

Cross Stack

# Laser Gas Analyzer ZSS

# In-Situ Measurement: Speed and Stability for Optimizing Your Process

- **▼** Low Power-Consumption
- ✓ Low Cost of Ownership
- ▼ CO and O<sub>2</sub> Analyzer Available



Per community of the control of the

Measurable components











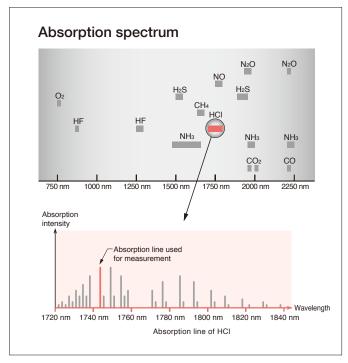


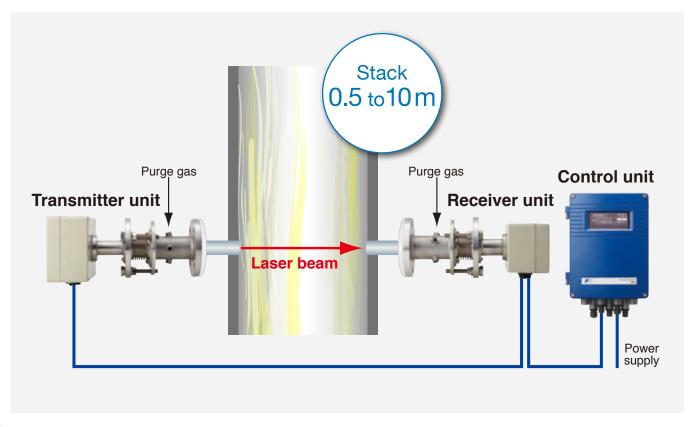
# Improve the efficiency of your plant

# Fast Response Within 2 Seconds and High Accuracy

The analyzer can respond quickly because it requires no gas sampling through long tube. By the use of a narrowed waveband to detect the target component, the analyzer offers highly precise measurement.









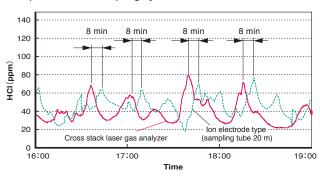


\*The image of laser beam is for illustrative purpose only

#### Fast Response Within 2 Seconds

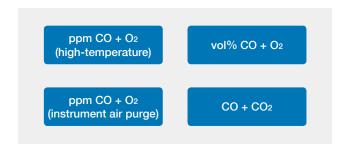
Compared to the gas sampling type (ion electrode method), the direct measurement provides remarkably faster response.

#### Comparison with sampling system



#### CO and O<sub>2</sub> Analyzer for Combustion Control

Simultaneous measurement of CO and O<sub>2</sub> enables precise control of air-fuel ratio while reducing the cost of installation and maintenance.



#### Zero Point Stability: ±2.0% FS per 6 Months

Purge system reduces the risk of zero drift due to contamination

#### Energy Efficient and Low Maintenance

The analyzer consumes only 80 VA at maximum, and yearly or half-yearly maintenance work is enough.

No gas sampling No preconditioning
No filter No catalyst

#### Instrument Air Purge Available

O<sub>2</sub> analyzer for combustion control accepts instrument air purge.

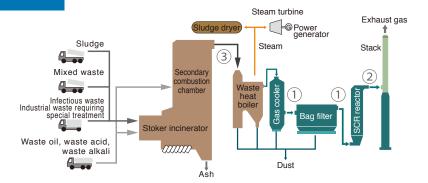
#### Tolerant to Temperature and Dust

ZSS can measure high temperature gas up to 1200°C, and at the upstream of a bug filter where the gas sampling is usually difficult.

# **Applications**

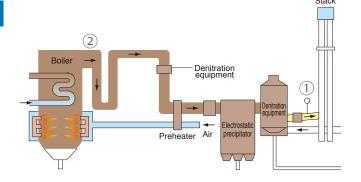
#### **Waste Incineration Plants**

- Measurement of HCl in stack and before bag filter—Optimal control of injection amount of slaked lime
- ② Continuous monitoring of HCl and O2 in flue gas
- 3 CO and O<sub>2</sub> measurement for combustion control



## Large-Scale Boilers

- ① Control of ammonia injection amount for NOx reduction
- ② CO and O<sub>2</sub> measurement for combustion control



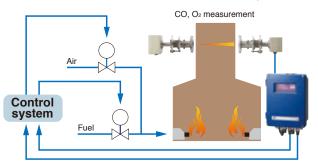
#### **Boiler Combustion Efficiency Monitoring**

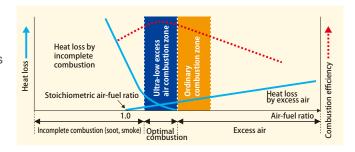
#### **Ultra-low excess air combustion**

Most of the combustion control systems for boilers control the air-fuel ratio by measuring O₂ only (zone in the graph). But these systems cannot eliminate the possibility of heat loss due to incomplete combustion.

The most efficient combustion can be achieved by lowering the air-fuel ratio to the point just before incomplete combustion occurs, which we call the ultra-low excess air combustion (zone ■ in the graph). The laser gas analyzer ZSS enables the ultra-low excess air combustion by detecting CO and O₂ simultaneously.

#### CO and O<sub>2</sub> based combustion control system





#### Other applications

Direct measurement of process gas

HCI, NH<sub>3</sub>, CO, CO<sub>2</sub>, CH<sub>4</sub>

#### **Denitrification equipment**

NH<sub>3</sub> leak detection

#### **Plant safety monitoring**

O<sub>2</sub> in combustible gas

#### Converter gas recovery efficiency

O2 and CO high-speed analysis

#### **Combustion process control**

O<sub>2</sub> and CO in furnace

#### Safety in silos and plants

CO measurement

### Table 1 Measurable components and ranges

|                                     | Measurable compo                  | nents          | Min. range* | Max. range* | Gas temperature | Purge gas         | 4th code |
|-------------------------------------|-----------------------------------|----------------|-------------|-------------|-----------------|-------------------|----------|
|                                     | HCI                               |                | 10 ppm      | 5000 ppm    | ≤ 400°C         |                   | С        |
|                                     | NH <sub>3</sub>                   |                | 15 ppm      | 5000 ppm    | ≤ 450°C         |                   | W        |
|                                     | CO (high range)                   |                | 2.0 vol%    | 100 vol%    | ≤ 300°C         | Inate mant air    | А        |
| Cinale beam                         | CO (low range)                    |                | 200 ppm     | 1 vol%      | ≤ 400°C         | Instrument air    | М        |
| Single beam 1 component analyzer    | CO <sub>2</sub>                   |                | 2.0 vol%    | 100 vol%    | ≤ 300°C         |                   | G        |
| . component analyzer                | CH4                               |                | 100 ppm     | 100 vol%    | ≤ 300°C         |                   | R        |
|                                     | O <sub>2</sub>                    |                | 10 vol%     | 100 vol%    | ≤ 300°C         | N <sub>2</sub>    | Р        |
|                                     | O <sub>2</sub> (high temperature) |                | 4 vol%      | 100 vol%    | ≤ 1200°C        | IN2               | Q        |
|                                     | O2 (instrument air purge)         |                | 25 vol%     | 100 vol%    | 400°C 1200°C    | Instrument air    | Т        |
| Single beam<br>2 component analyzer | CO + CO <sub>2</sub>              |                | 2.5 vol%    | 100 vol%    | ≤ 300°C         | Instrument air    | К        |
|                                     | ppm CO + O <sub>2</sub>           | CO             | 200 ppm     | 2 vol%      | 400°C 1200°C    | la atorona at air | V        |
|                                     | (instrument air purge)            | O <sub>2</sub> | 25 vol%     | 100 vol%    | 400°C 1200°C    | Instrument air    | V        |
| Dual beam                           | ppm CO + O <sub>2</sub>           | CO             | 200 ppm     | 2 vol%      | . 100000        |                   | 1.1      |
| 2 component analyzer                | (high temperature)                | O <sub>2</sub> | 5 vol%      | 50 vol%     | _ ≤ 1200°C      | NI.               | U        |
|                                     | vol% CO + O2                      | CO             | 2 vol%      | 50 vol%     | ≤ 300°C         | - N2              | S        |
|                                     | VOI% CO + O2                      | O <sub>2</sub> | 10 vol%     | 100 vol%    | _ ≤ 300 C       |                   | 0        |

<sup>\*:</sup>Min. and Max. measuring range in the above table are for measuring path length (stack diameter) of 1m. See below on the ranges for other path lengths.

#### Calculation method of measuring range for optical path lengths other than 1 m

#### Example 1) HCl analyzer, path length 5 m

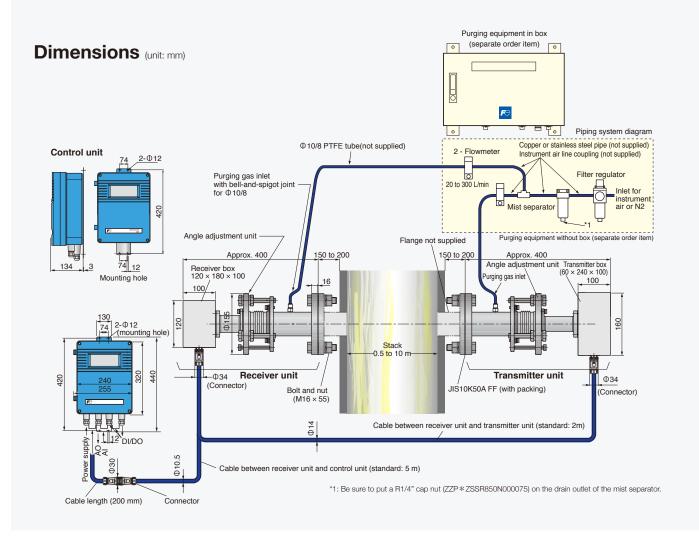
Upper limit:  $5000 \text{ ppm} \div 5 \text{ m} = 1000 \text{ ppm}$ Lower limit:  $10 \text{ ppm} \div 5 \text{ m} = 2 \text{ ppm}$ 

Therefore, measuring range is between 0 to 2...1000 ppm.

#### Example 2) HCl analyzer, path length 0.5 m

Upper limit: 5000 ppm  $\div$  0.5 m = 10000 ppm Lower limit: 10 ppm  $\div$  0.5 m = 20 ppm

Therefore, measuring range is between 0 to 20...10000 ppm.



#### **SPECIFICATIONS**

#### General

| Principle                        | Non-dispersive infrared (NDIR)   |
|----------------------------------|--|
| Principle                        | Cross-stack  |
| Measurable components and ranges | See Table 1 on Page 5  |
| Light source                     | Near-infrared semiconductor laser  |
| Laser class                      | CLASS 1 (O <sub>2</sub> analyzers of high-temperature version and instrument air purge version fall under CLASS 3B)                                  |
| Power supply voltage             | 100-240 V AC, 50/60 Hz   |
| Power consumption                | 80 VA  |
| Calibration interval             | every 6 months (depending on the operating environment)  |
| Display                          | Backlit LCD  |
| Display contents                 | Component, concentration (instantaneous value, average, O <sub>2</sub> corrected instantaneous value, O <sub>2</sub> corrected average value), alarm |
| Weight                           | Receiver unit and transmitter unit: approx. 10 kg each, control unit: approx. 8 kg   |
|                                  | Receiver unit (400 × 180 × 155 mm)   |
| Dimensions<br>(D x W x H)        | Receiver unit (400 × 240 × 160 mm)   |
|                                  | Control unit (137 × 255 × 440 mm)  |
| IP rating                        | IP65   |

#### **Performance**

| Response            | ≤ 4 s (≤ 2 s in high-speed version)   |
|---------------------|---|
| Repeatability       | ±1.0% FS (depending on components and ranges) CO + O <sub>2</sub> measurement: ±2% FS                         |
| Linearity           | $\pm 1.0\%$ FS (depending on components and ranges) CO + O $_2$ measurement: $\pm 3\%$ FS                     |
| Zero drift          | ±2.0% FS per 6 months (depending on component and range) CO + O <sub>2</sub> measurement: ±4% FS per 6 months |
| Interference effect | ±2.0% FS  |
| Detection limit     | 1% of the minimum range   |

#### Scope of delivery

- Control unit
- Receiver box
- Transmitter box
- Angle adjustment units

(two units, one for transmitter unit and the other for receiver unit)

- Cable between the receiver unit and the control unit (specified length)
- Cable between the receiver unit and the transmitter unit (specified length)
- Standard accessories
- Instruction manual

#### Separate order Items

- Purging equipment (essential)
- Zero/span calibration equipment (essential)\*
- Optical axis adjustment tool (essential)\*
- Spare parts for one year (ZBN1SS12)
- Standard gas (ZBM)
- Recorder (as needed. For example, Fuji Electric recorder PHR)
- \* The calibration equipment and the optical axis adjustment tool are not required for every gas analyzer, but required at least one set for one site.

#### Input/output signal

| Analog output             | 4–20 mA DC or 1–5 V DC, 2 or 4 points<br>Measured value and O <sub>2</sub> corrected value. Switchable<br>between instantaneous value and average value  |
|---------------------------|--|
| Analog input              | 4–20 mA DC, 2 points Sample gas pressure, temperature, velocity, $O_2$ concentration, water concentration, air purge pressure *Inputs are used for compensating concentration, $O_2$ correction, and alarm output. |
| Digital output            | Relay contact output, 6 points<br>Low light transmission, H/L limit alarm, analyzer error,<br>during calibration / during hold, power interruption,<br>environmental error   |
| Digital input<br>(option) | Voltage input received by photocoupler, 3 points<br>Average value reset, switchover between<br>instantaneous value and moving average value,<br>remote hold  |

#### Installation environment

| Ambient temperature | -20 to +55°C (Receiver unit, transmitter unit)<br>-5 to +45°C (Control unit)  |
|---------------------|---|
| Ambient humidity    | ≤ 90% RH  |
| Optical path length | 0.5 to 10 m (0.5 to 5 m in CO + O <sub>2</sub> measurement)   |
| Flange rating       | DN50/PN10, ANSI 150 2B, JIS10K 50A, JIS10K 100A   |
| Purge gas           | See Table 1 on Page 5. Purge gas pressure: ≥ 0.3 MPa  |
| Purge gas flow rate | ≥ 20 L/min  |
| Gas conditions      | Temperature: See Table 1 on Page 5.  Moisture: ≤ 50 vol% (no condensation)  Pressure: ±10 kPa  (Consult us for pressures above the limit.)  Dust: Standard version: ≤ 5 g/m³ (N)  Dust resistant version: ≤ 20 g/m³ (N) |

Conforms to JIS B 7993: Automated measuring systems for flue gas using non-extractive methods.

#### Standard accessories

| Item  | Q'ty                  | Specification                                 |
|---|-----------------------|---|
| Bolt  | 8 or 16 <sup>-1</sup> | M16 × 55 (70) <sup>-2</sup> , stainless steel |
| Nut   | 8 or 16 <sup>-1</sup> | M16, stainless steel                          |
| Spring washer   | 8 or 16 <sup>-1</sup> | M16, stainless steel                          |
| Flat washer   | 8 or 16 <sup>-1</sup> | M16, stainless steel                          |
| Companion flange packing<br>or flange packing<br>specified for use in high<br>temperature | 2                     | According to flange specification             |
| Bolt for angle fine adjust-<br>ment   | 6                     | Hex socket bolt, M8 × 70                      |
| Power supply fuse   | 2                     |   |
| Bolt for connecting the receiving unit and the transmitter unit                           | 12                    | Hex socket bolt, M5 x 12                      |

<sup>\*1:</sup> When the 9th code is "B", 16 pieces are provided. For other cases, 8 pieces are provided.

#### Spare parts for one year (ZBN1SS12)

|                    | _    |                                    |
|--------------------|------|------------------------------------|
| Name               | Q'ty | Specification                      |
| Silicone packing A | 2    | For bellows<br>(ZZP*ZSSTQ505205P1) |
| O-ring             | 2    | (ZZP*ZSSR8552850)                  |

<sup>\*2:</sup> When the 9th code is "B", "C", or "D", the length of the bolt is 70 mm. When the 9th code is "A", the length is 55 mm. Inch-sized bolts are not supplied.

## **Ordering Code**

|     | 4 | 5 | 6 | 7 | 8   | 9 | 10 | 11 | 12 | 13 |   | 14 | 15 | 16 | 17 | 18 | 19 | 20 |   | 21 | 22 |
|-----|---|---|---|---|-----|---|----|----|----|----|---|----|----|----|----|----|----|----|---|----|----|
| ZSS |   |   |   |   | 8 - |   |    | Α  |    |    | - |    |    |    | 0  |    |    |    | - | N  |    |

#### Single beam (1 or 2 component analyzer)

| Digit |                 | Specification                         | Note     | Code |
|-------|-----------------|---------------------------------------|----------|------|
| 4     | Components      | co                                    |          | Α    |
|       |                 | CO (low-range)                        |          | M    |
|       |                 | HCI                                   |          | С    |
|       |                 | HCl + H <sub>2</sub> O (50 vol%)      | Note 1   | F    |
|       |                 | CO <sub>2</sub>                       |          | G    |
|       |                 | CO + CO <sub>2</sub>                  |          | K    |
|       |                 | O <sub>2</sub>                        |          | Р    |
|       |                 | O <sub>2</sub> (high temperature)     |          | Q    |
|       |                 | O <sub>2</sub> (instrument air purge) |          | T    |
|       |                 | CH4                                   | Note 1   | R    |
|       |                 | NH <sub>3</sub>                       |          | W    |
|       |                 | NH3 + H2O (50 vol%)                   | Note 1   | Х    |
| 5     | Unit            | ppm                                   |          | 1    |
|       |                 | mg/m³                                 |          | 3    |
|       |                 | vol%                                  |          | 5    |
|       |                 | ppm (1st comp), vol% (2nd comp)       |          | 7    |
|       |                 | vol% (1st comp), vol% (2nd comp)      |          | 9    |
| 6     | Measurement     | 0 to 2                                | Note2, 3 | K    |
|       | range           | 0 to 2.5                              |          | Q    |
|       | (1st component) | 0 to 4                                |          | S    |
|       |                 | 0 to 5                                |          | L    |
|       |                 | 0 to 10                               |          | V    |
|       |                 | 0 to 15                               |          | 0    |
|       |                 | 0 to 20                               |          | 1    |
|       |                 | 0 to 25                               |          | Т    |
|       |                 | 0 to 50                               |          | Α    |
|       |                 | 0 to 100                              |          | В    |
|       |                 | 0 to 200                              |          | С    |
|       |                 | 0 to 250                              |          | D    |
|       |                 | 0 to 400                              |          | J    |
|       |                 | 0 to 500                              |          | E    |
|       |                 | 0 to 1000                             |          | F    |
|       |                 | 0 to 2000                             |          | G    |
|       |                 | 0 to 5000                             |          | Н    |
|       |                 | 0 to 6000                             |          | М    |
|       |                 | Others                                |          | Х    |
| 7     | Measurement     | -                                     | Note 7   | Υ    |
|       | range           | 0 to 2                                |          | K    |
|       | (2nd component) | 0 to 2.5                              |          | Q    |
|       |                 | 0 to 4                                |          | S    |
|       |                 | 0 to 5                                |          | L    |

| Digi | t                          | Specification        | Note   | Code |
|------|----------------------------|----------------------|--------|------|
| 7    | Measurement                | 0 to 10              |        | ٧    |
|      | range                      | 0 to 15              |        | 0    |
|      | (2st component)            | 0 to 20              |        | 1    |
|      |                            | 0 to 25              |        | Т    |
|      |                            | 0 to 50              |        | A    |
|      |                            | 0 to 100             |        | В    |
|      |                            | 0 to 200             |        | С    |
|      |                            | 0 to 250             |        | D    |
|      |                            | 0 to 400             |        | J    |
|      |                            | 0 to 500             |        | E    |
|      |                            | 0 to 1000            |        | F    |
|      |                            | 0 to 2000            |        | G    |
|      |                            | 0 to 5000            |        | Н    |
|      |                            | 0 to 6000            |        | М    |
|      |                            | Others               |        | Х    |
| 9    | Flange rating              | 10K 50A (JIS B 2212) |        | Α    |
|      |                            | 10K 100A             |        | В    |
|      |                            | DN50 / PN10          |        | С    |
|      |                            | ANSI #150 2B         |        | D    |
| 10   | Number of analog           | 2                    |        | 0    |
|      | outputs                    | 4                    |        | 1    |
| 11   | Number of analog<br>inputs | 2                    |        | А    |
| 12   | Analog output              | 4-20 mA DC           |        | 1    |
|      | signal                     | 1-5 V DC             |        | 5    |
| 13   | Digital input/             | 6 outputs, no input  |        | 0    |
|      | output                     | 6 outputs, 3 inputs  |        | 1    |
| 14   |                            | 5 m                  | Note 4 | Α    |
|      | receiver unit              | 10 m                 |        | В    |
|      | and control unit           | 20 m                 |        | С    |
|      |                            | 30 m                 |        | D    |
|      |                            | 40 m                 |        | E    |
|      |                            | 50 m                 |        | F    |
|      |                            | 80 m                 |        | G    |
|      |                            | 100 m                |        | Н    |
|      |                            | Others               |        | Χ    |
| 15   |                            | 2 m                  | Note 5 | Α    |
|      | receiver unit              | 5 m                  |        | В    |
|      | and transmitter            | 10 m                 |        | С    |
|      | unit                       | 15 m                 |        | D    |
|      |                            | 20 m                 |        | Е    |
|      |                            |                      |        |      |

| Digit |                                       | Specification                      | Note   | Code |
|-------|---------------------------------------|------------------------------------|--------|------|
| 15    | Cable between                         | 25 m                               |        | F    |
|       | receiver unit and<br>transmitter unit | Others                             |        | х    |
| 16    | Language                              | Japanese                           |        | J    |
|       |                                       | English                            |        | E    |
|       |                                       | Chinese                            |        | С    |
| 17    | -                                     | -                                  |        | 0    |
| 18    | Optical path                          | 0 m                                | Note 6 | 0    |
|       | length (ones                          | 1 m                                |        | 1    |
|       | place)                                | 2 m                                |        | 2    |
|       |                                       | 3 m                                |        | 3    |
|       |                                       | 4 m                                |        | 4    |
|       |                                       | 5 m                                |        | 5    |
|       |                                       | 6 m                                |        | 6    |
|       |                                       | 7 m                                |        | 7    |
|       |                                       | 8 m                                |        | 8    |
|       |                                       | 9 m                                |        | 9    |
| 19    | Optical path                          | 0.0 m                              | Note 6 | 0    |
|       | length (tenth                         | 0.1 m                              |        | 1    |
|       | place)                                | 0.2 m                              |        | 2    |
|       |                                       | 0.3 m                              |        | 3    |
|       |                                       | 0.4 m                              |        | 4    |
|       |                                       | 0.5 m                              |        | 5    |
|       |                                       | 0.6 m                              |        | 6    |
|       |                                       | 0.7 m                              |        | 7    |
|       |                                       | 0.8 m                              |        | 8    |
|       |                                       | 0.9 m                              |        | 9    |
| 20    | Optical path                          | 0.00 m                             | Note 6 | 0    |
|       | length (hun-                          | 0.05 m                             |        | 5    |
|       | dredths place)                        | (Used only when 10 m is specified) |        | 9    |
| 21    | -                                     | -                                  |        | N    |
| 22    | High-dust (high-                      | No                                 |        | N    |
|       | speed AGC) version                    | Yes                                |        | Н    |

Note 1) Contact us when selecting CH4 or H2O measurement.

Note 2) Specify the same range for CO and CO2.

Note 3) Specify the measuring range within the limit calculated based on the optical path length (See Page 1).

Note 4) Cable length between the receiver unit and the control unit: when you select the code "X", available length is 10 m or longer.

Note 5) Cable length between the receiver unit and the transmitter unit: when you select the code "X", available length is 10 m or longer.

Note 6) When the optical path length is 10 m, select "9" in 18th, 19th, and 20th codes.

Note 7) For single component analyzer, select "V". For two-component analyzer, select a range for the second component.

9 10 11 12 13 14 15 16 17 18 19 20 4 5 6 7 8 8 -Α 0

#### Dual beam (2 component analyzer)

| Digit |             | Specification                                  | Note   | Code |
|-------|-------------|--|--------|------|
| 4     | Components  | ppm CO + O <sub>2</sub> (instrument air purge) |        | ٧    |
|       |             | ppm CO + O <sub>2</sub> (high temperature)     |        | U    |
|       |             | vol% CO + O2                                   |        | S    |
| 5     | Unit        | ppm (1st comp), vol% (2nd comp)                |        | 7    |
|       |             | vol% (1st comp), vol% (2nd comp)               |        | 9    |
| 6     | Measurement | 0 to 2   | Note 1 | K    |
|       | range (CO)  | 0 to 2.5                                       |        | Q    |
|       |             | 0 to 4   |        | S    |
|       |             | 0 to 5   |        | L    |
|       |             | 0 to 10  |        | V    |
|       |             | 0 to 15  |        | 0    |
|       |             | 0 to 20  |        | 1    |
|       |             | 0 to 25  |        | Т    |
|       |             | 0 to 50  |        | Α    |
|       |             | 0 to 100                                       |        | В    |
|       |             | 0 to 200                                       |        | С    |
|       |             | 0 to 250                                       |        | D    |
|       |             | 0 to 400                                       |        | J    |
|       |             | 0 to 500                                       |        | E    |
|       |             | 0 to 1000                                      |        | F    |
|       |             | 0 to 2000                                      |        | G    |
|       |             | 0 to 5000                                      |        | Н    |
|       |             | 0 to 6000                                      |        | М    |
|       |             | Others   |        | Х    |
| 7     | Measurement | 0 to 5   | Note 1 | L    |
|       | range (O2)  | 0 to 10  |        | V    |
|       |             | 0 to 15  |        | 0    |
|       |             | 0 to 20  |        | 1    |
|       |             | 0 to 25  |        | Т    |
|       |             | 0 to 50  |        | Α    |
|       |             | 0 to 100                                       | ļ      | В    |
|       |             | Others   |        | Х    |

| Digit |                            | Specification        | Note   | Code |
|-------|----------------------------|----------------------|--------|------|
| 9     | Flange rating              | 10K 50A (JIS B 2212) |        | Α    |
|       |                            | 10K 100A             |        | В    |
|       |                            | DN50 / PN10          |        | С    |
|       |                            | ANSI #150 2B         |        | D    |
| 10    | Number of                  | 2                    |        | 0    |
|       | analog outputs             | 4                    |        | 1    |
| 11    | Number of<br>analog inputs | 2                    |        | А    |
| 12    | Analog                     | 4-20mA DC            |        | 1    |
|       | output signal              | 1-5 V DC             |        | 5    |
| 13    | Digital input/             | 6 outputs, no input  |        | 0    |
|       | output                     | 6 outputs, 3 inputs  |        | 1    |
| 14    | Cable                      | 5 m                  | Note 2 | Α    |
|       | between                    | 10 m                 |        | В    |
|       | receiver unit              | 20 m                 |        | С    |
|       | and control<br>unit        | 30 m                 |        | D    |
|       | uniii                      | 40 m                 |        | E    |
|       |                            | 50 m                 |        | F    |
|       |                            | 80 m                 |        | G    |
|       |                            | 100 m                |        | Н    |
|       |                            | Others               |        | X    |
| 15    | Cable                      | 2 m                  | Note 3 | Α    |
|       | between                    | 5 m                  |        | В    |
|       | receiver unit              | 10 m                 |        | С    |
|       | and transmit-<br>ter unit  | 15 m                 |        | D    |
|       | ter unit                   | 20 m                 |        | E    |
|       |                            | 25 m                 |        | F    |
|       |                            | Others               |        | X    |
| 16    | Language                   | Japanese             |        | J    |
|       |                            | English              |        | E    |
|       |                            | Chinese              |        | С    |
| 17    | -                          | -                    |        | 0_   |

Digit

| Digit |                               | Specification                      | Note   | Code |
|-------|-------------------------------|------------------------------------|--------|------|
| 18    | Optical path                  | 0 m                                | Note 4 | 0    |
|       | length (ones                  | 1 m                                |        | 1    |
|       | place)                        | 2 m                                |        | 2    |
|       |                               | 3 m                                |        | 3    |
|       |                               | 4 m                                |        | 4    |
|       |                               | 5 m                                |        | 5    |
| 19    | Optical path<br>length (tenth | 0.0 m                              | Note 4 | 0    |
|       |                               | 0.1 m                              |        | 1    |
|       | place)                        | 0.2 m                              |        | 2    |
|       |                               | 0.3 m                              |        | 3    |
|       |                               | 0.4 m                              |        | 4    |
|       |                               | 0.5 m                              |        | 5    |
|       |                               | 0.6 m                              |        | 6    |
|       |                               | 0.7 m                              |        | 7    |
|       |                               | 0.8 m                              |        | 8    |
|       |                               | 0.9 m                              |        | 9    |
| 20    | Optical path                  | 0.00 m                             | Note 4 | 0    |
|       | length (hun-                  | 0.05 m                             |        | 5    |
|       | dredths place)                | (Used only when 10 m is specified) |        | 9    |
| 21    | -                             | -                                  |        | Ν    |
| 22    | High-dust (high-              | No                                 |        | Ν    |
|       | speed AGC) version            | Yes                                |        | Н    |

Note 1) Specify the measuring range within the limit calculated based on the optical path length.

Note 2) Cable length between the receiver unit and the control unit: when you select the code "X", available length is 10 m or longer.

Note 3) Cable length between the receiver unit and the transmitter unit: when you select the code "X", available length is 5 m or longer.

Note 4) When the optical path length is 5 m, select "5" in the 18th code, and "0" in the 19th and 20th codes.

Note 5) Specify the code "H" for dust tolerant version, fast response version, and/or O: analyzer for combustion control.

# NDIR Gas Analyzer System ZSU-7 Simultaneous Measurement of 7 Components in Flue Gas

#### Space-saving design

Contains everything you need for measurement up to 7 components: NOx, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>, HCl, and dust

#### Designed for ease of maintenance

**(4)** 

Allows maintenance from front side



# Designed for ease of maintenance

Signal and power terminals are in one place



- 1 Gas inlet for NOx, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>
- **External wiring terminals** for gas concentration output signals or power supply
- 3 Dust analyzer
  No sampling involved



# NDIR gas analyzer (ZKJ)

Real-time monitoring of 5 components: NOx, SO<sub>2</sub>, CO, CO<sub>2</sub>, (O<sub>2</sub>)





1780

Dimensions in mm

- HCl analyzer
  - No sampling involved You can install the HCl analyzer later on.



- Gas conditioner removes dust and water from flue gas.
- Six 3.4 L standard gas cylinders for zero and span calibration can be stored.

Information in this catalog is subject to change without notice. Read the instruction manuals thoroughly before using the products.

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