

In-Situ

Zirconia Oxygen Analyzers

Detector: ZFK8, ZFKE Converter: ZKMA, ZKMB, ZKME

Ideal for Combustion Control

- ✓ User-replaceable zirconia element
- ✓ No gas sampling required
- ✓ Enhanced safety design
- ✓ Response speed from 4 to 7 seconds
- ✓ Dust- and water-proof, and/or flameproof enclosure
- ✓ Key operation available on front cover (ZKMA and ZKME)
- ✓ HART communication



ZKMA



ZKMB



ZKME



ZFK8



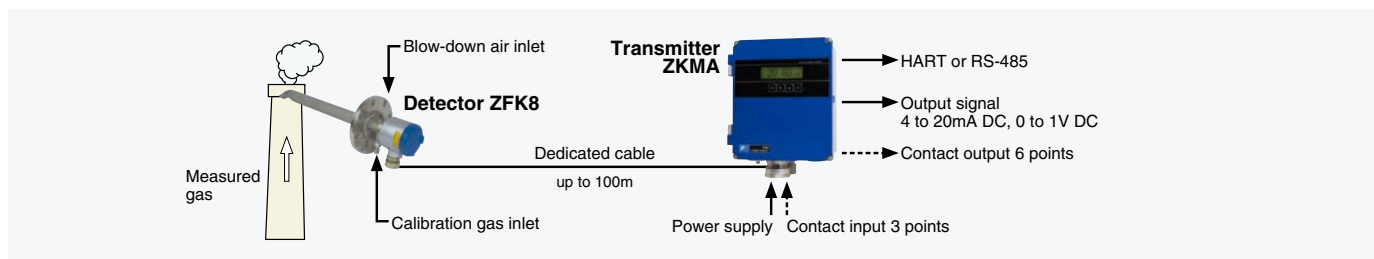
ZFKE



High Safety Level

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System diagram



Ordering code

ZFK8

5	6	7	8	9	10	11	12	13	14	15	16
R			5						1		

Digit	Description	Note	Code
6	Pipe adapter for calibration gas inlet For ø 6mm tube (SS) For ø 1/4 inch tube (SS) With ball valve		1 2 3
7	Power supply 100 to 120 V AC 50/60 Hz 200 to 240 V AC 50/60 Hz		1 3
8	Revision No.		5
9	Flow guide tube		
10	<Flange>	<Application>	<Length>
11	No tube		0Y0
	SS304 general use	300 mm	5A3
	SS304 general use	500 mm	5A5
	SS304 general use	750 mm	5A7
	SS304 general use	1000 mm	5A1
	SS316 for corrosive gas	300 mm	5B3
	SS316 for corrosive gas	500 mm	5B5
	SS316 for corrosive gas	750 mm	5B7
	SS316 for corrosive gas	1000 mm	5B1
	SS316 with blowdown nozzle	300 mm	5C3
	SS316 with blowdown nozzle	500 mm	5C5
	SS316 with blowdown nozzle	750 mm	5C7
	SS316 with blowdown nozzle	1000 mm	5C1
	SS316 for high particulate	300 mm	6D3
	SS316 for high particulate	500 mm	6D5
	SS316 for high particulate	750 mm	6D7
	SS316 for high particulate	1000 mm	6D1
	SS316 for high particulate with cover	300 mm	6E3
	SS316 for high particulate with cover	500 mm	6E5
	SS316 for high particulate with cover	750 mm	6E7
	SS316 for high particulate with cover	1000 mm	6E1
	Others		ZZZ
12	Heat-retaining cover Without With		Y A
13	Pipe adapter for reference gas inlet None For ø 6 mm tube (SS) For ø 1/4 inch tube (SS)		Y A B
14	Filter spec Standard		1
15	Instruction manual Japanese English Chinese		J E C
16	Specification nameplate 100 to 120 V AC 50/60 Hz 200 to 240 V AC 50/60 Hz		1 2

ZTA

4	5	6	7	8
1			1	

Digit	Description	Note	Code
4	Measured gas temperature For high temperature (+1500°C max.) General use (+800°C max.)		1 2
5	—		1
6	Insertion length [mm] 500 750 1000 1500		B C D E
7	Power supply voltage 100V/115 V AC 50/60Hz 200V/220 V AC 50/60Hz 230 V AC 50/60Hz		1 3 5
8	Revision No.		1

ZRZ

4	5	6	7	8	9
K	R		1		

Digit	Description	Note	Code
4	Connectable device ZKM		K
5	Type R thermocouple		R
6	Length		
7	<Rainproof flexible conduit>	<Cable>	
	None	6 m	YA
	None	10 m	YB
	None	15 m	YC
	None	20 m	YD
	None	30 m	YE
	None	40 m	YF
	None	50 m	YG
	None	60 m	YH
	None	70 m	YJ
	None	80 m	YK
	None	90 m	YL
	None	100 m	YM
	6 m	6 m	AA
	10 m	10 m	BB
	15 m	15 m	CC
	20 m	25 m	DD
8	Revision No.		1
9	Cable end treatment None One side (detector side) Both sides		0 1 2

Note 5)

Flameproof version for Explosive Atmospheres



Converter ZKME



Detector ZFKE



Detector with flow guide tube

	TIIS	NEPSI
Converter ZKME	Ex d IIB T6	Ex d IIC T6 Gb
Detector ZFKE	Ex d IIB T4	Ex d IIC T4 Gb

Ordering code

ZFKE

5	6	7	8	9	10	11	12	13	14	15	16	17
R			5				Y				1	

Digit	Description	Note	Code
6	Pipe adapter for calibration gas inlet None (G3/8 internal screw) For ø6mm tube For ø1/4 inch tube Ejector with pipe adapter for ø6mm tube Ejector with pipe adapter for ø1/4 inch tube		Y 1 2 A B
7	Power supply 100 to 120 V AC 50/60 Hz 200 to 240 V AC 50/60 Hz		1 3
8	Revision No.		5
9	Flow guide tube <Flange size> None JIS 5K 65A JIS 5K 80A JIS 5K100A JIS 10K 65A JIS 10K 80A JIS 10K 100A ANSI 150LB 2B ANSI 150LB 3B ANSI 150LB 4B DIN DN50 PN10 DIN DN80 PN10		0 7 8 9 A B C D E F G H
10	<Application / material> None For corrosive gas / SS316 With blow-down nozzle / SS316 For high particulate / SS316 For high particulate with cover / SS316 For high particulate / SS310S For high particulate with cover / SS310S For high particulate / titanium For high particulate with cover / titanium		Y F G H J K L M N
11	<Length> None 300mm 500 mm 750 mm 1000 mm		0 3 5 7 1
13	Pipe adapter for reference gas inlet None (G1/8 internal screw) For ø6mm tube (SS) For ø1/4 inch tube (SS)		Y A B
14	Filter Standard For high particulate		5 7
15	Instruction manual language Japanese English Chinese		J E C
16	Specification name plate Standard		1
17	Ex. standard NEPSI TIIS		N T

ZKME

5	6	7	8	9	10	11	12	13	14
		1	1				1		

Digit	Description	Note	Code
5	Output signal 4 to 20mA DC 0 to 1V DC		B E
6	Communication None RS-485		Y 2
9	Optional functions None Combustion efficiency display function Note1) Blowdown Auto calibration Combustion efficiency indication + Blowdown Combustion efficiency indication + Auto calibration Blowdown + Auto calibration Combustion efficiency indication + Blowdown + Auto calibration		Y 1 2 3 4 5 6 7
10	Instruction manual language Japanese English Chinese		J E C
11	Option None With valve With valve + flowmeter		Y 1 2
12	Specification name plate Standard		1
13	Number of cable glands 3 4 5 6 7		3 4 5 6 7
14	Ex standard NEPSI TIIS		N T

Note1)

ZRZ

4	5	6	7	8	9
E	R		1		

Digit	Description	Note	Code
4	Connectable device ZKME		E
5	Type For type R thermocouple		R
6	Cable length 6 m 10 m 15 m 20 m 30 m 40 m 50 m 60 m 70 m 80 m 90 m 100 m		YA YB YC YD YE YF YG YH YJ YK YL YM
9	Cable end treatment None One side (detector side) Both sides		0 1 2

Replacement detector element

Power supply	Code symbols
AC100 to 120V	ZFK8YY15-0Y0YY-0YY
AC200 to 240V	ZFK8YY35-0Y0YY-0YY

■ Specifications

General

Measuring object	Oxygen in non-combustible gas
Principle	Zirconia oxygen sensor
Range	0...2...50 vol% User-configurable two ranges
Repeatability	≤ ±0.5% FS
Linearity	≤ ±2% FS
Zero/span drift	≤ ±2% FS per month
Response time	4–7 seconds (from the calibration gas inlet)
Analog output	4–20 mA DC or 0–1 V DC, isolated
Power supply voltage	100–120 V AC or 200–240 V AC

Detector

	ZFK8	ZFKE
Gas temperature	With flow guide tube	-10...600°C
	With ejector	For general use -10...800°C
		For high temperature -10...1500°C
Gas pressure	-3...3 kPa	
Filter material	Alumina, quartz paper	
Enclosure	IP66	IP66, flameproof
Weight (excl. flow guide tube)	1.6 kg	3 kg

■ Detector Selection Guide

Converter

Display	4-digit, with backlight
Contact output	6 relay contacts
Contact input	3 volt-free contacts
Communication	HART or RS-485 (Modbus)
Output hold	During calibration and during blowdown
Other functions	Thermocouple break detection, key lock, sensor diagnosis
Options	Combustion efficiency display, blowdown, auto calibration Flowmeter, selector valve
Enclosure	ZKMA: IP66 ZKMB: IP67 ZKME: IP65 and flameproof

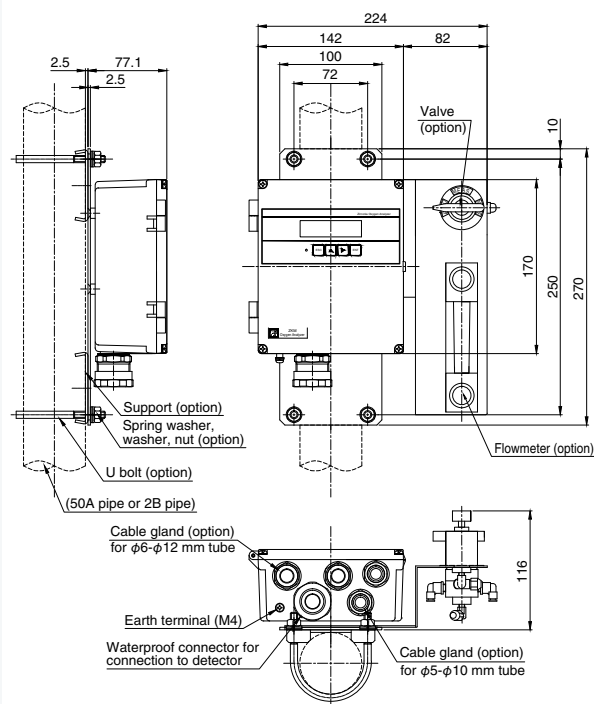
Flow guide tube

	For ZFK8	For ZFKE
Types	Standard	
	Corrosion resistant	Corrosion resistant
	With blowdown nozzle	With blowdown nozzle
	Dust tolerant	Dust tolerant
	Dust tolerant and with cover	Dust tolerant and with cover
Length	300, 500, 700, or 1000 mm	
Flange size	JIS 5K 65A JIS 5K 80A (for dust tolerant version)	See the 9 th to 11 th digits of ordering codes

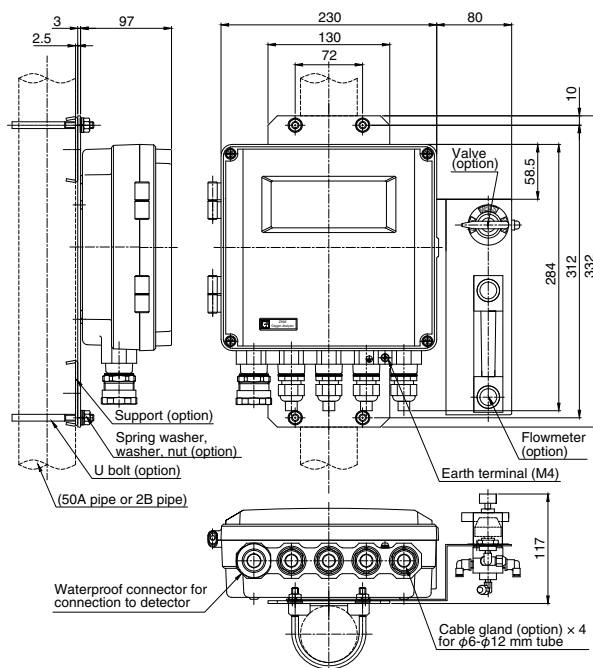
Notes:

■ Dimensions (in mm)

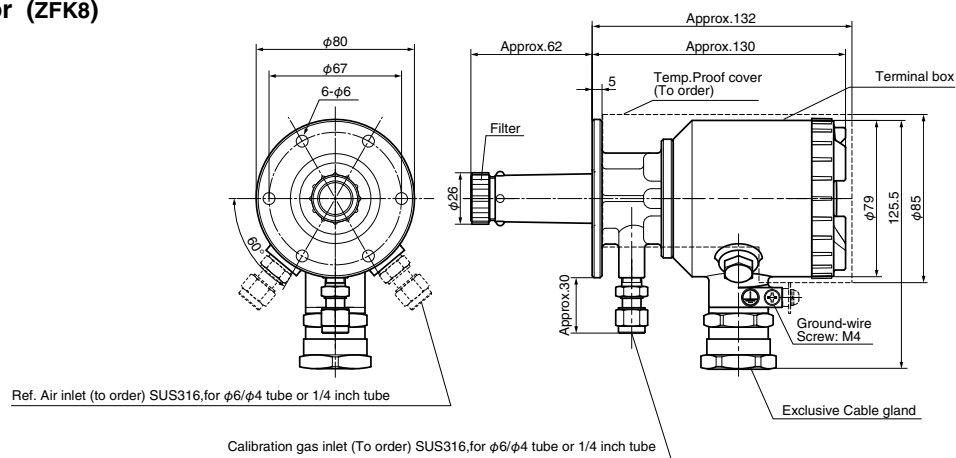
Converter (ZKMA) <IP66>



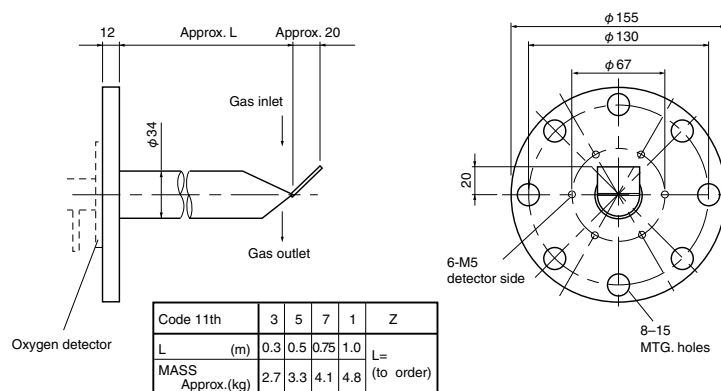
Converter (ZKMB) <IP67>



Detector (ZFK8)

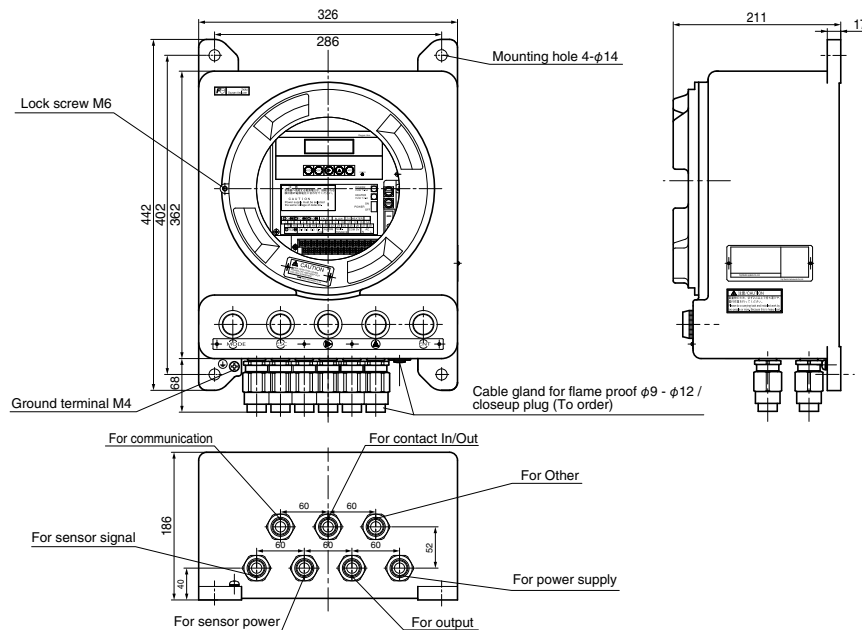


Flow guide tube for ZFK8 (Flange size JIS 5K 65A) 9th code:5, 10th code:A

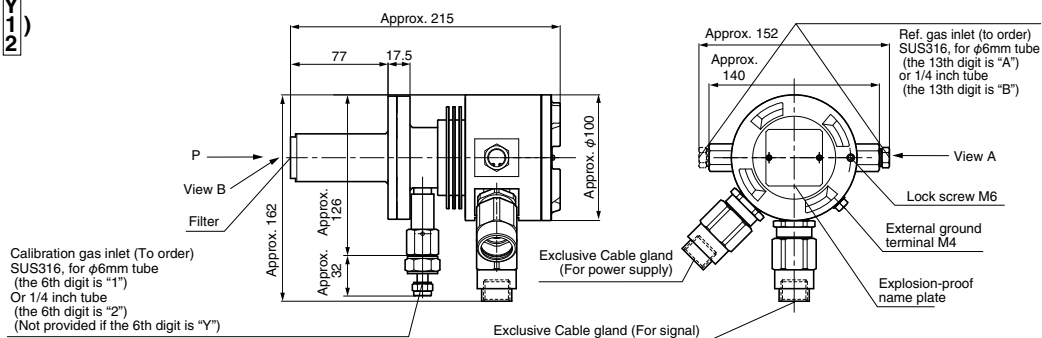


Code 11th	3	5	7	1	Z
L (m)	0.3	0.5	0.75	1.0	L=
MASS Approx.(kg)	2.7	3.3	4.1	4.8	(to order)

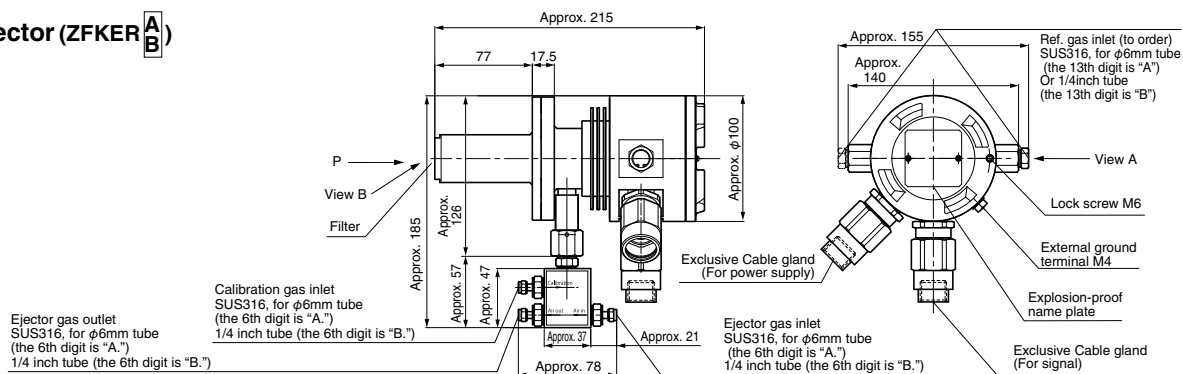
Converter (ZKME)



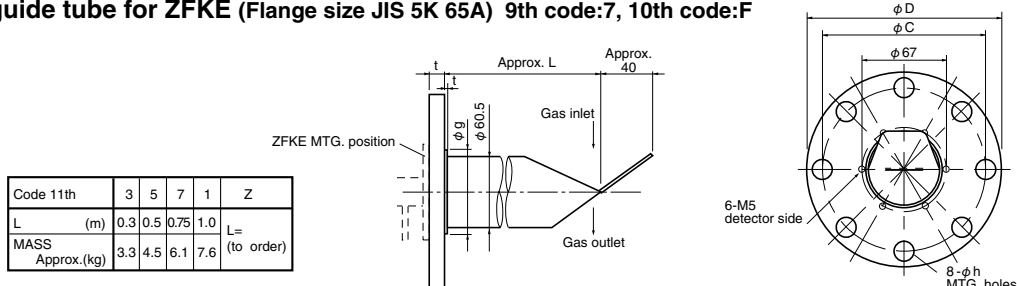
Detector (ZFKER $\begin{smallmatrix} Y \\ 1 \\ 2 \end{smallmatrix}$)



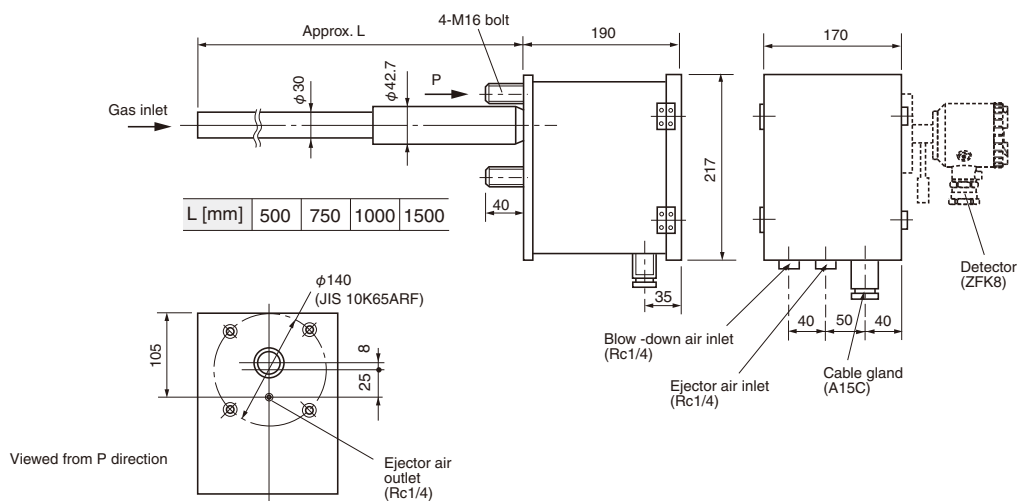
Detector (ZFKER $\begin{smallmatrix} A \\ B \end{smallmatrix}$)



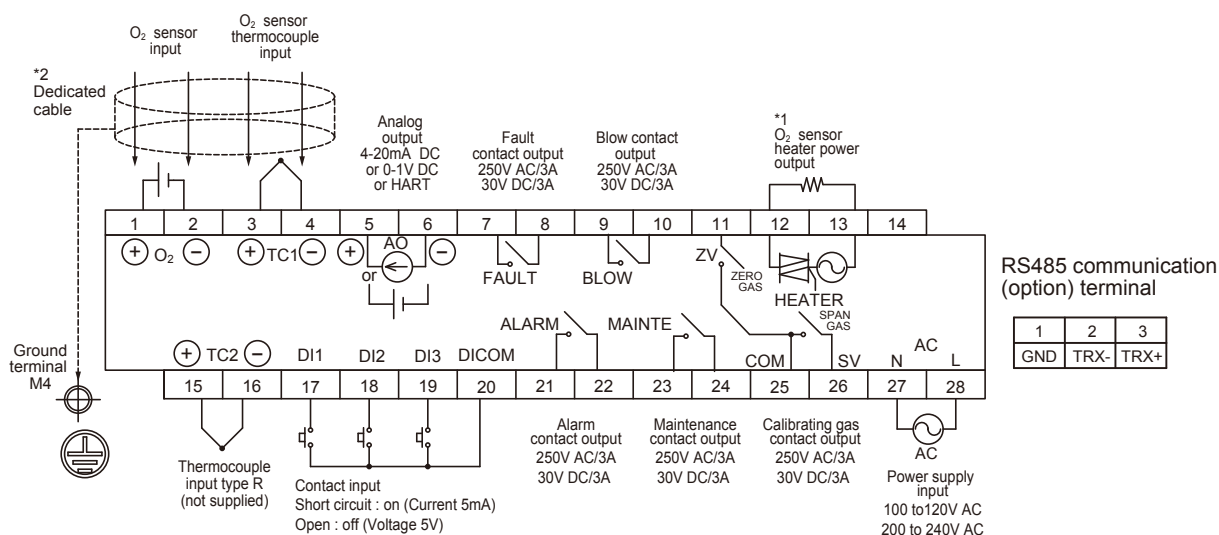
Flow guide tube for ZFKE (Flange size JIS 5K 65A) 9th code:7, 10th code:F



Ejector (ZTA) for ZFK8



Wiring diagram



- Note 1) The heater uses the same power source as the converter.
 Note 2) Connect the shield of the dedicated cable to the ground terminal inside the converter.
 Note 3) HART communication (option) uses the 4–20 mA analog output line.

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

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