

# NDIR TYPE INFRARED GAS ANALYZER

DATA SHEET

ZRC6

This infrared gas analyzer measures the concentration of gas by utilizing the characteristic of gas (molecule consisting of different-kind atoms) that it absorbs the infrared ray of a specific wavelength.

Stable and accurate measurement is ensured due to use of a mass flow sensor with a high sensitivity, interference-compensating detector, etc. This analyzer is to be built in sampling equipment and optimally usable for measuring the concentrations of various gases.

## FEATURES

1. Most suited for incorporation in equipment  
This analyzer can be readily built in customer's sampling equipment, because its analyzing block, signal processing circuit and power unit are all accommodated in a compact case.
2. High measurement accuracy and stability  
A single light source/double beam system, and a high-sensitivity mass flow sensor ensure accurate and stable measurement.
3. Minimum influence by other gases  
An interference-compensating detector substantially suppresses interference by the disturbing gases coexisting in sample gas.
4. Wide dynamic range  
A range ratio of max. 1:20 can be secured in standard 2 ranges. Range selection follows the external selection input signal.

## SPECIFICATIONS

**Power Supply:** 100V-240V AC, 50/60Hz  
Power supply voltage variation in running time; within  $\pm 10\%$ .

**Power consumption:** 130VA max

**Ambient temperature:** -5 to +45°C

**Ambient humidity:** 95% RH or less

**Enclosure temperature:** -20 to +60°C

**Enclosure humidity:** 95% RH or less

**Casing:** Zinc plated steel (Special chromate) (JIS: SECC-C equivalent) steel color  
Indoor-use

**Dimensions (H × W × D):**  
On Table-top 176 × 433 × 229 mm

**Mass (Weight):** Approx. 9 kg

**Warm-up time:** About 4 hours (after power ON)

**Materials of gas-contacting parts:**  
Sample cell: SUS304, chloroprene rubber  
Infrared-ray transmitting window: CaF<sub>2</sub> or sapphire  
Internal tubing: fluoride ethylene resin



**Gas inlet, outlet, purge gas inlet size:**  
Rc1/4, or NPT1/4 female screw

**Purge gas flow rate:**  
1L/min $\pm$ 0.5L/min  
Purging is required when combustible and corrosive gases are contained in the atmosphere or the range of CO<sub>2</sub> is less than 100ppm. In other cases, purging should be made as necessary.

**Scope of delivery:** Analyzer × 1, power fuse × 2, Instruction manual × 1

**Mounting method:** On table-top

**Installation condition:**  
Install the analyzer at a place not exposed to direct sunlight or the radiation from a high temperature object. Avoid vibration, and select a clean place free from corrosive and/or combustible gases. If installing outdoors, provide a suitable casing or cover to protect the analyzer from wind, rain, etc.

**Standard Requirements for measuring gases:**  
Temperature: 0 to 50°C  
Moisture: Below a level where saturation occurs at 2°C (condensation unallowable).  
Dust: 0.3 $\mu$ m or less (Recommended membrane filter; ZBBM6)  
Pressure: 10kPa or less (Flow rate: 0.5L/min)(Gas outlet side should be open to the atmospheric air)

**Standard control for sample gas:**  
Calibration gas: Dry gas  
Interfere control gas: 2°C saturation

**Measuring system:**  
Infrared-ray absorption method, non-dispersion, differential flow system, single light source, double-beam system.

Measurable components and measuring ranges:

Measurable components		Minimum measuring range	Maximum measuring range
CO	Carbon monoxide	0 to 100ppm	0 to 100vol %
CO <sub>2</sub>	Carbon dioxide	0 to 50ppm	0 to 100vol %
NO	Nitric oxide	0 to 100ppm	0 to 2000ppm
SO <sub>2</sub>	Sulfur dioxide	0 to 100ppm	0 to 10vol %

Measuring ranges: Shown on another table

Range selection: Short circuit between external terminal 13 and 14 switches to high range side.

Output signal: 0 to 1V DC/4 to 20mA DC Simultaneous output

Linearity: ±2% of full scale  
0 to 1V DC/permissible load resistance; 100kΩ or more  
4 to 20mA DC/permissible load resistance; 550Ω or less

Repeatability: ±0.5% of full scale

Zero drift: ±2% of full scale/week

Span drift: ±2% of full scale/week

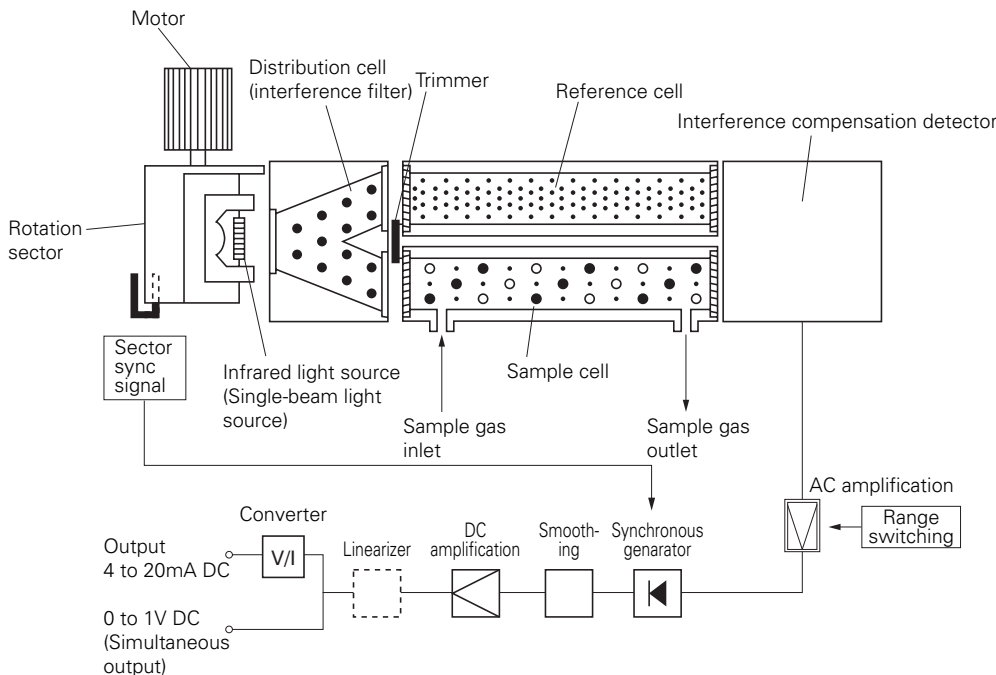
Response time: Maximum within 20 seconds including gas replacement time of sample gas. (for 90% FS response) but differs from the length of sample cell.

Measured gas flow rate:  
Standard 0.5L/min±0.1L/min

CODE SYMBOLS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		Description													
Z	R	C	6	1	Y	0	0	F							Basic structure Single-component analyzer (bench)
									6						Measuring components CO (Carbon monoxide) CO <sub>2</sub> (Carbon dioxide) NO (Nitric oxide) SO <sub>2</sub> (Sulfur dioxide)
									B						
									D						
									P						
									A						
														1st measuring range Note: For measuring range, refer to Table.	
									A						0 to 50ppm
									B						0 to 100ppm
									C						0 to 200ppm
									D						0 to 250ppm
									E						0 to 500ppm
									F						0 to 1000ppm
									G						0 to 2000ppm
									H						0 to 5000ppm
									J						0 to 1%
									K						0 to 2%
									L						0 to 5%
									M						0 to 10%
									N						0 to 20%
									P						0 to 50%
									R						0 to 100%
														2nd measuring range	
									0						1st range × 0
									2						× 2
									3						× 2.5
									4						× 4
									5						× 5
									8						× 8
									1						× 10
									9						× 20
														Gas aperture shape	
									A						Rc1/4
									B						NPT 1/4 female screw
														Power Supply	
									0						100V AC to 240V AC, 50/60Hz
														Measurable gas type	
									E						Atmosphere
									F						Combustion exhaustion gas
									G						Converter exhaustion gas

Principle diagram of infrared type measurement



### Table 1. Measurable component and range – availability check table –

(1) Single-component analyzer (NO, SO<sub>2</sub>, CO<sub>2</sub>, CO)

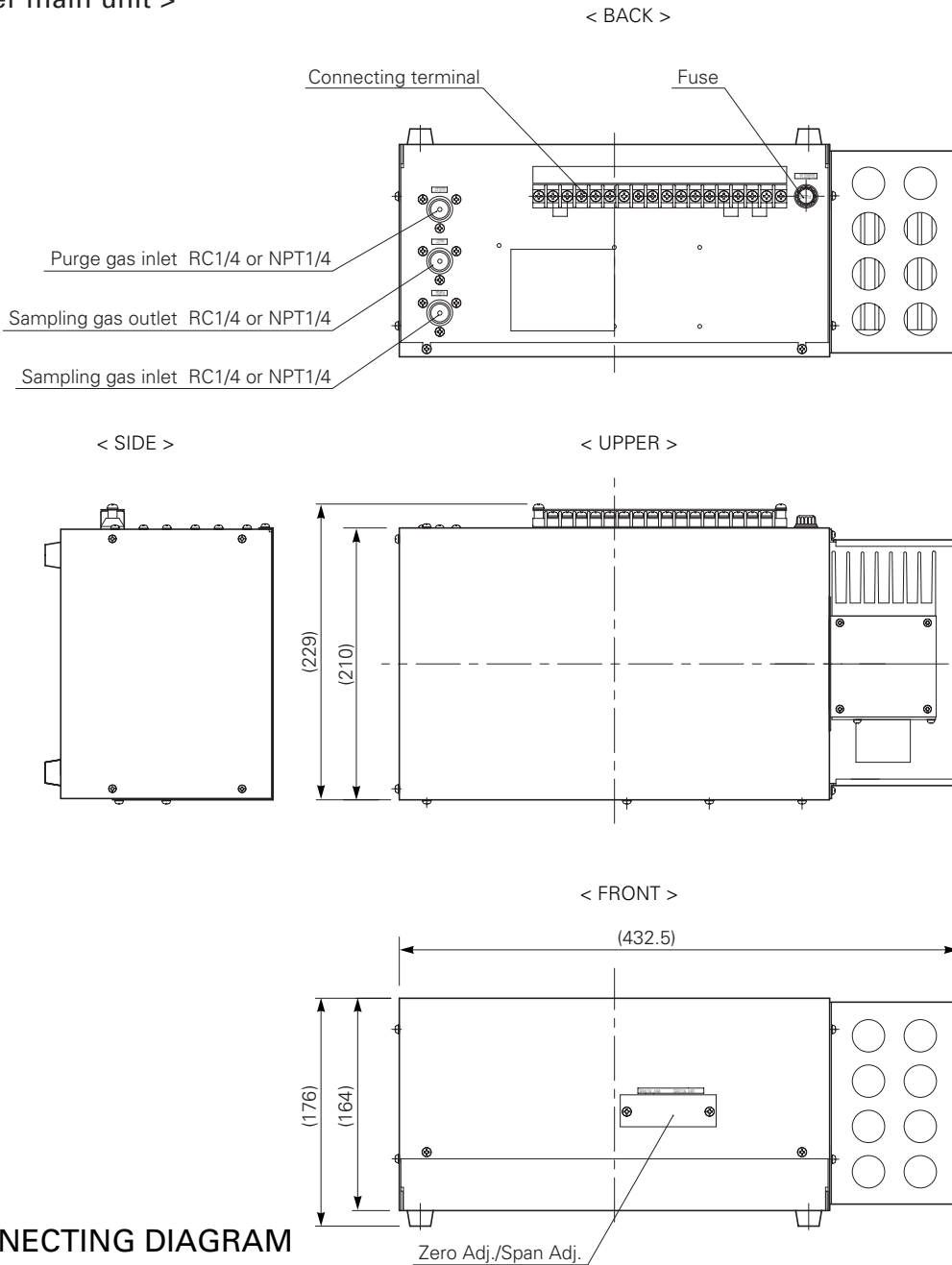
★ : NO analyzer measurable range      □ : SO<sub>2</sub> analyzer measurable range  
 ◎ : CO<sub>2</sub> analyzer measurable range      ○ : CO analyzer measurable range

2nd range		B	C	D	E	F	G	H	J	K
		0 to 100ppm	0 to 200ppm	0 to 250ppm	0 to 500ppm	0 to 1000ppm	0 to 2000ppm	0 to 5000ppm	0 to 1%	0 to 2%
1st range										
A	0 to 50ppm	◎	◎	◎	◎	◎	—	—	—	—
B	0 to 100ppm	—	★□◎○	★□◎○	★□◎○	★□◎○	★□◎○	—	—	—
C	0 to 200ppm	—	—	★□◎○	★□◎○	★□◎○	★□◎○	—	—	—
D	0 to 250ppm	—	—	—	★□◎○	★□◎○	★□◎○	□◎○	—	—
E	0 to 500ppm	—	—	—	—	★□◎○	★□◎○	□◎○	□◎○	—
F	0 to 1000ppm	—	—	—	—	—	★□◎○	□◎○	□◎○	□◎○
G	0 to 2000ppm	—	—	—	—	—	—	□◎○	□◎○	□◎○
H	0 to 5000ppm	—	—	—	—	—	—	—	□◎○	□◎○
J	0 to 1%	—	—	—	—	—	—	—	—	□◎○
K	0 to 2%	—	—	—	—	—	—	—	—	—
L	0 to 5%	—	—	—	—	—	—	—	—	—
M	0 to 10%	—	—	—	—	—	—	—	—	—
N	0 to 20%	—	—	—	—	—	—	—	—	—
P	0 to 50%	—	—	—	—	—	—	—	—	—
R	0 to 100%	—	—	—	—	—	—	—	—	—

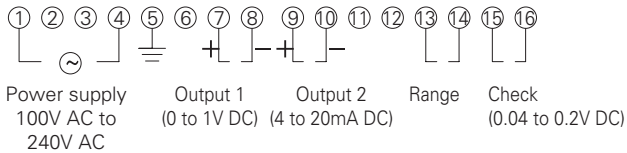
2nd range		L	M	N	P	R
		0 to 5%	0 to 10%	0 to 20%	0 to 50%	0 to 100%
1st range						
A	0 to 50ppm	—	—	—	—	—
B	0 to 100ppm	—	—	—	—	—
C	0 to 200ppm	—	—	—	—	—
D	0 to 250ppm	—	—	—	—	—
E	0 to 500ppm	—	—	—	—	—
F	0 to 1000ppm	—	—	—	—	—
G	0 to 2000ppm	—	—	—	—	—
H	0 to 5000ppm	□◎○	□◎○	—	—	—
J	0 to 1%	□◎○	□◎○	◎○	—	—
K	0 to 2%	□◎○	□◎○	◎○	—	—
L	0 to 5%	—	□◎○	◎○	◎○	◎○
M	0 to 10%	—	—	◎○	◎○	◎○
N	0 to 20%	—	—	—	◎○	◎○
P	0 to 50%	—	—	—	—	◎○
R	0 to 100%	—	—	—	—	◎○

# OUTLINE DIAGRAM (Unit:mm)

< Analyzer main unit >



## CONNECTING DIAGRAM



⚠ Caution on Safety

\*Before using this product, be sure to read its instruction manual in advance.

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