 1 ppm or less

## • Outline diagram (Unit: mm)



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