Simultaneous Measurement of 7 Components in Flue Gas

Gas Analyzer ZSU-7

- **Monitors up to 7 gas concentrations**
  Simultaneous and continuous measurement of NOx, SO2, CO, CO2, O2, HCl, and dust.

- **Space-saving design**
  All the necessary equipment are housed in a cabinet of 1215 (W) x 700 (D) x 1780 (H) mm size.

- **Less electrical work**
  Signal and power terminals are integrated into one place.

- **Maintenance-free HCl measurement enabled by laser technology**
  This laser gas analyzer can be installed at a later time.
  Conforms to JIS B7993 (Automated measuring systems for flue gas using non-extractive methods.)

- **Energy saving**
  Approx. 40% less power-consumption compared to conventional systems, thanks to the use of laser gas analyzer and by integrating multiple equipment into the cabinet.
Space-saving cabinet contains everything you need for measuring gas concentration of up to 7 components: NOx, SO2, CO, CO2, O2, HCl, and dust.

Gas inlet
Inlet for NOx, SO2, CO, CO2, O2

External wiring terminals
For gas concentration output signals or power supply

Dust analyzer transmitter
(No gas sampling required)

HCl analyzer control unit
(No gas sampling required)

Infrared Gas Analyzer
(Type: ZKJ)
Measures concentrations of NOx, SO2, CO, CO2, (O2).

Easy-to-see backlit LCD
Monitors concentrations of 5 components simultaneously and in real time.

Menu screen

Houses six 3.4 L standard gas cylinders
Can accommodate up to 6 zero and span standard gas cylinders.

Gas conditioner to remove dust or drainage from flue gas

Designed for ease of maintenance
Allows maintenance from front side while saving space

External appearance
Unit: mm

You can install the unit at a later time.

Instrument

Unit: mm

700
500 minimum
1215

1780

1152

You can install the unit at a later time.

700
1215

1780
**Gas sampling system (for NOx, SO2, CO, CO2, O2)**

- **Measures NOx, SO2, CO, CO2, O2 concentrations via an infrared method**
- **Zirconia oxygen meter** continuously measures the oxygen concentrations (0 to 25%) in sample gases.
- **detects Oxygen concentration by measuring the EMF (electromotive force)** generated between the electrodes in the front and rear of the Zirconia element.

**Laser HCl analyzer**

- Uses an infrared semiconductor laser (CLASS 1) as the light-emitting element, and photodiode as the light-receiving element.
- Non-contact measurement—by utilizing electrostatic induction to detect charge transfer of charged particle moving through a duct.
- Stable output - advanced circuit eliminates triboelectric current generated by the contact between particles and the probe.

**Dust analyzer**

- **Detects** dust concentration by measuring the electromotive force generated by the movement of charged particles through a duct.
- **Non-contact measurement**—by utilizing electrostatic induction to detect charge transfer of charged particle moving through a duct.
- Stable output - advanced circuit eliminates triboelectric current generated by the contact between particles and the probe.

**Gas conditioners**

- **Rc1/2 drain**
- **Rc1/4 exhaust**

**Air inlet**

- **Rc1/2**

**Flow meter**

**Gas dryer**

**Membrane filter**

**NOx, SO2, CO, CO2, O2 measurement**

**HCl measurement**

**Dust measurement**
Specifications

Infrared gas analyzer (ZKJ)

<table>
<thead>
<tr>
<th>Measurable components and ranges</th>
<th>NOx: 0 to 50 ppm...5000 ppm</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>SO2: 0 to 50 ppm...5000 ppm</td>
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<tr>
<td></td>
<td>CO: 0 to 50 ppm...5000 ppm</td>
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<tr>
<td></td>
<td>CO2: 0 to 10% to 20%</td>
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<tr>
<td></td>
<td>O2: 0 to 10% to 25%</td>
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</tbody>
</table>

Measuring principle: Non-dispersive infrared (double beam), Zirconia method for O2 measurement

Repeatability: ±0.5% FS

Zero drift: ±1.0% FS or less per week

Span drift: ±2.0% FS or less per week

Gas sampling amount: Approx. 2 L/min

Response speed: 90% response from input: within 120 seconds.

Zero drift: ±2.0% FS/6 months

Repeatability: ±2.0% FS

Response speed: 1 to 5 seconds

Gas analyzer system

Display: backlit LCD

Instantaneous value, O2 converted instantaneous value, O2 converted average value

O2 average value, CO peak count value

Parameter setting: (Japanese or English, as specified)

Integrated cabinet

Dimensions: Indoor type: 1215 (W) x 700 (D) x 1780 (H) mm

Power supply voltage: 100/110/115/200/230 V AC, 50/60 Hz, approx. 1200 VA

Weight: Approx. 500 kg

Mounting: JIS10K 50A flange

Power consumption: Heated tube: approx. 720 VA per 20 m

Gas inlet tube: Heated tube (30 m max.) or 10/8 mm Teflon tube

Gas extractor (ZBAK)

Measurable gas: HCl, NH3, O2, HCl + H2O, NH3 + H2O, CO, CO2, CO + CO2, CO + O2

Principle: Non-dispersive infrared (NDIR)

Installation: Cross-stack system

Laser class: CLASS 1M

Measurement range: 15 ppm to 5000 ppm

Optical path length: 0.5 to 10 m (0.5 to 5 m in CO + O2 measurement)

Display: LCD (instantaneous value, converted instantaneous value, converted moving average value, etc.)

Dust analyzer

Measuring object: Dust concentration

Principle: Electrostatic induction

Measurement range: 0.01 to 1000 mg/m3

Probe length: 150 mm max.

Signal cable length: 100 m max. between detector and transmitter

Display: LCD (bar graph, numeric values, trend display)

Dimensions (unit: mm)

Gas Analyzer System

Gas temperature: Standard: 60 to 800°C (316 SS)

Optional: 1000°C (titanium), 2000°C (SiC)

Mounting: JIS 5K 50A flange

Power consumption: Instrument air, pressure ± 10 kPa, flow rate 20 L/min or more

Signal cable length: 100 m max. between transmitter unit and control unit

Display: LCD (instantaneous value, converted instantaneous value, converted moving average value, etc.)

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Printed in Japan 2015-3/FOLS