e-Front runners

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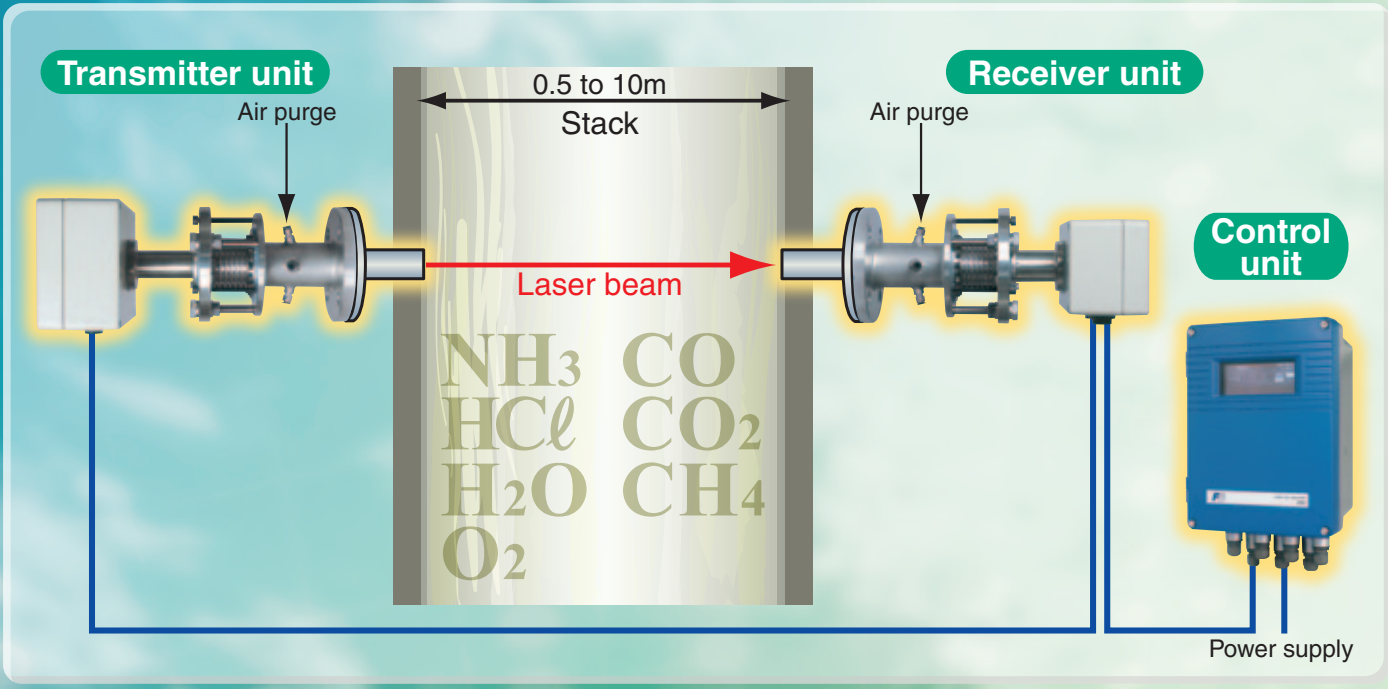
In-situ measurement

Direct insertion type ZSS

Measure NH_3, $HC\ell$, H_2O, O_2, CO, CO_2, and CH_4 gas concentrations in a stack at high speed.



- Excellent long-term stability: ±2.0%FS (zero drift)
- Ultra-high speed response: 1 to 5 seconds
- Direct insertion system eliminates the need for maintenance.
- Negligible interference by other gas components.
- A dual-component ($HC\ell$+H_2O, NH_3+H_2O) measurement function for reference dry gas conversion
- Measurement in a high-temperature/high particulate concentration environment
- Energy-saving 75-VA power consumption

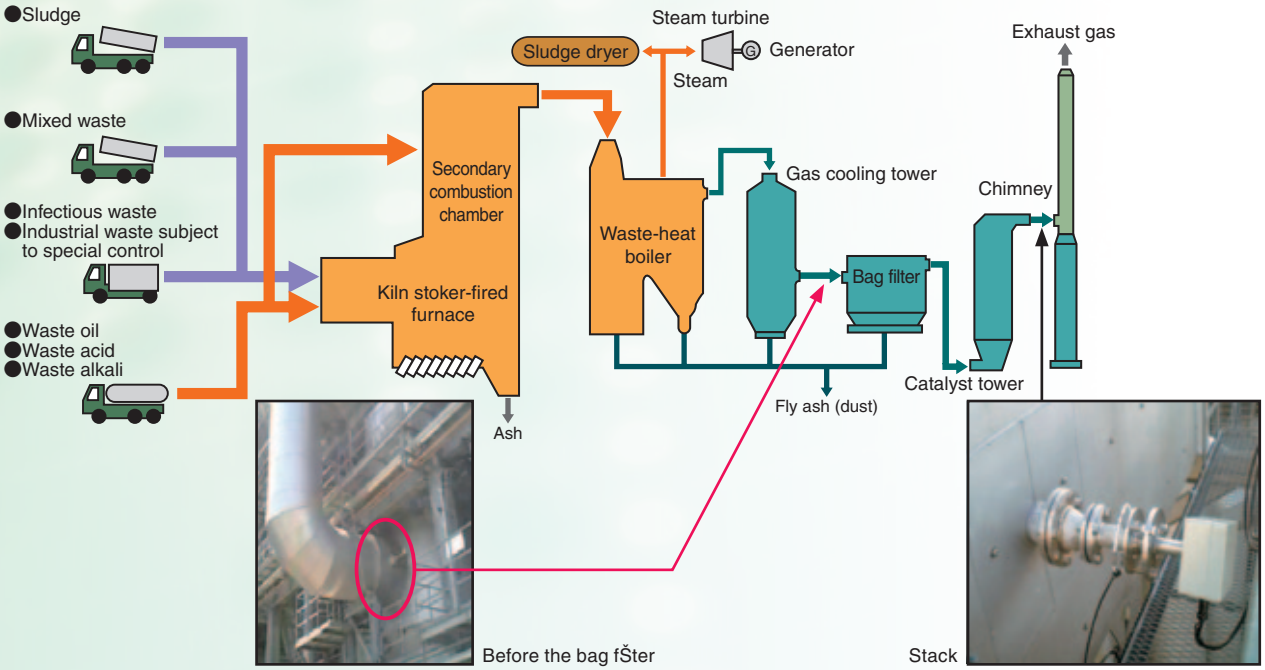
Fuji Electric Co., Ltd.

Ideal for HCℓ and O_2 gas concentration measurements

Application example: Industrial waste treatment plant

An ultra-high speed response (2 seconds or less) allows optimum control of the calcium hydroxide injection volume.

1. Measurement of the hydrogen chloride (HCℓ) gas concentration before the bag filter and in the stack
2. Continuous monitoring of the discharged hydrogen chloride (HCℓ) and oxygen (O_2) gas concentrations
3. The dual-component (HCℓ+H_2O) measurement function allows the reference dry gas conversion measurement to be performed.

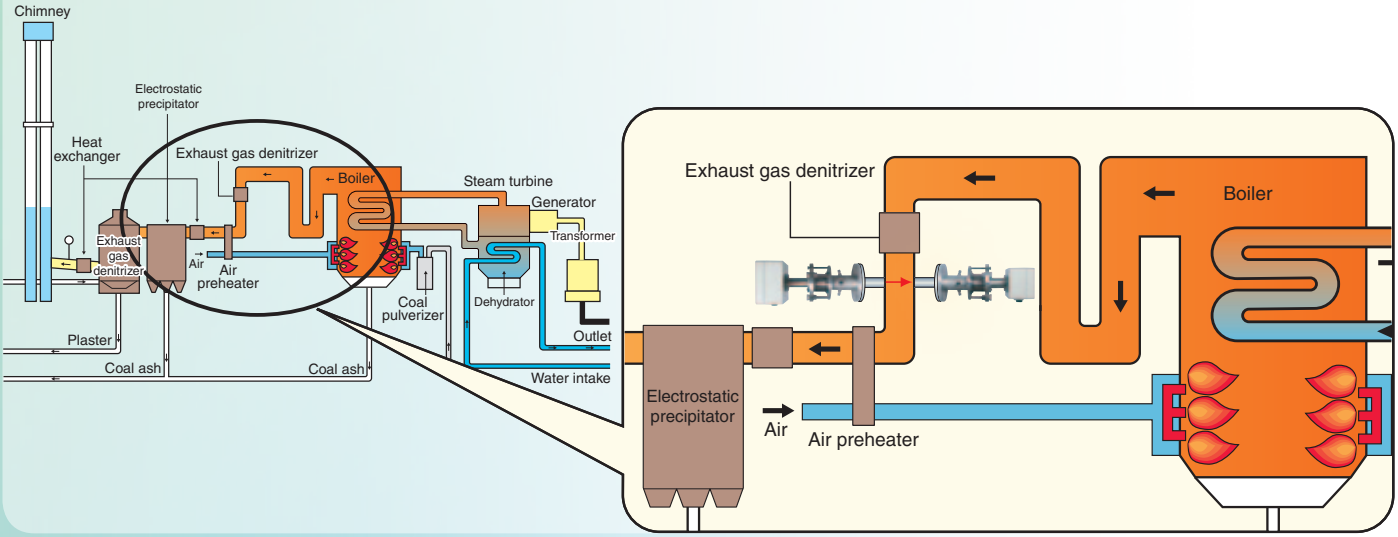


Ideal for ammonia (NH_3) gas concentration measurement

Sample applications: large type boiler

High-speed response (2 seconds or less) allows optimum control of the ammonia (NH_3) injection volume.

1. Ammonia (NH_3) gas concentration measurement after denitration
2. Dual-component measurement (NH_3+H_2O) allows the reference dry gas conversion measurement to be performed.



A laser beam system enables high-speed measurement.
<Continuous measurement in 1 to 5 seconds>

Excellent long-term stability
Zero point drift: ±2%FS

Easy maintenance
The maintenance time and cost are minimized through the elimination of gas sampling devices.

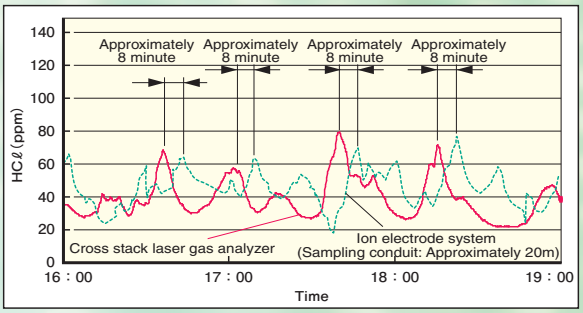
Barely affected by the interference of other gas components.
Minimal interference from other crossover gasses thanks to the use of an infrared semiconductor laser, which matches the absorption wavelength of the measuring components.

Code Symbols

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

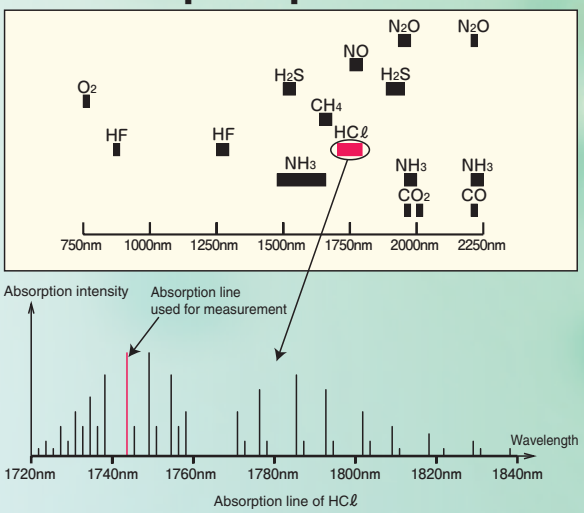
Digit	Specification		Note	Code
4	Measurable components	CO	Note 1	A
		CO (For use in high temperature)	Note 1, 3	B
		HCℓ	Note 1	C
		HCℓ+H₂O	Note 1, 5	F
		CO₂		G
		CO₂ (For use in high temperature)	Note 3	H
		CO+CO₂		K
		CO+CO₂ (For use in high temperature)	Note 3	L
		O₂ (Class 1 Laser)		P
		O₂ (For use in high dust)		Q
		CH₄		R
		NH₃	Note 1	W
		NH₂+H₂O	Note 1, 5	X
5	Unit	ppm		1
		mg/m³		3
		vol%		5
6	Measuring range	0 to 2	Note 2	K
		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		T
		0 to 50		A
		0 to 100		B
		0 to 200		C
		0 to 250		D
		0 to 400		J
		0 to 500		E
		0 to 1000		F
		0 to 2000		G
		0 to 5000		H
		0 to 6000		M
		Others		X
7				Y
8	Modification No.			4
9	Flange rating	10K 50A (JIS B 2212)		A
		10K 100A		B
		DN50/PN10		C
		ANSI #150 2B		D
10	Number of analog output points	2 points		0
		4 points		1
11	Number of analog input points	2 points		A
		6 points		B
12	Analog output	4 to 20mA DC		1
		0 to 20mA DC		2
		0 to 1V DC		3
		0 to 5V DC		4
		1 to 5V DC		5
13	Contact output/input	5 output points, No input		0
		5 output points, 3 input points		1
14	Cable length between receiver and control unit (Max. 100m)	5m		A
		10m		B
		20m		C
		30m		D
		40m		E
		50m		F
		80m		G
		100m		H
		Others		X
15	Cable length between receiver and transmitter (Max. 25m)	2m		A
		5m		B
		10m		C
		15m		D
		20m		E
		25m		F
		Others		X
16	Display and operation manual	Japanese		J
		English		E
		Chinese		C
18	Measuring optical path length (unit: 1m)	0m		0
		1m		1
		2m		2
		3m		3
		4m		4
		5m		5
		6m		6
		7m		7
		8m		8
		9m		9
19	Measuring optical path length (unit: 0.1m)	0.0m		0
		0.1m		1
		0.2m		2
		0.3m		3
		0.4m		4
		0.5m		5
		0.6m		6
		0.7m		7
		0.8m		8
		0.9m		9
20	Measuring optical path length (unit: 0.01m)	0.00m		0
		0.05m (Used only when 10m is specified)		5
				9
21	Dust proof specification	Standard	Note 4	N
		Dust proof		D

Note 1) When O₂ conversion is required, specify the reference O₂ concentration (settable within 0 to 19vol%, O₂: Integer). (HCl meter, NH₃ meter, CO meter)
Note 2) Specify the range within the max/min range calculated from path length.
If the measuring range x stack length (optical path length) exceeds 1000ppm/m, consult Fuji.
Note 3) Specified to use in high temperature gas: 500°C or more, and 1200°C or less
Note 4) Specify 'D' when dust exceeds 5g/Nm³-m.
Note 5) If H₂O is contained in measured component, contact directly to Fuji's service department.



Measurement principle
This instrument uses an infrared semiconductor laser as its light source, and a photodiode for its receiver unit. The gas components to be measured have a waveband for absorbing light unique to each of them (see the following diagram). This waveband represents the collection of a number of absorption lines; one of which is used for measurement. Since measurement is performed within this extremely narrow waveband, it is unaffected by the interference of other gases in principle. Modulated signal amplitude, rather than a change of the optical volume, is used to detect the concentration.

● Gas absorption spectrum



● Standard accessories

Name	Quantity	SPECIFICATIONS
Bolt	8 (16)	M16×5 (70) SUS (※)
Nut	8 (16)	M16 SUS (※)
Spring washer	8 (16)	M16 SUS (※)
Flat washer	8 (16)	M16 SUS (※)
CompanÚn flange packing	2	See flange rating.
Bolt for angle regulatÚn	6	Hexagonal socket bolt M8×70
Power fuse	2	
InstructÚn manual	1	

(*When "B" or "C" is specified in the 9th digit in a code symbol, quantity is 16 pieces. 8 pieces are attached in other cases.)
(*When "B", "C" or "D" is specified in the 9th digit, Bolt length is 70mm. It is 55mm in other cases. Inch-sized bolts are not applicable.)

● Spare parts for one year (Type: ZBN1SS12)

Name	Quantity	SPECIFICATIONS
SŠicon packing A	2 pieces	For bellows (∗ZSSTK7N3508P1)
O-ring	2 pieces	(ZZP∗ZSSTK7P2530P3)

SPECIFICATIONS

● General

Measurement principle	Non-dispersive infrared absorbance system (NDIR)
Measurement method	Cross-stack system
Measurable components Measurable range	Measurable components, Min. measuring range, Max. measuring range HCℓ 10ppm 5000ppm NH_3 15ppm 5000ppm HCℓ+H_2O 50ppm(HCℓ) 1000ppm(HCℓ) Note 1) NH_3+H_2O 50ppm(NH_3) 1000ppm(NH_3) Note 1) O_2(Class 1 Laser) 4vol% 100vol% O_2(For use in high dust) 4vol% 50vol% CO 2vol% 50vol% CO_2 2vol% 50vol% CO+CO_2 2.5vol% 50vol% CH_4 100ppm 50vol% Note 1) The H_2O range is fixed to 50 vol%.
Light source	Near-infrared semiconductor laser
Laser class	Class 1 (excluding O_2 meter for use in high dust)
Power supply voltage	100 V to 240 V AC, 50/60 Hz
Power consumption	Approximately 75 VA
Calibration interval	Once every six months (Maintenance cycle may vary depending on the operating environment.)
Display	LCD with back light (control unit)
Display contents	Measurable component, measurement concentratÚn (instantaneous value, O_2 correctÚn instantaneous value, average value, and O_2 correctÚn average value), alarm (fault status)
Weight	Receiver unit, transmitter unit: Approx. 10kg each Control unit: Approximately 8kg
External dimensions	See the dimensÚn diagram.
Construction	Waterproof (IP65)

● Performance

Response time	1 to 5 seconds or less
Repeatability	±1.0% FS (depending on measuring component and measuring range)
Linearity	±1.0% FS (depending on measuring component and measuring range)
Zero drift	±2.0% FS (NH_3 range 20 ppm or less: ±3.0% FS)
Interference from other gases	±2.0% FS
Minimum detectable limit	1% of the minimum range

● Input / Out put signal

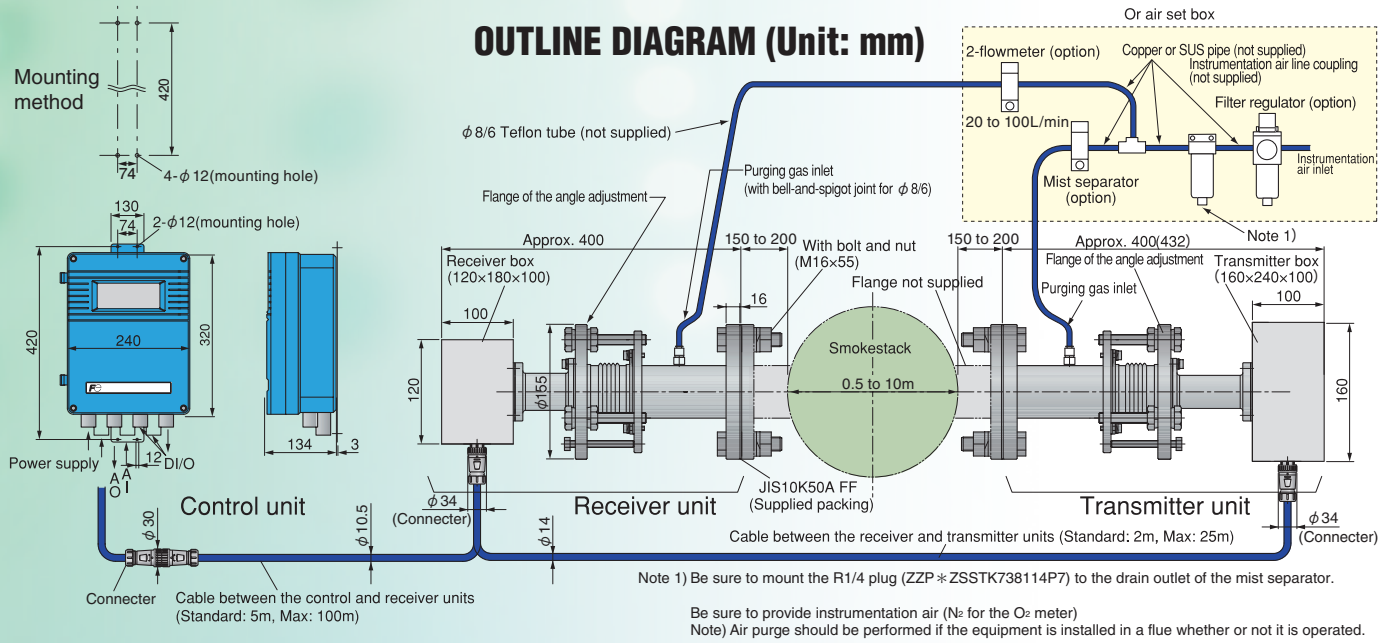
Communication functions	RS485 (MODBUS), USB (for loader)
Analog output	4 to 20 mA DC or 0 to 1 V DC, 2 or 4 points (0 to 5V, 1 to 5V or 0 to 10V DC is avaŠable.) (Measurement value, O_2 correctÚn value, Average value and instantaneous value are switchable by settings.)
Analog input	4 to 20 mA DC, 2 or 6 points(Measured gas pressure, measured gas temperature, measured gas velocity, O_2 gas concentratÚn, water concentratÚn, air purge pressure)* Measurement concentratÚn correctÚn, O_2 conversÚn or alarm output is performed according to the input signal.
Contact output	Relay contact output 5 points Insufficient amount of light received, outside the range of the upper/lower limits, device faŠure, during calibratÚn or on hold, power turned off
Contact input (option)	Photo coupler contact input: 3 points Average value reset signal, switching instantaneous value/moving average value and remote hold

● Installation environment

Ambient temperature	–20 to+55°C (Receiver unit, transmitter unit) –5 to +45°C (Control unit)
Ambient humidity	90% RH or less
Measurable optical path length	0.5 to 10m
Mounting flange dimension	JIS 10K, 50 A or 100 A, Others
Air purge	Instrument air, Pressure: 0.5 to 0.7 MPa or more
Air purge flow rate	20L/min or more
Measured gas condition	Temperature: 1200°C or lower Pressure: ±10kPa Moisture: 50vol% or lower Flow rate: 25m/s or lower Dust: 5 to 30g/Nm^3

Conforms to JIS B7993 “Automatic exhaust gas component measurement system by analyzer adopting a non-absorptÚn sampling method.”

OUTLINE DIAGRAM (Unit: mm)



Note 1) Be sure to mount the R1/4 plug (ZZP＊ZSSTK738114P7) to the drain outlet of the mist separator.

Be sure to provide instrumentation air (N_2 for the O_2 meter)
Note) Air purge should be performed if the equipment is installed in a flue whether or not it is operated.