

Simultaneous Measurement of 7 Components in Flue Gas

# Gas Analyzer ZSU-7



■ **Monitors up to 7 gas concentrations**

Simultaneous and continuous measurement of NO<sub>x</sub>, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>, 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: NO<sub>x</sub>, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>, HCl, and dust.

## Gas inlet

Inlet for NO<sub>x</sub>, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>

## 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)

You can install the unit at a later time.

## Infrared Gas Analyzer (Type: ZKJ)

Measures concentrations of NO<sub>x</sub>, SO<sub>2</sub>, CO, CO<sub>2</sub>, (O<sub>2</sub>).

### Easy-to-see backlit LCD

Monitors concentrations of 5 components simultaneously and in real time.



### Menu screen



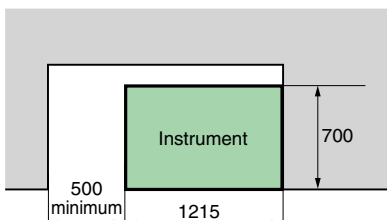
## Houses six 3.4 L standard gas cylinders

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



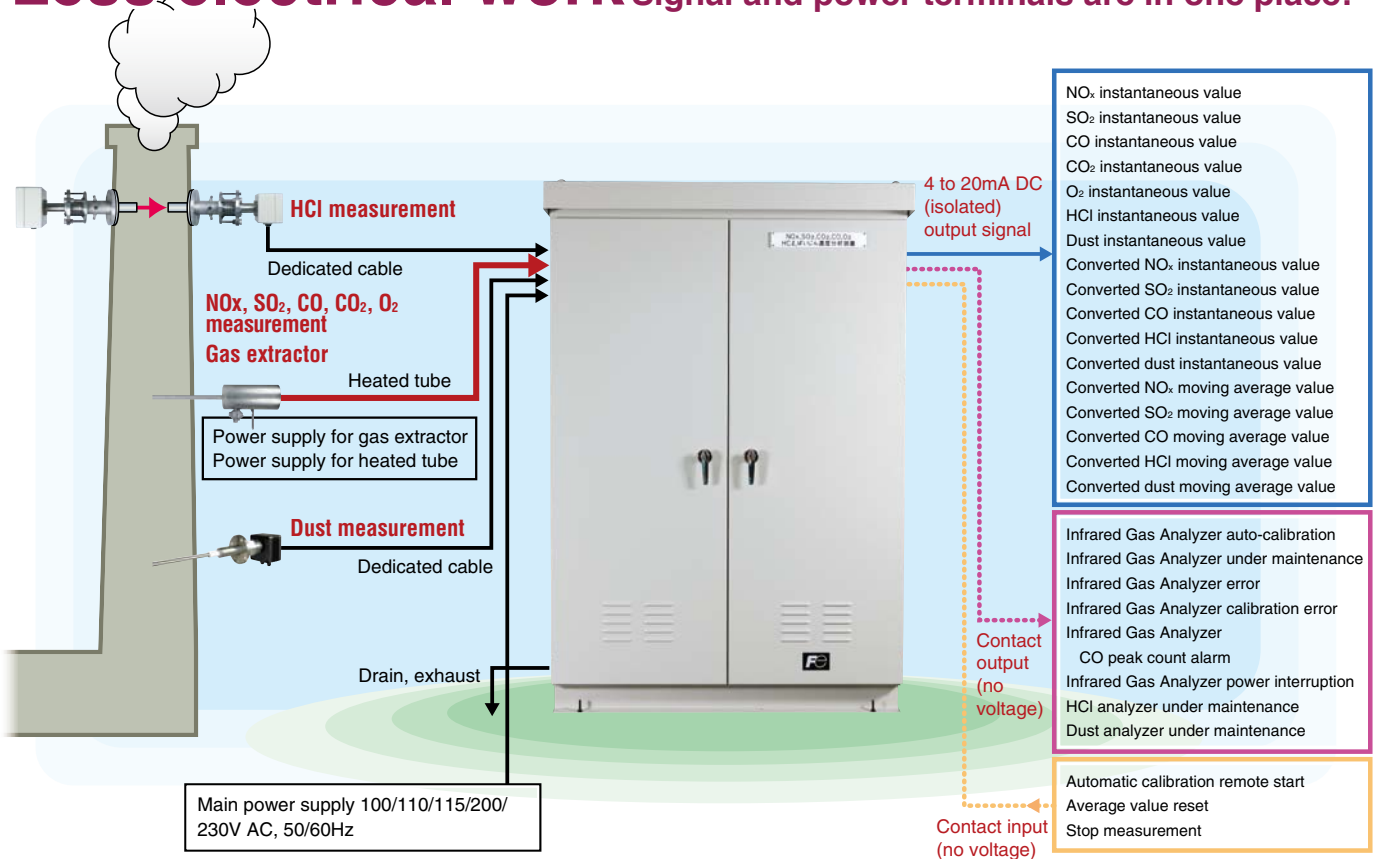
Unit: mm

## External appearance

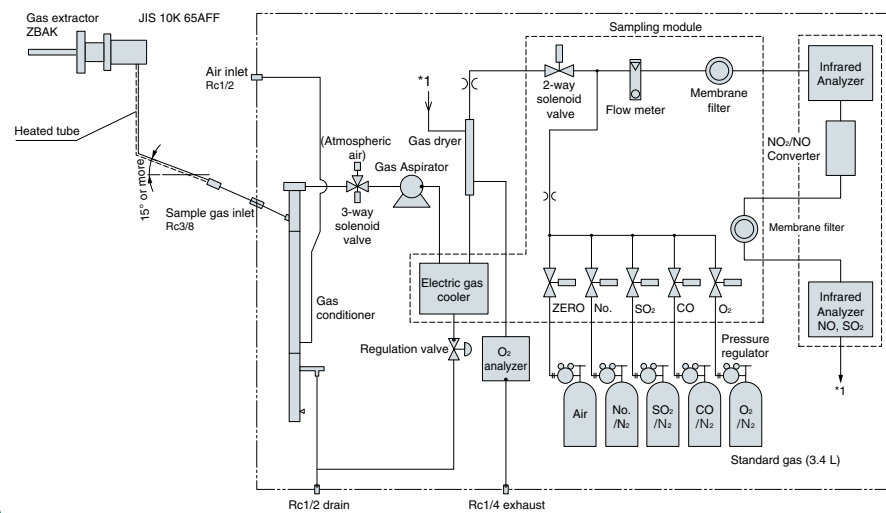
Unit: mm



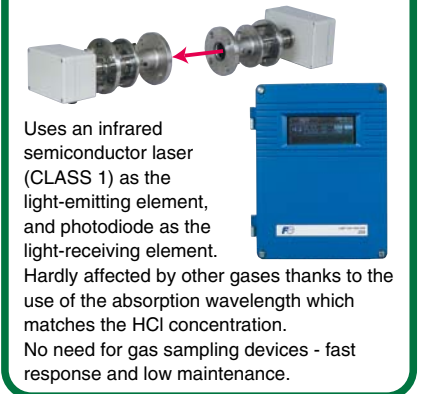
# Less electrical work Signal and power terminals are in one place!



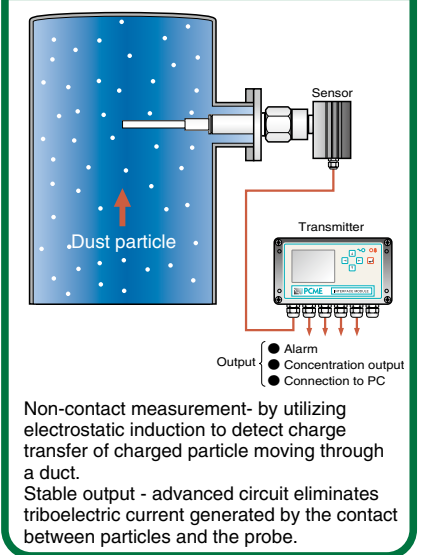
## Gas sampling system (for NO<sub>x</sub>, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>)



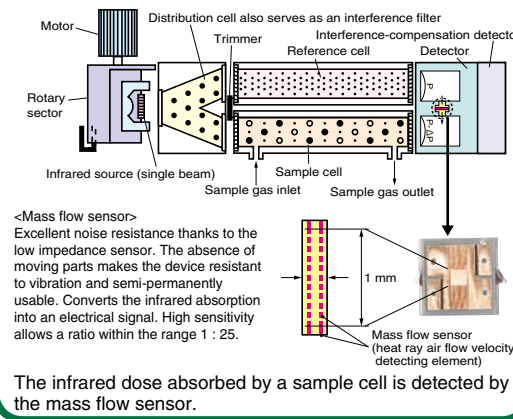
## Laser HCl analyzer



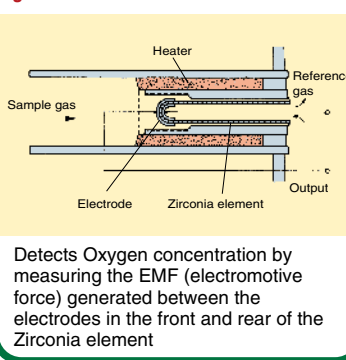
## Dust analyzer



## Measures NO<sub>x</sub>, SO<sub>2</sub>, CO and CO<sub>2</sub> concentrations via an infrared method



## Zirconia oxygen meter that continuously measures the oxygen concentrations (0 to 25%) in sample gases





# Specifications

## ■ Infrared gas analyzer (ZKJ)

Measurable components and ranges	NOx: 0 to 50 ppm...5000 ppm SO <sub>2</sub> : 0 to 50 ppm...5000 ppm CO: 0 to 50 ppm...5000 ppm CO <sub>2</sub> : 0 to 10%/0 to 20% O <sub>2</sub> : 0 to 10%/0 to 25%
Measuring principle	Non-dispersive infrared (double beam). Zirconia method for O <sub>2</sub> measurement
Repeatability	±0.5% FS
Zero drift	±1.0% FS or less per week (±2.0% FS or less per week for the range below 200 ppm) O <sub>2</sub> measurement: ±2.0% FS or less per month
Span drift	±2.0% FS or less per week O <sub>2</sub> measurement: ±2.0% FS or less per month
Gas sampling amount	Approx. 2 L/min
Response speed	90% response from inlet: within 120 seconds. (SO <sub>2</sub> measurement: within 240 seconds.)
Output signal	4 to 20 mA DC
Auto calibration	Zero and span (calibration cycle configurable)
Display	backlit LCD Instantaneous value, O <sub>2</sub> converted instantaneous value, O <sub>2</sub> converted average value O <sub>2</sub> 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. 500kg
Output signal	4 to 20 mA DC (isolation signal)
External contact output	SPST no-voltage contact, up to 8 points (in maintenance status, in auto-calibration status, analyzing section error, CO peak count alarm, etc.)
External contact input	No-voltage contact (auto-calibration start, average value reset, measurement stop)
Computing unit	Calculates moving average and O <sub>2</sub> corrected gas concentration, in dust measurement
Recorder (option)	Inkjet or paperless
Ambient temperature	-5 to +40 °C, -10 to +40 °C, or -15 to +40 °C (as specified by order)
Gas condition	Temperature: 450°C max. Dust: 100 mg/Nm <sup>3</sup> max. Pressure: -5 to +5 kPa Components: SO <sub>2</sub> : 500 ppm max., NOx: 1000 ppm max. CO <sub>2</sub> : 0 to 15%, CO: 0 to 2000 ppm, O <sub>2</sub> : 1 to 21%, HCl: 1000 ppm max.

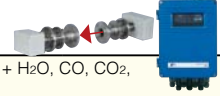
## ■ Gas extractor (ZBAK)

System	Electric heating system (with 316 SS wire mesh filter, 40 μm)
Gas temperature (probe material)	Standard: 60 to 800°C (316 SS) Optional: 1000°C (titanium), 1300°C (SiC)
Mounting	JIS 5K 65A flange
Power consumption	Heated tube: approx. 720 VA per 20 m
Gas inlet tube	Heated tube (30m max.) or φ 10/φ 8 mm Teflon tube



## ■ Laser HCl analyzer (ZSS)

Measurable gas	HCl, NH <sub>3</sub> , O <sub>2</sub> , HCl + H <sub>2</sub> O, NH <sub>3</sub> + H <sub>2</sub> O, CO, CO <sub>2</sub> , CO + CO <sub>2</sub> , CO + O <sub>2</sub>
Principle	Non-dispersive infrared (NDIR)
Installation	Cross-stack system
Laser class	CLASS 1M
Measurement range	15 ppm-m to 5000 ppm-m
Optical path length (stack diameter)	0.5 to 10 m (0.5 to 5 m in CO + O <sub>2</sub> measurement)
Repeatability	±2.0% FS
Zero drift	±2.0% FS/6 months
Response speed (90% response)	1 to 5 seconds
Gas temperature	1200°C max.
Mounting	JIS10K 50A flange
Air purge	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.)



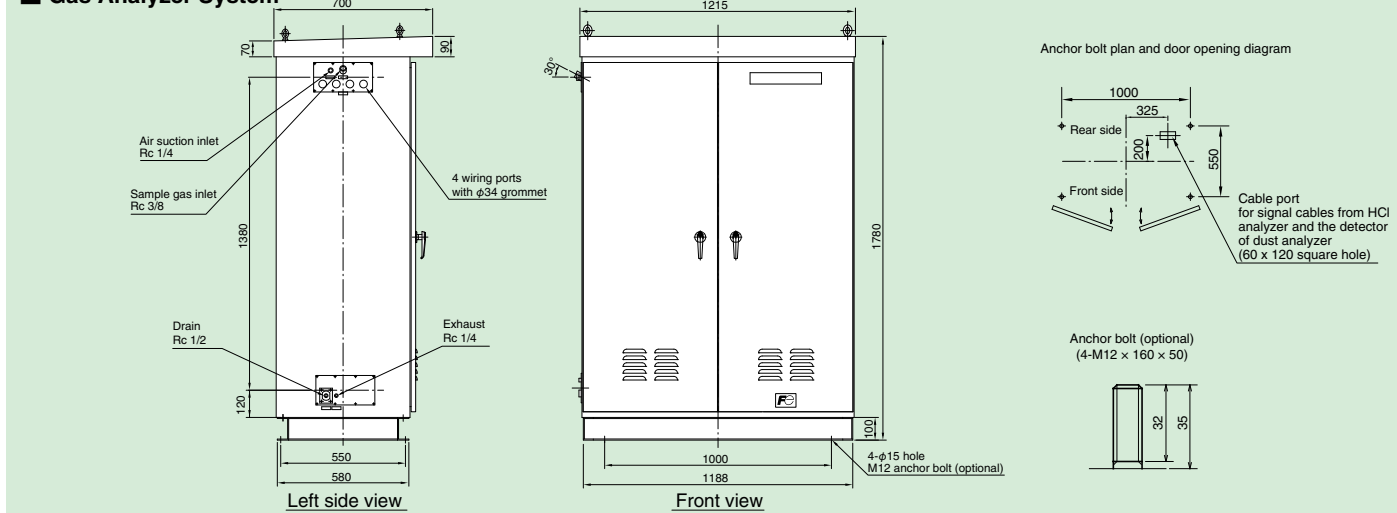
## ■ Dust analyzer

Measuring object	Dust concentration		
Principle	Electrostatic induction		
Measurement range	0.01 to 1000 mg/m <sup>3</sup>		
Probe	Gas temperature	Material	Mounting
	-25°C to +250°C	316 SS (Teflon coating is available as option)	R1-1/2 screw JIS10K 50A flange
	-25°C to +400°C	Ceramic	JIS10K 50A flange
	-25°C to +800°C	Ceramic	JIS10K 50A flange
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



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