

FLUEREX flow sensor

PFD Series

- Flow rate range: 25 to 500, 50 to 1000, 100 to 2000, 200 to 4000
400 to 8000, 800 to 16000 L/min (normal)



Features

- Total accuracy The flow rate is detected with $\pm 4\%$ F.S.
- The correction due to pressure fluctuation or temperature fluctuation is not required.
- The flow rate converted to the reference state (0°C, 101.3 kPa) is displayed.
- The integration display and integrated value pulse output are possible.
- A wide range of functions and variations such as flow rate range and various electric outputs.

Specifications

Item	PFD-501-10	PFD-102-15	PFD-202-20	PFD-402-25	PFD-802-40	PFD-163-50		
Specs	Flow rate range L/min(normal)	25 to 500	50 to 1000	100 to 2000	200 to 4000	400 to 8000	800 to 16000	
	Port size	Rc3/8	Rc1/2	Rc3/4	Rc1	Rc1 1/2	Rc2	
Working conditions	Applicable fluid	Compressed clean air/nitrogen gas						
	Air quality	JIS B8392-1: 2012 (ISO 8573-1: 2010) [1:1:1 - 1:6:1] (*1)						
	Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)						
	Min. working pressure MPa	0.1 (≈ 15 psi, 1 bar)						
	Proof pressure MPa	1.5 (≈ 220 psi, 15 bar)						
	Ambient temperature °C	0 (32°F) to 50 (122°F)						
	Ambient humidity	85% R.H. or less (no condensation)						
Accuracy	Fluid temperature °C	0 (32°F) to 40 (104°F)						
	Linearity	$\pm 3.0\%$ F.S. (0.5 MPa (≈ 73 psi, 5 bar), at 20°C (68°F))						
Pressure loss	Pressure characteristics	$\pm 2.0\%$ F.S. (0.5 MPa (≈ 73 psi, 5 bar) reference, at 0.2 (≈ 29 psi, 2 bar) to 0.7 MPa (≈ 100 psi, 7 bar))						
	Temperature characteristics	$\pm 2.0\%$ F.S. (20°C (68°F) reference, at 10 (50°F) to 30°C (86°F))						
Response time	Pressure loss MPa	0.015 (≈ 2.2 psi, 0.15 bar) or less (max. flow rate, at 0.5 MPa (≈ 73 psi, 5 bar))						
Output	Response time sec	2.5 or less						
	Display	Instant/integrating flow 4-digit LED display						
	Resolution L/min(normal)	1	5	5	10	20	50	
	Min. displayed flow rate L/min(normal)	10	20	40	80	160	320	
	Integrating flow	Max. 9 digits (switching display using change key) (*4)						
Power supply voltage	Analog output	Standard: 0 to 5 VDC/option: 4 to 20 mADC, 1 to 5 V, 0 to 10 V						
	Switch output	2 points (NPN/PNP transistor output: selection)						
	Pulse output (*2)	10 L (normal)/pulse				100 L (normal)/pulse		
Cable	Power supply voltage V	24 VDC (6 W or less/excluding load current of switch output)						
Mounting	Cable	Accessory (3 m, 4-conductor, finish diameter $\phi 6$, cable conductor 0.5 mm ² , insulator O.D. 1.72 mm, with connector)						
	Mounting orientation	Unrestricted in vertical/horizontal directions						
Degree of protection	Straight piping section	IN side: 10D, OUT side: 5D, these are recommended (*3)						
	Degree of protection	IP64 equivalent (only for sensor)						
Weight	Weight kg	1.1	1.1	1.3	1.4	1.7	4.5	
Bracket weight	Bracket weight g	61 (including screws)				92 (including screws)		-

*1 : Note that condensation may be formed when used in a state with ambient temperature lower than fluid temperature.

Be careful that detection failure may occur if transmitted oil is accumulated. Because this kit does not have clean specifications for equipment, the generation of particles occurs on the secondary side. When the ultra clean air is required, it is recommended to install a filter for precise filtration on the end side.

*2 : The pulse output is shared with the switch output. Use this output by switching the function.

*3 : Providing straight piping sections is recommended so that the piping conditions do not affect the performance (D is inner diameter of the pipe).

*4 : The data of integrating flow value is backed up regularly. It can also be backed up by operation. Refer to "Functions/operations" on page 1546 for details.

How to order

- Separated display

PFD- **501** - **10** **N** **0** - **B**

A Flow rate range

B Port size

C Switch output

D Analog output

E Bracket (*1)

Code	Description
A Flow rate range	
501	25 to 500 L/min (normal)
102	50 to 1000L /min (normal)
202	100 to 2000L /min (normal)
402	200 to 4000L /min (normal)
802	400 to 8000L /min (normal)
163	0.80 to 16.00m ³ /min (normal)
B Port size	
Flow rate range	501 102 202 402 802 163
10 Rc3/8	●
15 Rc1/2	●
20 Rc3/4	●
25 Rc1	●
40 Rc1 1/2	●
50 Rc2	●
C Switch output	
N	NPN transistor output x 2
P	PNP transistor output x 2
D Analog output	
0	0 to 5 VDC Standard
1	4 to 20 mADC Option
2	1 to 5 VDC Option
3	0 to 10 VDC Option
E Bracket	
Blank	No Standard
B	Bracket included Option

⚠ Precautions for model No. selection

- *1: Bracket option is not available for PFD-163.
- *2: The product consists of sensor, monitor and cable.
The description on the plate is as follows.
The model No. is not indicated on the cable.

Product: PFD-(A)-(B)(C)(D)-(E)
Sensor section : PFD-(A)-(B)
Monitor:PFD-(A)-(C)(D)

[Example of model No.]

PFD-501-10N0-B

Model: PFD

- A** Flow rate range : 25 to 500 l/min (normal)
- B** Port size : Rc3/8
- C** Switch output : NPN transistor output
- D** Analog output : 0 to 5 VDC
- E** Bracket : Attached

- Discrete option model No.

PFD-C3

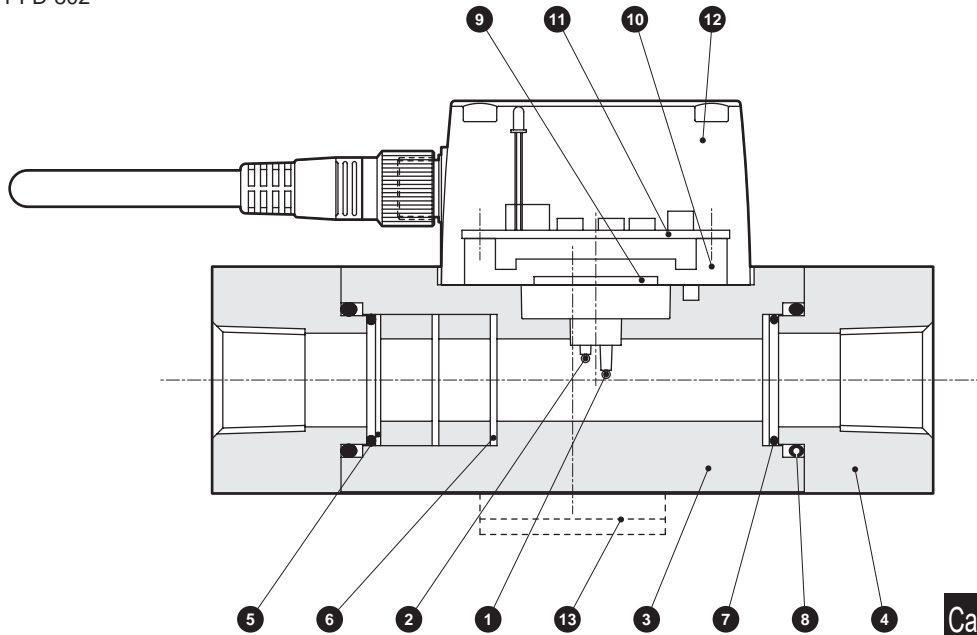
Code	Description
C3	Standard cable
B	Bracket (for 501/102/202/402)
B1	Bracket (for 802)

F.R.L.
F.R.
F (Filtr)
R (Reg)
L (Lub)
Drain Separ
Mech Press SW
Res press exh valve
SlowStart
Anti-bac/Bac-remove Filtr
Film Resist FR
Oil-ProhR
Med Press FR
No Cu/ PTFE FRL
Outdrs FRL
Adapter Joiner Press Gauge
CompFRL
LgFRL
PrescR
VacF/R
Clean FR
ElecPneuR
AirBoost
Speed Ctrl
Silncr
CheckV/ other
Fit/Tube
Nozzle
Air Unit
PresCompn
Electro Press SW
ContactSW
AirSens
PresSW Cool
Air Flo Sens/Ctrl
WaterRSens
TotAirSys (Total Air)
TotAirSys (Gamma)
Gas generator
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

F.R.L. Internal structure and parts list

F.R. ● PFD-501 to PFD-802

F (Filtr)
R (Reg)
L (Lub)
Drain
Separ
Mech
Press SW
Res press
exh valve
SlowStart
Anti-bac/Bac-
remove Filtr
Film
Resist FR
Oil-ProhR
Med
Press FR
No Cu/
PTFE FRL
Outdrs FRL
Adapter
Joiner
Press
Gauge

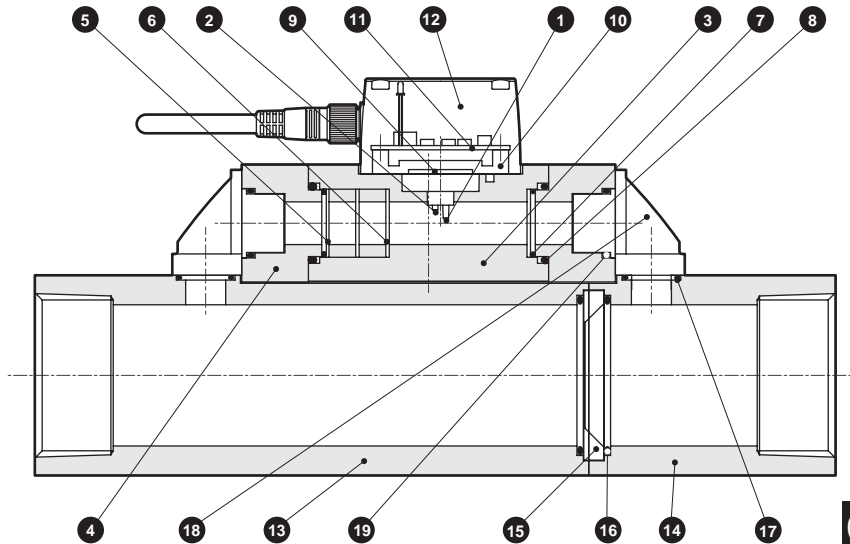


Cannot be disassembled

No.	Part name	Material	No.	Part name	Material
1	Platinum thin film sensor 1	Alumina/platinum	7	O-ring	NBR Nitrile rubber
2	Platinum thin film sensor 2	Alumina/platinum	8	O-ring	NBR Nitrile rubber
3	Body	A6063S Aluminum alloy	9	Sensor base board	Glass epoxy
4	Adaptor	A6063S Aluminum alloy	10	Sensor base	PBT Polybutylene terephthalate
5	Rectification plate	SUS304 Stainless steel	11	Sensor board	Glass epoxy
6	Mesh	SUS304 Stainless steel	12	Cover	ABS ABS resin
			13	Bracket	SUS304 Stainless steel

● PFD-163

AirBoost
Speed Ctrl
Silncr
CheckV/
other
Fit/Tube
Nozzle
Air Unit
PrecsCompn
Electro
Press SW
ContactSW
AirSens
PresSW
Cool
Air Flo
Sens/Ctrl
WaterRtSens

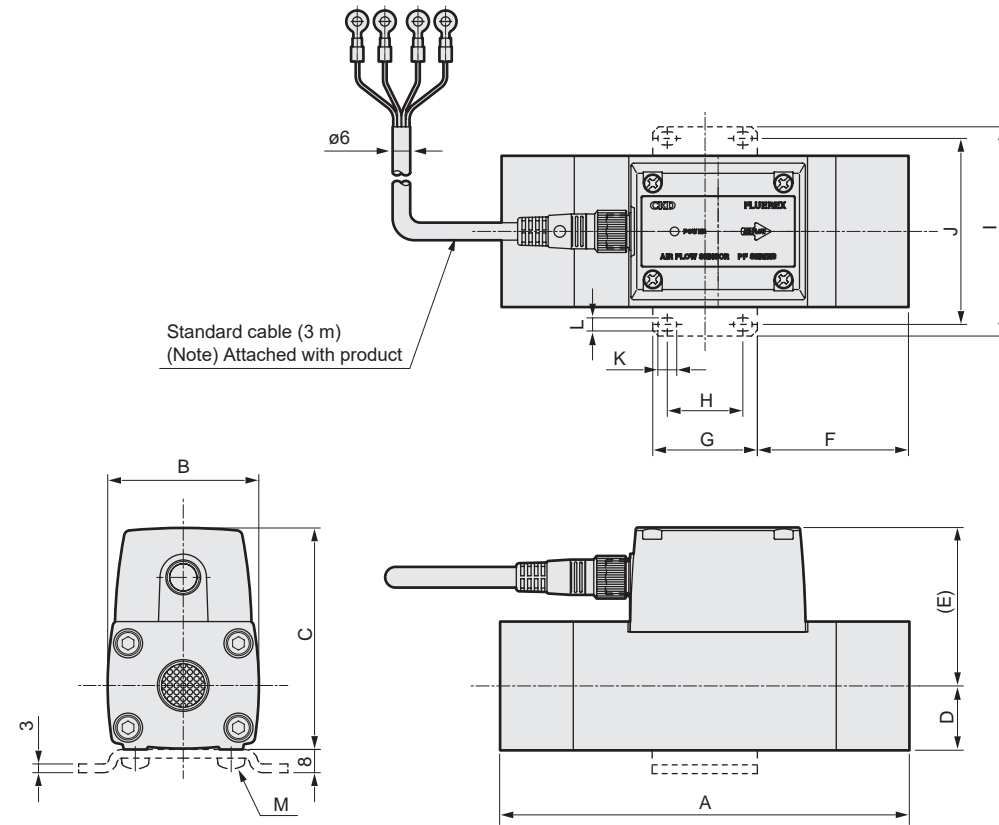


Cannot be disassembled

No.	Part name	Material	No.	Part name	Material
1	Platinum thin film sensor 1	Alumina/platinum	11	Sensor board	Glass epoxy
2	Platinum thin film sensor 2	Alumina/platinum	12	Cover	ABS ABS resin
3	Body	A6063S Aluminum alloy	13	Flow path 1	A6063S Aluminum alloy
4	Split-flow adaptor	A6063S Aluminum alloy	14	Flow path 2	A6063S Aluminum alloy
5	Rectification plate	SUS304 Stainless steel	15	Orifice	C3604BD Copper alloy
6	Mesh	SUS304 Stainless steel	16	O-ring	NBR Nitrile rubber
7	O-ring	NBR Nitrile rubber	17	O-ring	NBR Nitrile rubber
8	O-ring	NBR Nitrile rubber	18	Sub-attachment	SCS13 Stainless steel
9	Sensor base board	Glass epoxy	19	O-ring	NBR Nitrile rubber
10	Sensor base	PBT Polybutylene terephthalate			

Dimensions

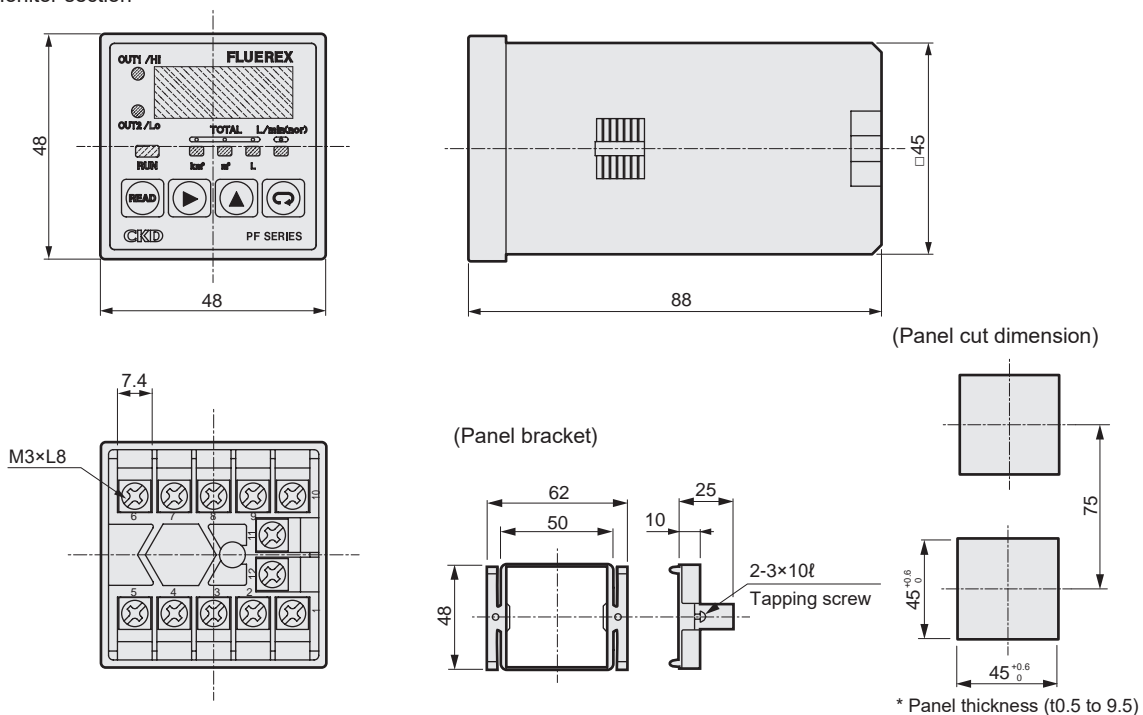
● PFD-501 to 802



Model No.	Port size
PFD-501-10	Rc3/8
PFD-102-15	Rc1/2
PFD-202-20	Rc3/4
PFD-402-25	Rc1
PFD-802-40	Rc1 1/2

Model No.	A	B	C	D	(E)	F	G	H	I	J	K	L	M
PFD-501/102	140	52	76.2	22	54.2	52	36	26	72	64	6.5	4.5	M4 thread depth 6
PFD-202	150	55	87.2	27.5	59.7	57	36	26	72	64	6.5	4.5	M4 thread depth 6
PFD-402	175	55	90.7	27.5	63.2	69.5	36	26	72	64	6.5	4.5	M4 thread depth 6
PFD-802	190	65	103.7	34	69.7	75	40	26	94	80	8	6	M5 thread depth 8

● Monitor section



- F.R.L.
- F.R.
- F (Filtr)
- R (Reg)
- L (Lub)
- Drain Separ
- Mech Press SW
- Res press exh valve
- SlowStart
- Anti-bac/Bac-remove Filtr
- Film Resist FR
- Oil-ProhR
- Med Press FR
- No Cu/ PTFE FRL
- Outdrs FRL
- Adapter Joiner Press Gauge
- CompFRL
- LgFRL
- PrecsR
- VacF/R
- Clean FR
- ElecPneuR
- AirBoost
- Speed Ctrl
- Silncr
- CheckV/ other
- Fit/Tube
- Nozzle
- Air Unit
- PresCompn
- Electro Press SW
- ContactSW
- AirSens
- PresSW Cool
- Air Flo Sens/Ctrl
- WaterRSens
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Gas generator
- RefrDry
- DesicDry
- HiPolymDry
- MainFiltr
- Dischrg etc
- Ending

PFD Series



F.R.L. Dimensions

F.R. ● PFD-163

F (Filtr)

R (Reg)

L (Lub)

Drain Separ

Mech Press SW

Res press exh valve

SlowStart

Anti-bac/Bac-remove Filtr

Film Resist FR

Oil-ProhR

Med Press FR

No Cu/ PTFE FRL

Outdrs FRL

Adapter Joiner

Press Gauge

CompFRL

LgFRL

PrecsR

VacF/R

Clean FR

ElecPneuR

AirBoost

Speed Ctrl

Silncr

CheckV/ other

Fit/Tube

Nozzle

Air Unit

PrecsCompn

Electro Press SW

ContactSW

AirSens

PresSW Cool

Air Flo Sens/Ctrl

WaterRtSens

TotAirSys (Total Air)

TotAirSys (Gamma)

Gas generator

RefrDry

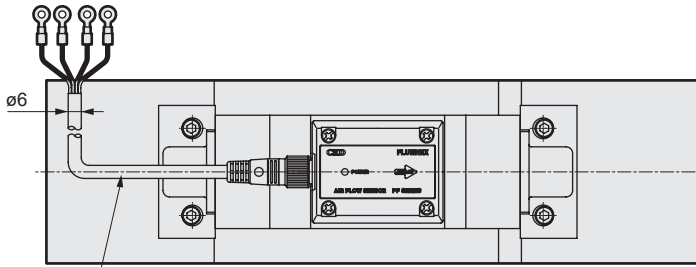
DesicDry

HiPolymDry

MainFiltr

Dischrg etc

Ending



Standard cable (3 m)
(Note) Attached with product

