

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

Descriptions	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	Compressed clean air/nitrogen gas					
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)					
Fluid temperature °C	0 (32°F) to 40 (104°F)					
Accuracy						
Linearity	$\pm 3.0\%$ F.S. (0.5 MPa (≈ 73 psi, 5 bar), at 20°C (68°F))					
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))					
Pressure loss MPa	0.015 (≈ 2.2 psi, 0.15 bar) or less (max. flow rate, at 0.5 MPa (≈ 73 psi, 5 bar))					
Response time sec	2.5 or less					
Output						
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)					
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		
Power supply voltage V	24 VDC (6 W or less/excluding load current of switch output)					
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						
Mounting orientation	Unrestricted in vertical/horizontal directions					
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 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 1410 for details.

How to order

● Display separated

PFD- 501 - 10 N 0 - B

A Flow rate range

B Port size

C Switch output

D Analog output

E Bracket (*1)

Code	Content	
A Flow rate range		
501	25 to 500 L /min(normal)	
102	50 to 1000 L /min(normal)	
202	100 to 2000 L /min(normal)	
402	200 to 4000 L /min(normal)	
802	400 to 8000 L /min(normal)	
163	0.80 to 16.00 m 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	None	Standard
B	Bracket attached	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

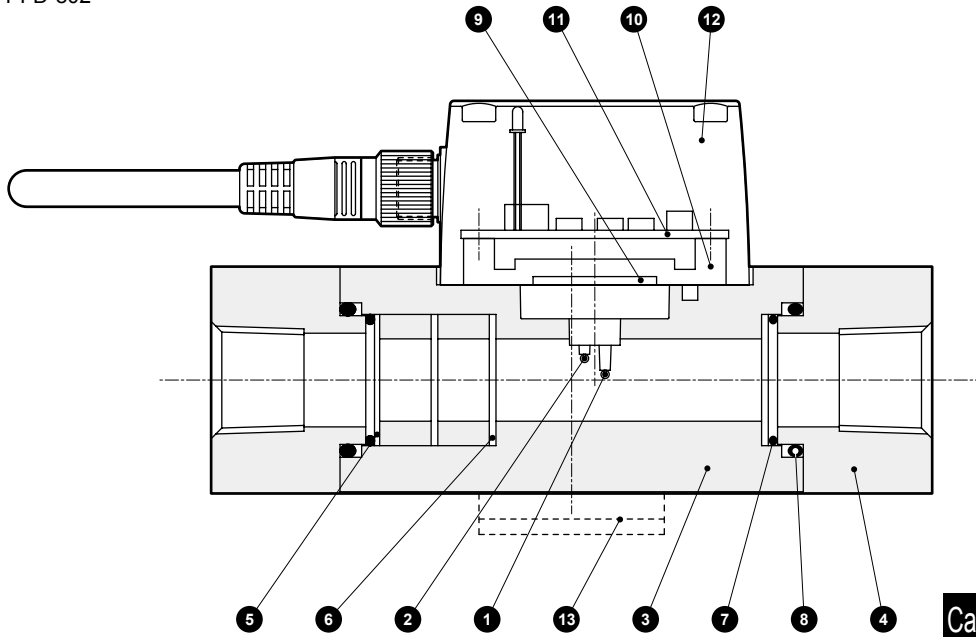
Code	Descriptions
C3	Standard cable
CW	Extension cable (cable for PFK)
B	Bracket (for 501/102/202/402)
B1	Bracket (for 802)

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FimResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PrecsCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRISens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FimResistFR
Oil-ProhR
MedPresFR
No Cu/
PTFE FRL
Outdrs FR
F.R.L
(Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneur
AirBoost
SpdContr
Silncr
CheckV/
other
Jnt/tube
AirUnt
PrecsCompn
Mech/
ElecPresSw
ContactSW
AirSens
PresSW
Cool
AirFloSens/
Contr
WaterRtSens
TotAirSys
(Total Air)
TotAirSys
(Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg
etc
Ending

Internal structure and parts list

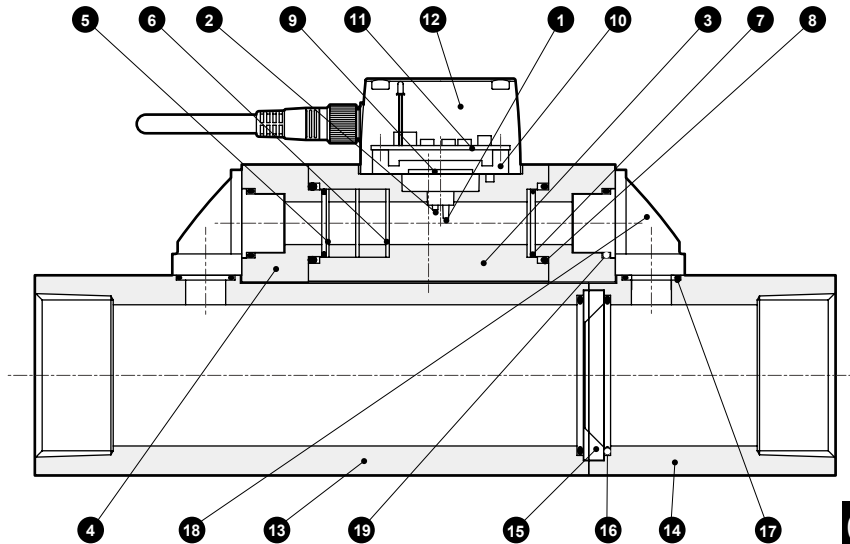
● PFD-501 to PFD-802



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

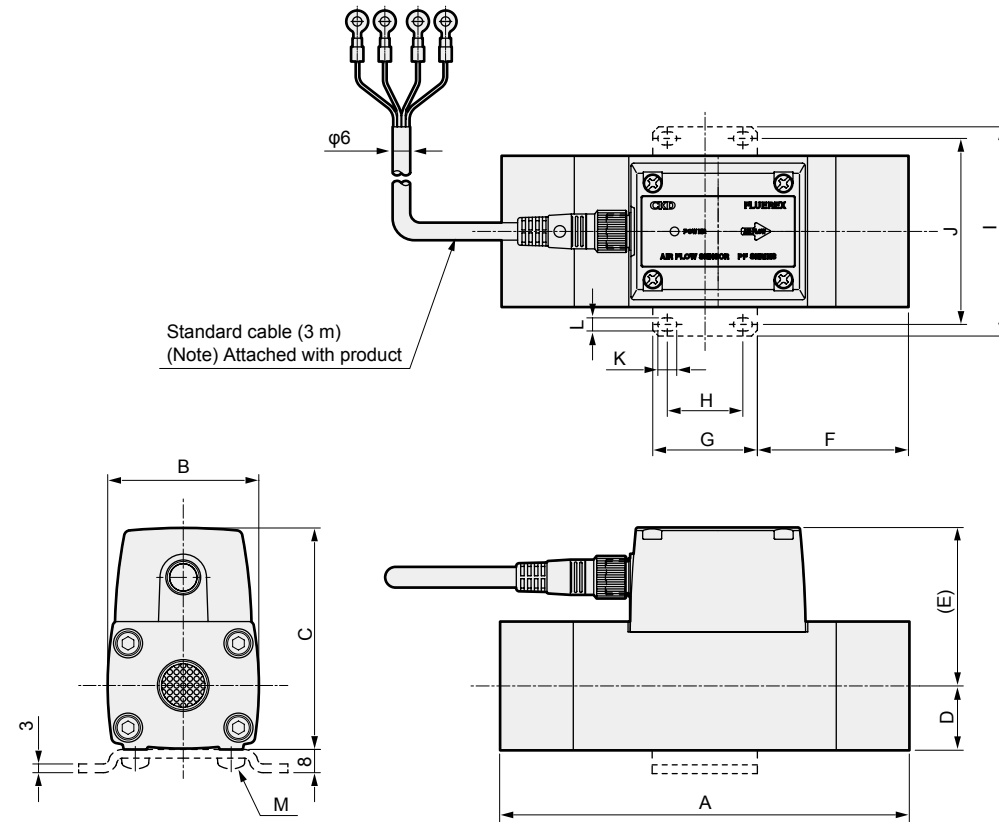


Cannot be disassembled

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

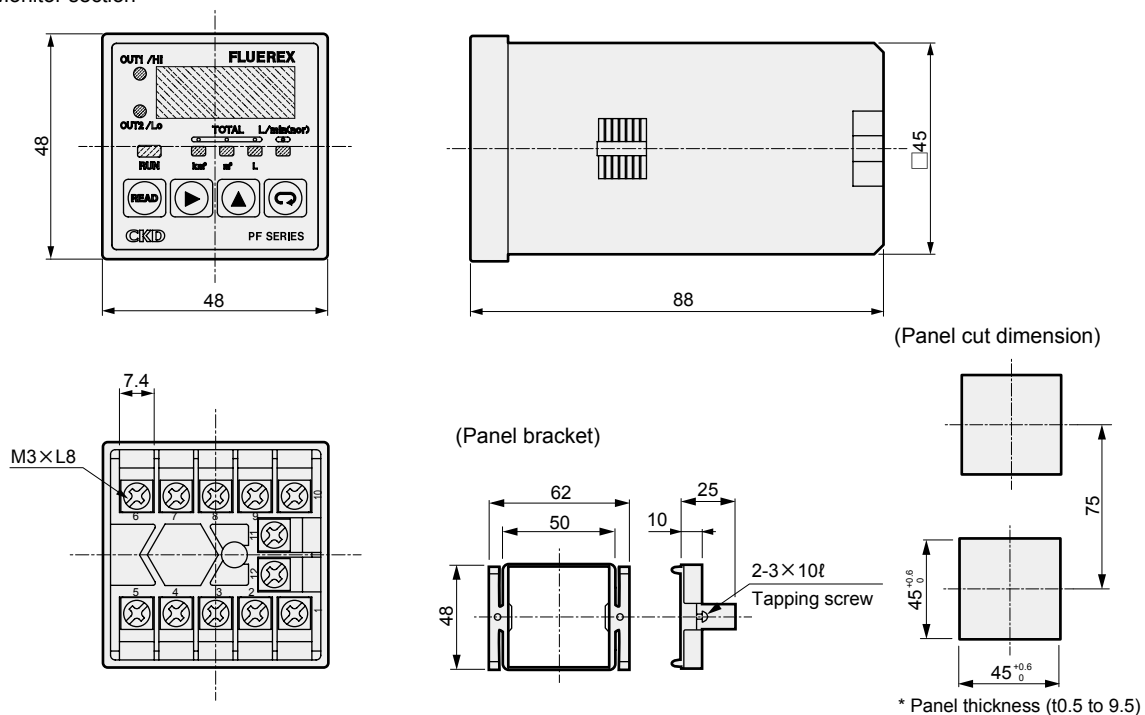
● PFD-501 to 802



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



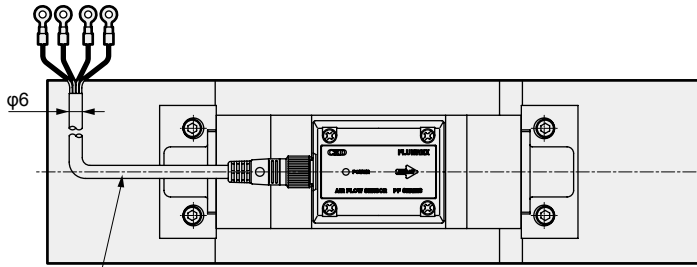
* Panel thickness (t0.5 to 9.5)

- F.R.L
- F (Filtr)
- R (Reg)
- L (Lub)
- PresSW
- Shutoff
- SlowStart
- FimResistFR
- Oil-ProhR
- MedPresFR
- No Cu/ PTFE FRL
- Outdrs FR
- F.R.L (Related)
- CompFRL
- LgFRL
- PrecsR
- VacF/R
- Clean FR
- ElecPneuR
- AirBoost
- SpdContr
- Silncr
- CheckV/ other
- Jnt/tube
- AirUnt
- PrecsCompn
- Mech/ ElecPresSw
- ContactSW
- AirSens
- PresSW Cool
- AirFloSens/ Contr
- WaterRtSens
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- RefrDry
- DesicDry
- HiPolymDry
- MainFiltr
- Dischrg etc
- Ending

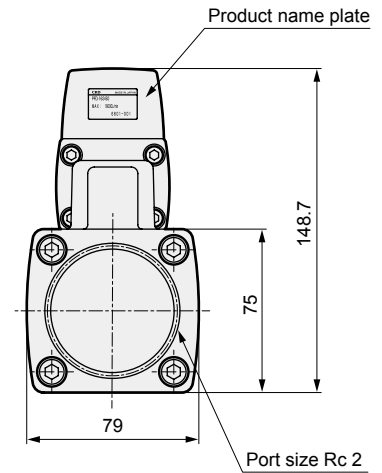
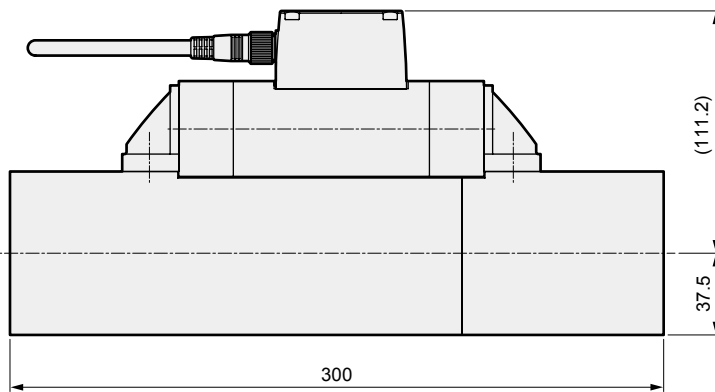
Dimensions



● PFD-163



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



- F.R.L
- F (Filtr)
- R (Reg)
- L (Lub)
- PresSW
- Shutoff
- SlowStart
- FimResistFR
- Oil-ProhR
- MedPresFR
- No Cu/
PTFE FRL
- Outdrs FR
- F.R.L
(Related)
- CompFRL
- LgFRL
- PrecsR
- VacF/R
- Clean FR
- ElecPneuR
- AirBoost
- SpdContr
- Silncr
- CheckV/
other
- Jnt/tube
- AirUnt
- PrecsCompn
- Mech/
ElecPresSw
- ContactSW
- AirSens
- PresSW
Cool
- AirFloSens/
Contr
- WaterRtSens
- TotAirSys
(Total Air)
- TotAirSys
(Gamma)
- RefrDry
- DesicDry
- HiPolymDry
- MainFiltr
- Dischrg
etc
- Ending