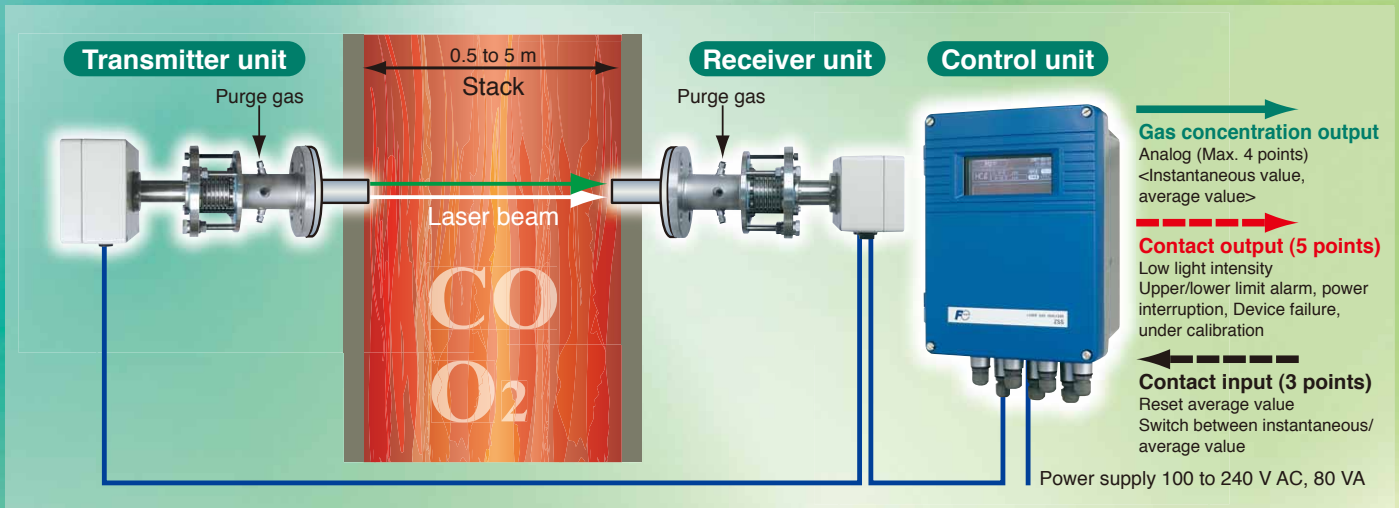


Dual beam

Laser CO + O₂ analyzer ZSS-6

**The world's first analyzer which can measure
CO and O₂ with one unit!**



One unit serves a double role

Continuous and simultaneous measurement of CO and O₂ concentration with one unit

Only Fuji Electric offers the 2-component analyzer which can greatly reduce initial cost, installation cost, maintenance cost, etc.

Fast response within 2 sec.

Fast response sensor enables you to control target gas effectively

No gas sampling required. Quick response is achieved by direct measurement of process gas.

**Low power consumption
Low maintenance**

Saves energy and running cost

Power consumption: max.80 VA, Maintenance cycle: twice a year

Temperature up to 1200°C

High temperature and high dust tolerance

Air purge

Air purge can be used in O₂ measurement

for combustion control

Table 1

| | CO + O ₂ | CO + O ₂ High temperature | CO + O ₂ Purge with instrument air |
|-------------------------------------|---------------------------|--------------------------------------|--|
| Temperature range | 300°C or less | 1200°C or less | 400 to 1200°C |
| Purge gas | N ₂ | N ₂ | Instrument air |
| Measurement range (CO) | 0 to 4 vol% ... 50 vol% | 0 to 200 ppm ... 2 vol% | 0 to 200 ppm ... 2 vol% |
| Measurement range (O ₂) | 0 to 10 vol% ... 100 vol% | 0 to 5 vol% ... 50 vol% | 0 to 25 vol% ... 100 vol% |
| Application | Converter | Converter | Combustion furnace |

Laser analyzers are appreciated for their low maintenance with extremely less moving parts and consumable parts.

Newly developed ZSS-6, capable of measuring CO and O₂ with one unit, offers better operability and less initial/running cost.

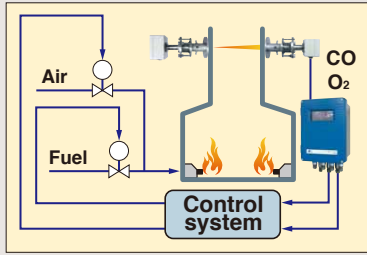
Application examples

Improving combustion efficiency

Location

Combustion management in refuse disposal plant

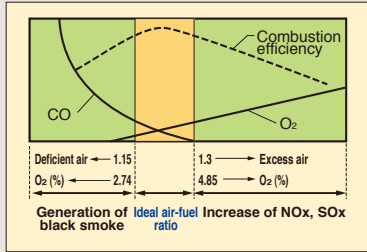
CO & O₂ combustion control system



Effect

Precise control of CO and O₂ to ensure ideal air-fuel ratio

Correlation between combustion efficiency and air-fuel ratio



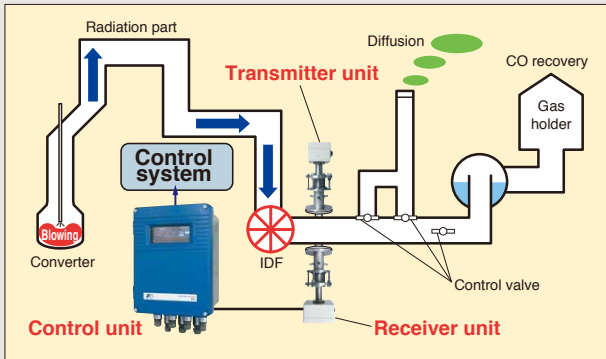
Enhancing gas recovery efficiency

Location

around IDF

Effect

CO: Gas recovery rate enhanced
O₂: Leak monitoring



Combustible gas recovery system

Specifications

General

| | |
|----------------------|---|
| Principle | Non-dispersive infrared (NDIR) |
| Measurement range | See Table 1 |
| Light source | Near-infrared semiconductor laser |
| Laser class | Class 1 (O ₂ analyzers of high-temperature version and instrument air purge version fall under CLASS 3B) |
| Power supply voltage | 100 to 240 V AC 50/60 Hz |
| Power consumption | Approx. 80 VA |
| Calibration interval | every 6 months (depending on the operating environment) |
| Display | Backlit LCD (on control unit) |
| Displayed contents | Measured component, concentration (instantaneous value, average, instantaneous/average CO value per standard O ₂ concentration), alarm |
| Weight | Receiver unit and transmitter unit: approx. 10 kg each, control unit: approx. 8 kg |
| Structure | Outdoor type, dust and rain proof (IP65) |

Performance

| | |
|-----------------------------|--|
| Response speed | within 5 sec. (within 2 sec. for high-speed version) |
| Repeatability | ±2.0% FS |
| Linearity | ±3.0% FS |
| Zero drift | ±4.0% FS |
| Interference from other gas | ±2.0% FS |

Input/output signal

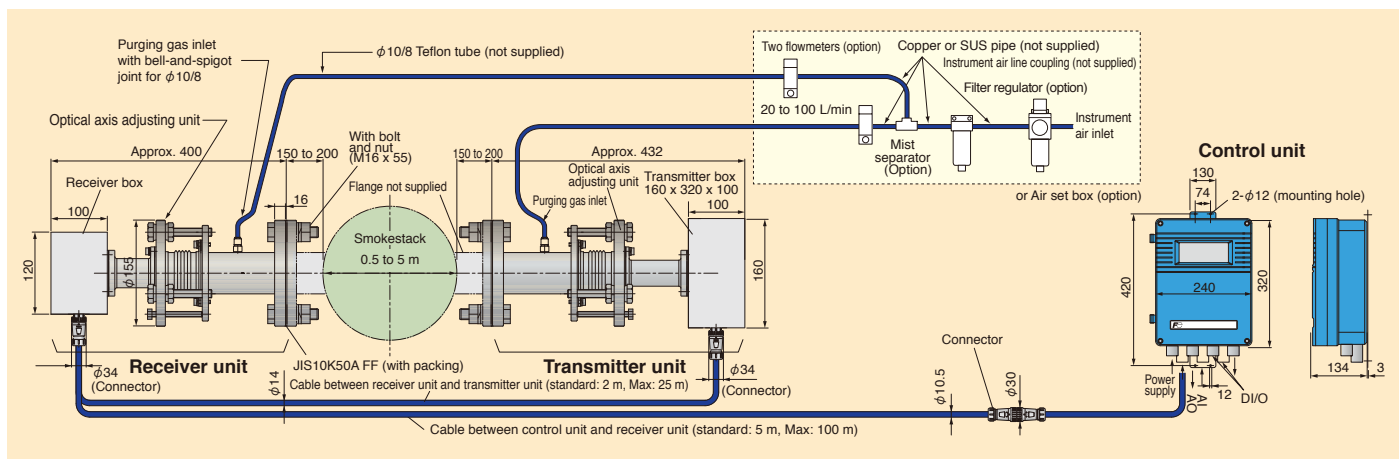
| | |
|------------------------|---|
| Analogue output | 4 to 20 mA DC or 0 to 1 V DC 2 or 4 points (0 to 5 VDC, 1 to 5 VDC, 0 to 10 VDC are available) (Process value, O ₂ correction value, average) |
| Analogue input | 4 to 20 mA DC, 2 points (Measured gas pressure, temperature, velocity, O ₂ concentration, moisture concentration, purge pressure) Concentration correction, O ₂ correction, alarm output are performed according to input signals. |
| Contact output | Relay contact output, 5 points: low light intensity, out of upper/lower limits, device failure, during hold/during calibration, power interruption |
| Contact input (Option) | Photo coupler contact input, 3 points: average reset, switchover between instantaneous/moving average value, remote hold |

Installation environment

| | |
|-----------------------|---|
| Operating temperature | -20 to +55°C (Receiver unit, transmitter unit) -5 to +45°C (Control unit) |
| Operating humidity | 90% RH or less |
| Optical path length | 0.5 to 5m |
| Mounting flange size | JIS 10K, 50A or 100A, or others |
| Purge gas | According to Table 1 (pressure 0.3 MPa or more) |
| Purge gas flow rate | 20 L/min or more |
| Gas condition | Temperature: see Table 1 Moisture: 50 vol% or less (no condensation) Pressure: ±10 kPa (O ₂ for air purge: -10 kPa to 100 kPa) Dust: 15 g/m ³ (N) or less. Consult us for use in dusty environments. |

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

Outline diagram (unit: mm)



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