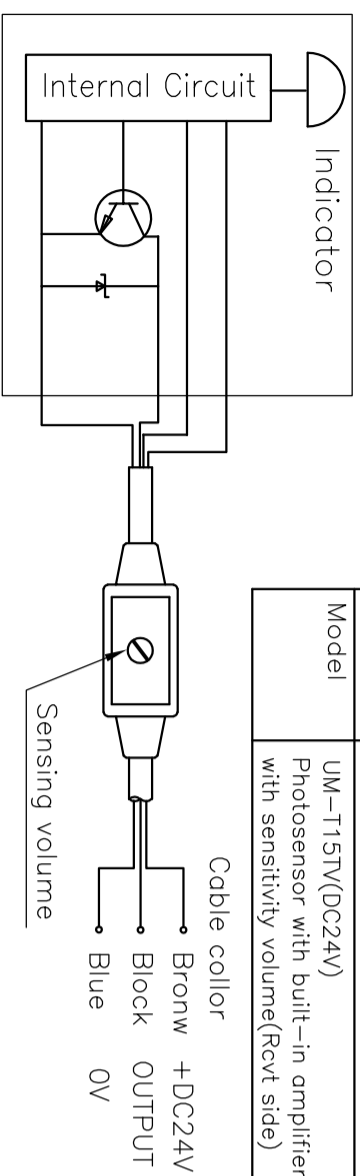


Specifications of photosensors

Power supply	DC24V±10% , Ripple 10%(max)
Current consumption	(Trns) 15mA (Rcvr) 22mA
Output mode	NPN Open collector, Sink current 80mA(30VDC)Max.
Operating mode	Light-on
Response time	0.5ms(Max)
Connection	(Trns) 0.15mm ² x2core(2m,gray) (Rcvr) 0.15mm ² x3core(2m,black)
Manufacturer	TAKENAKA ELECTRONIC INDUSTRIAL CO.,LTD.
Model	UM-115TV(DC24V) Photosensor with built-in amplifier with sensitivity volume(Rcvr side)



CAUTION!
To prevent breaking glass by float, **DO NOT** put pressure change directly on this flowmeter in case you set electromagnetic valve, open and shut it when lay the flowmeter.

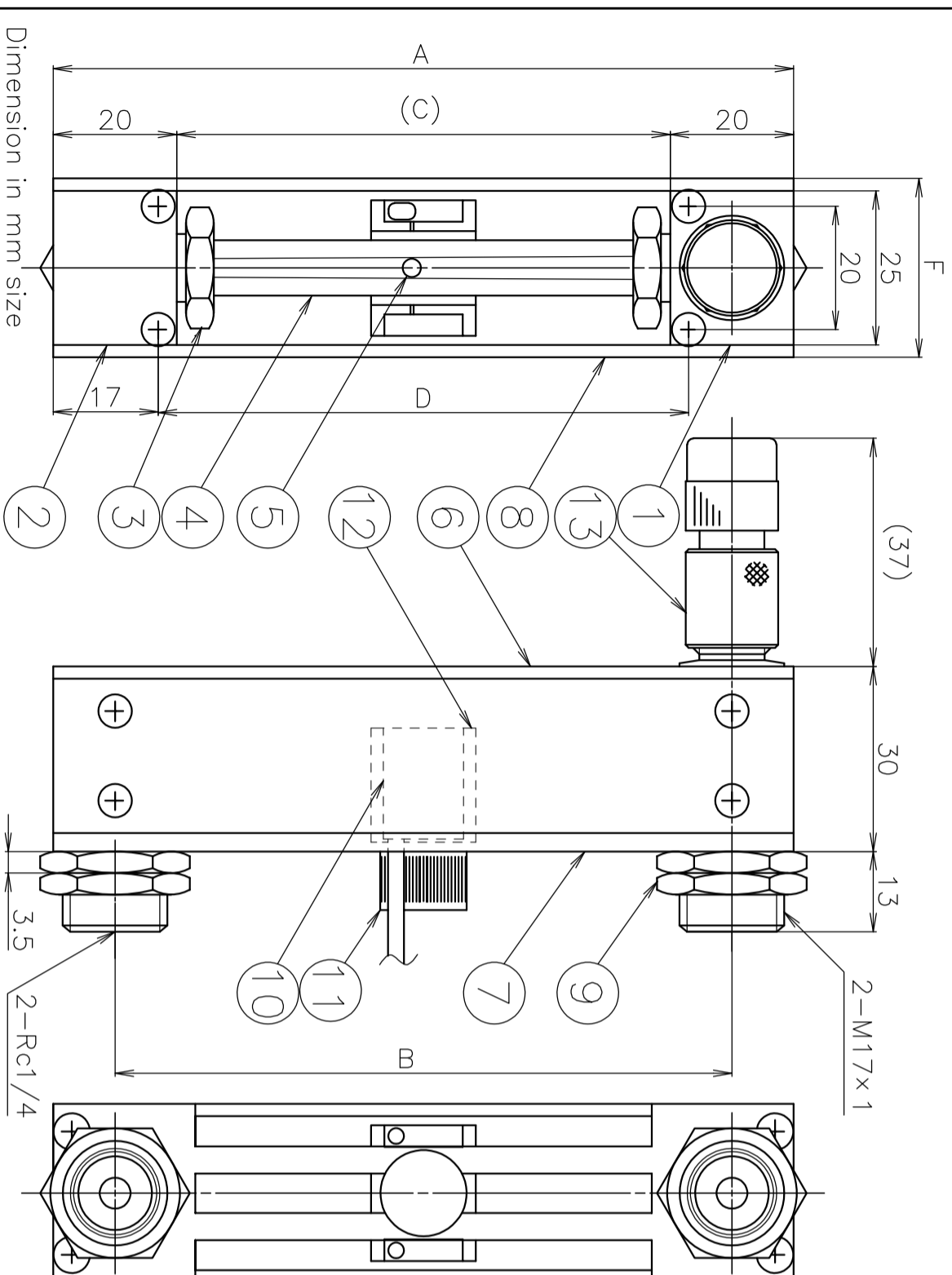
(Note) When you adjust the position of a photosensor, please set up a photo-sensor after you loosen the fixed knob: (11)
Please read the attached manual carefully prior to sensor use.

Standard Specifications

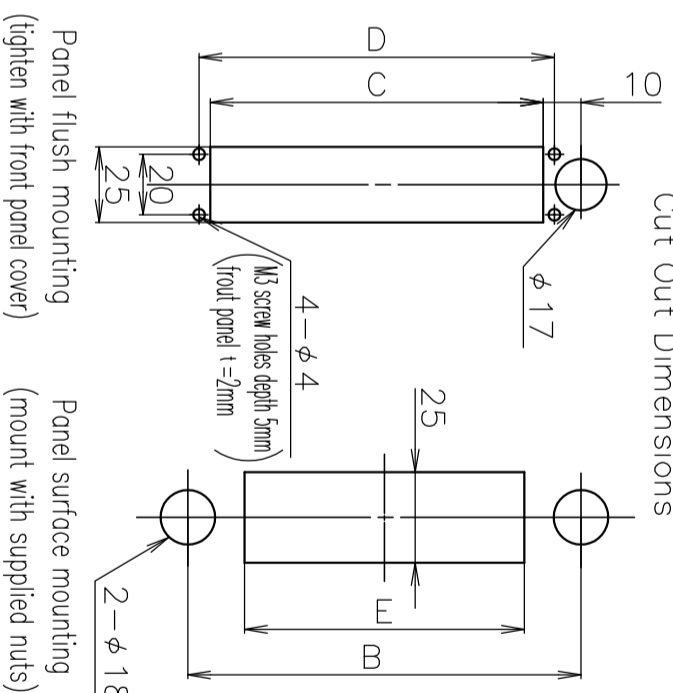
Fluids	Standard gases: AIR,N ₂ ,O ₂ ,H ₂ ,He,A ₂ ,CO ₂ * Calculating calibration for other gases and consult about calibration of using gas	Standard liquid: H ₂ O * Calculating calibration for other liquid and consult about calibration of using liquid
Flow range	Various standard ranges from 5 to 50mL/min and 3 to 30L/min (Air conversion-atm)	Various standard ranges from 2 to 20mL/min and 0.1 to 1L/min
Proof pressure	1.0MPa(G) for 100mL/min or less 0.7MPa(G) for 5L/min or less 0.5MPa(G) for 10L/min or more	1.0MPa(G) for 20mL/min or less 0.7MPa(G) for 150mL/min or less 0.5MPa(G) for 200mL/min or more
Accuracy	F.S.±2% (Measurement point)	
Available scale	10:1	
Alarm setting range	10%~90%	
Environmental temp	5~55°C	
Needle valve	Precision needle valve model 2412	
Connection end	Rc1/4 (Standard)	Rc1/8,φ8 hoses nipple,etc. (Optional)
Fluid contact materials	B: Brass,Hard glass,316 stainless steel, NBR,POM,(PTFE)	SS: 316 stainless steel,Hard glass, FKM,PTFE,(PTFE)

Dimensions of each section by nominal size (mm)

name part	12	15	20	25
A	120	150	200	250
B	100	130	180	230
C	80	110	160	210
D	86	116	166	216
E	70	100	150	200
F	29	29	31	31



Cut Out Dimensions



Dwg. No.	FR320183A1
Name	Precision flowmeter with photosensor MODEL RK1812 (Outline needed)
Customer	
MODEL:RK1812-**-U	

Specifications

Fluid:
Flow rate:
Total length:
Material:
Pressure: (inlet) (outlet)
Temperature:
Connection:
Float:
Remarks: Flowmeter with TAKENAKA ELECTRONIC INDUSTRIAL PHOTOSENSOR (Non-Self holding)

13	Needle valve		1
12	Sensor holder	POM	1
11	Sensor fixed knob	POM	1
10	Photosensor	Polyester(case)	1
9	Mounting nut	Brass	4
8	Side plate	Al	2
7	Back plate	Al	1
6	Front plate	Clear acrylic resin	1
5	Float	Hard glass or Stainless steel 316	1
4	Tube	Hard glass	1
3	Cap nut	Brass	2
2	Lower block	Brass 316 Stainless steel	1
1	Upper block	Brass 316 Stainless steel	1

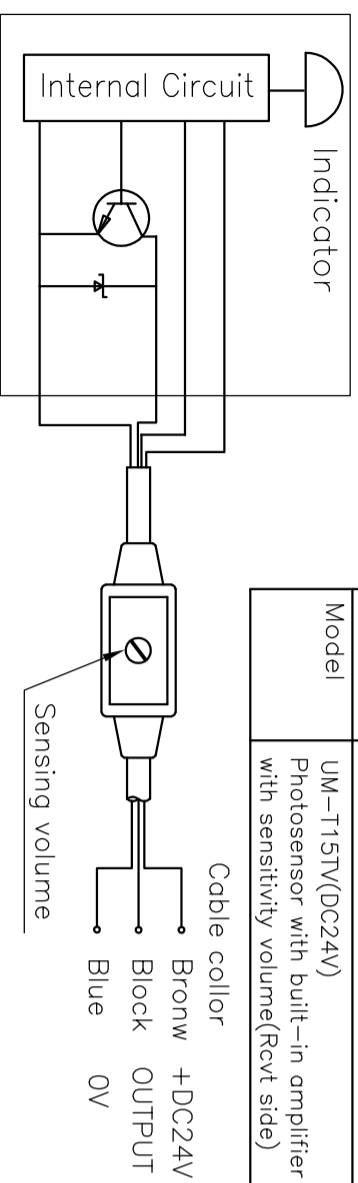
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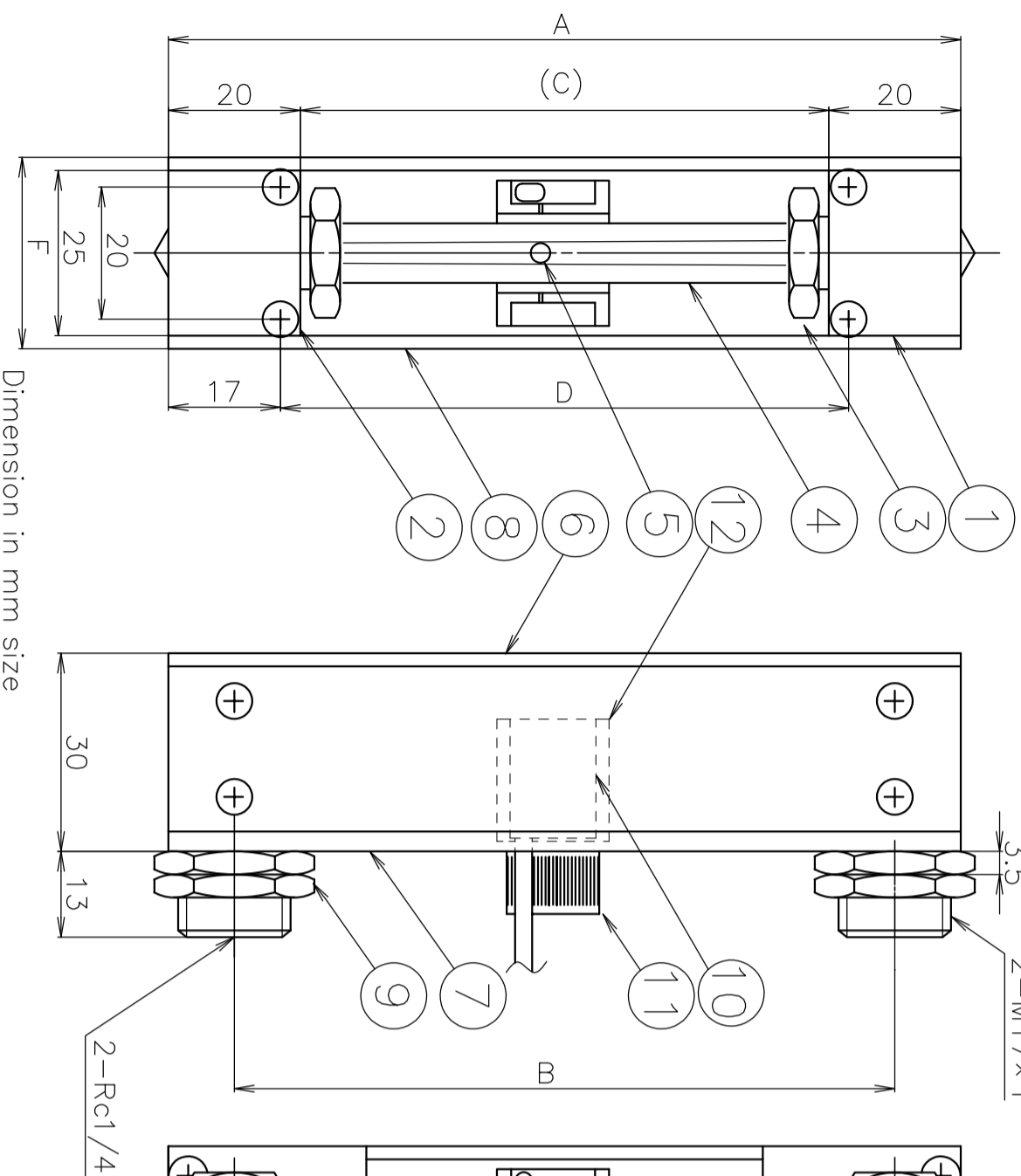
Specifications of photosensors

Power supply	DC24V±10% , Ripple 10%(max)
Current consumption	(Trns) 15mA (Rcvr) 22mA
Output mode	NPN Open collector, Sink current 80mA(30VDC)Max.
Operating mode	Light-on
Response time	0.5ms(Max)
Connection	(Trns) 0.15mm ² x2core(2m,gray) (Rcvr) 0.15mm ² x3core(2m,block)
Manufacturer	TAKENAKA ELECTRONIC INDUSTRIAL CO.,LTD.
Model	UM-T15TV(DC24V) Photosensor with built-in amplifier with sensitivity volume(Rcvr side)

CAUTION!
To prevent breaking glass by float, **DO NOT** put pressure directly on this flowmeter in case you set electromagnetic valve, open and shut it when lay the flowmeter.



(Note) When you adjust the position of a photosensor, please set up a photo-sensor after you loosen the fixed knob. (11)
Please read the attached manual carefully prior to sensor use.



Dimension in mm size

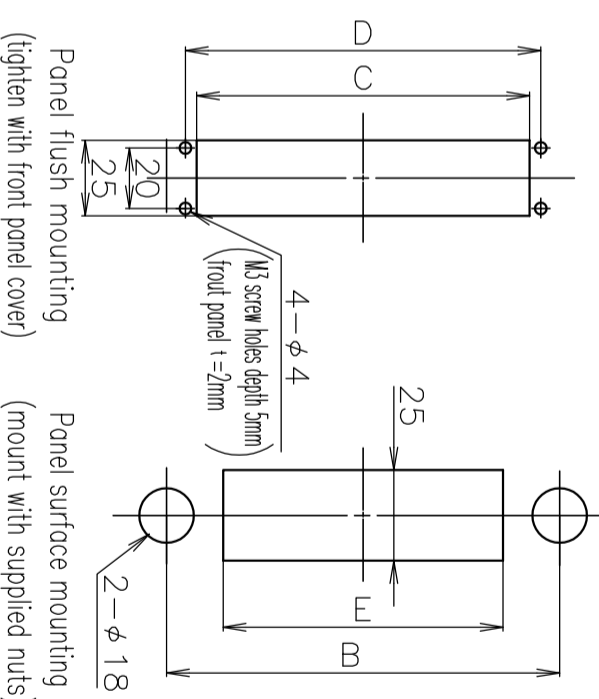
Standard Specifications

Fluids	Gases Standard gases: Air,N ₂ ,O ₂ ,H ₂ ,He,Ar,CO ₂ * Calculating calibration for other gases and consult about calibration of using gas	Liquids Standard liquid: H ₂ O * Calculating calibration for other liquid and consult about calibration of using liquid
Flow range	Various standard ranges from 5 to 50mL/min and 3 to 30L/min (Air conversion-dtm)	Various standard ranges from 2 to 20mL/min and 0.1 to 1L/min
Proof pressure	1.0MPa(G) for 100mL/min or less 0.7MPa(G) for 5L/min or less 0.5MPa(G) for 10L/min or more	1.0MPa(G) for 20mL/min or less 0.7MPa(G) for 150mL/min or less 0.5MPa(G) for 200mL/min or more
Accuracy	F.S.±2% (Measurement point)	
Available scale	10:1	
Alarm setting range	20%~90% F.S.	
Environmental Temp.	5~55°C	
Connection end	Rc1/4 (Standard) φ6 hoses nipple, φ8 hoses nipple, etc. (Optional)	
Fluid contact materials	B Brass, Hard glass, 316 stainless steel, NBR, (PTFE)	SS 316 stainless steel, Hard glass, FM, (PTFE)

Dimensions of each section by nominal size (mm)

name part	12	15	20	25
A	120	150	200	250
B	100	130	180	230
C	80	110	160	210
D	86	116	166	216
E	70	100	150	200
F	29	29	31	31

Cut Out Dimensions



Dwg. No.	FR320184A1
Name	Precision flowmeter with photosensor MODEL RK1814
Customer	
MODEL:RK1814-	

Specifications

Fluid:
Flow rate:
Total length:
Material:
Temperature:
Connection:
Float:
Remarks: Flowmeter with TAKENAKA ELECTRONIC INDUSTRIAL PHOTOSENSOR (Non-Self holding)

12	Sensor holder	POM	1	
11	Sensor fixed knob	POM	1	
10	Photosensor	Polyester(case)	1	
9	Mounting nut	Brass	4	
8	Side plate	Al	2	
7	Back plate	Al	1	
6	Front plate	Clear acrylic resin	1	
5	Float	Hard glass or Stainless steel 316	1	
4	Tube	Hard glass	1	
3	Cap nut	Brass	2	
2	Lower block	Brass 316 Stainless steel	1	
1	Upper block	Brass 316 Stainless steel	1	
No.	NAME	B	SS	Qt.
SPECIFICATION		NOTES		
SCALE	1/1	R	E	V
3RD ANGLE PROJ.				

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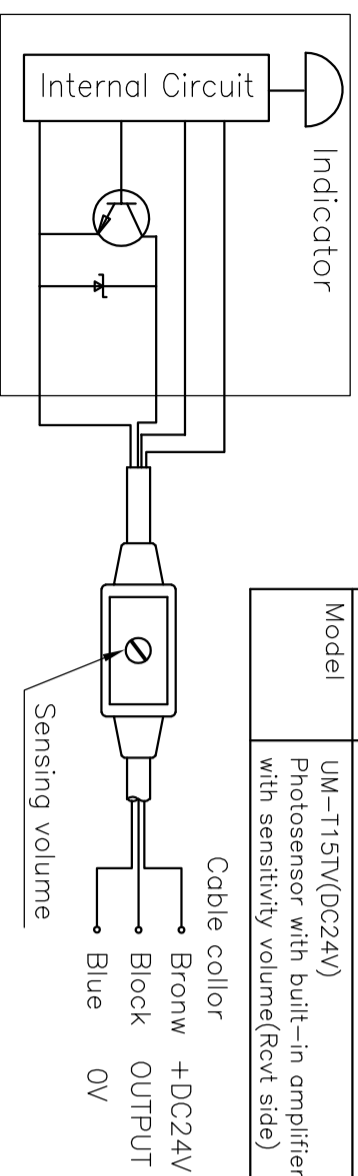
Specifications of photosensors

Power supply	DC24V±10% , Ripple 10%(max)
Current consumption	(Trns) 15mA (Rcvr) 22mA
Output mode	NPN Open collector, Sink current 80mA(30VDC)Max.
Operating mode	Light-on
Response time	0.5ms(Max)
Connection	(Trns) 0.15mm ² x2core(2m,gray) (Rcvr) 0.15mm ² x3core(2m,black)
Manufacturer	TAKENAKA ELECTRONIC INDUSTRIAL CO.,LTD.
Model	UM-T15TV(DC24V) Photosensor with built-in amplifier with sensitivity volume(Rcvr side)

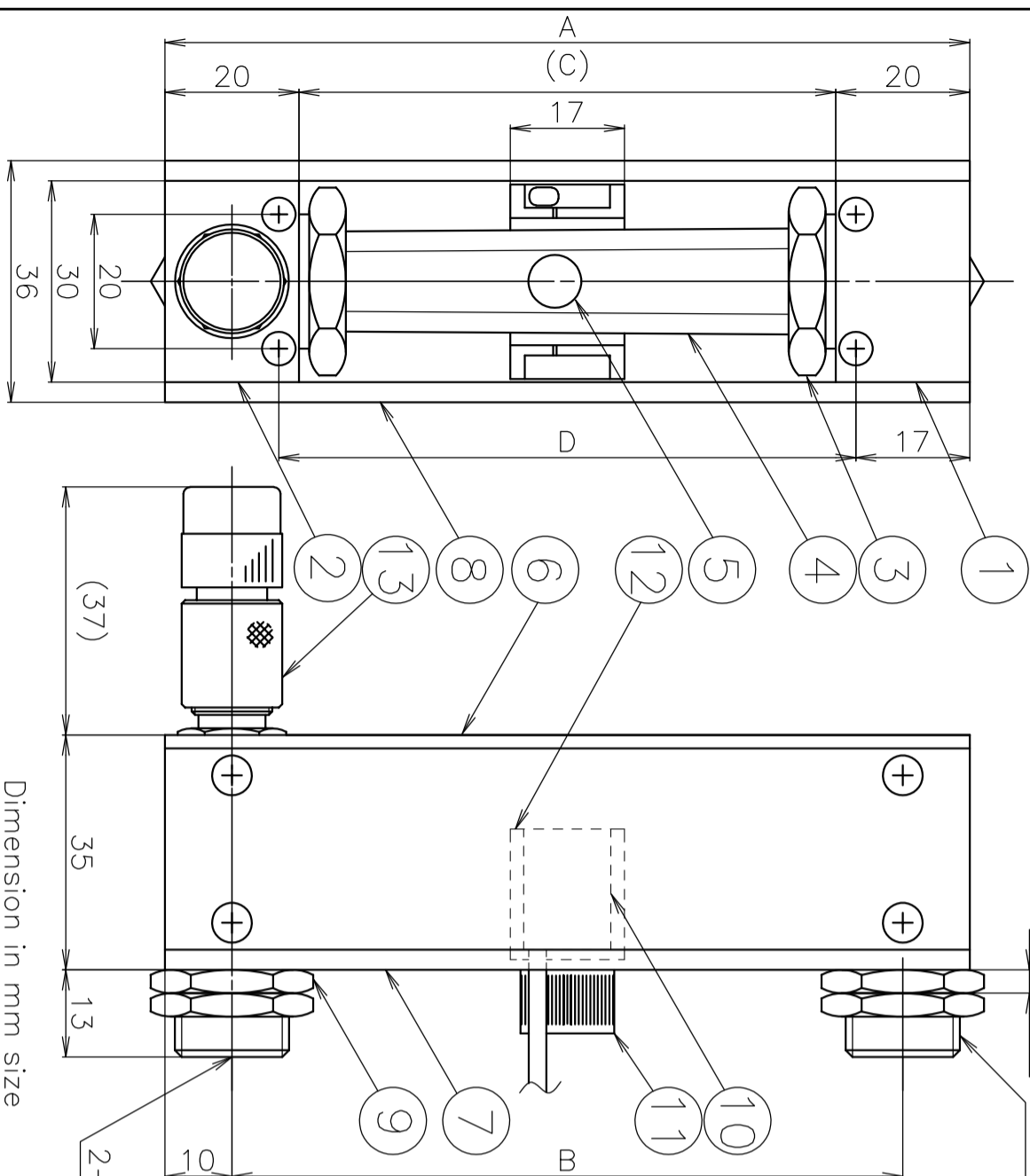
Standard Specifications

Fluids	Gases Standard gases: AIR,N ₂ ,O ₂ ,H ₂ ,He,Ar,CO ₂ * Calculating calibration for other gases and consult about calibration of using gas	Liquids Standard liquid: H ₂ O * Calculating calibration for other liquid and consult about calibration of using liquid
Flow range	Various standard ranges from 4 to 40L/min and 5 to 50L/min (Air conversion-dtm) 0.15 to 1.5L/min	
Proof pressure	0.5MPa(G)	
Accuracy	F.S.±2% (Measurement point)	
Available scale	10:1	
Alarm setting range	10%~90%	
Environmental temp	5~55c	
Needle valve	Precision needle valve model 2412	
Connection end	Rc1/4 (Standard)	SS
Fluid contact materials	Brass,Hard glass,316 stainless steel, NBR,POM,PTFE	316 stainless steel,Hard glass, FKM,PTFE,PTFE

CAUTION!
To prevent breaking glass by float, **DO NOT** put pressure change directly on this flowmeter in case you set electromagnetic valve, open and shut it when lay the flowmeter.



(Note) When you adjust the position of a photosensor, please set up a photo-sensor after you loosen the fixed knob. (11)
Please read the attached manual carefully prior to sensor use.

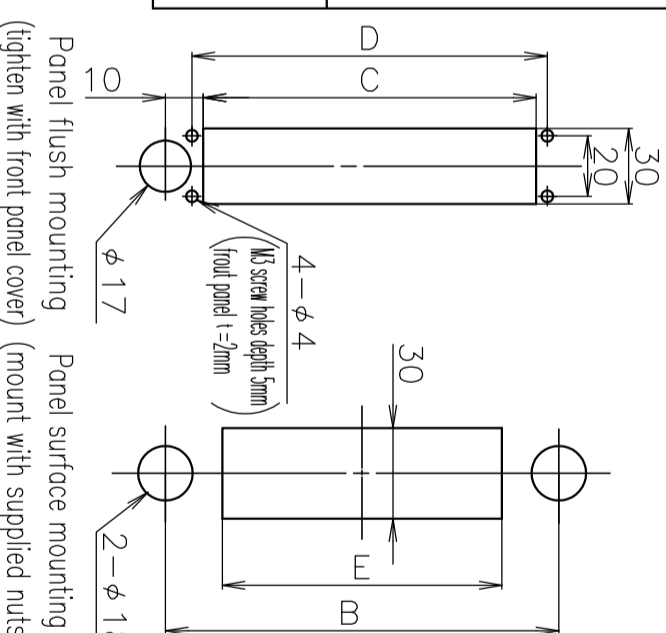


Dimension in mm size

Dimensions of each section by nominal size (mm)

nominal part	12	15	20	25
A	120	150	200	250
B	100	130	180	230
C	80	110	160	210
D	86	116	166	216
E	70	100	150	200

Cut Out Dimensions



Dwg. No. FR320208A1

Name Precision flowmeter with photosensor, MODEL RK1812(30 square) (inline needle)

Customer MODEL:RK1812-**-D

Specifications

Fluid:

Flow rate:

Total length:

Material:

Pressure: (inlet) (outlet)

Temperature:

Connection:

Remarks: Flowmeter with TAKENAKA ELECTRONIC INDUSTRIAL PHOTOSENSOR (Non-Self holding)

13	Needle valve		1
12	Sensor holder	POM	1
11	Sensor fixed knob	POM	1
10	Photosensor	Polyester(case)	1
9	Mounting nut	Brass	4
8	Side plate	Al	2
7	Back plate	Al	1
6	Front plate	Clear acrylic resin	1
5	Float	316 Stainless steel	1
4	Tube	Hard glass	1
3	Cap nut	Brass	2
2	Lower block	Brass 316 Stainless steel	1
1	Upper block	Brass 316 Stainless steel	1
No.	NAME	B SS	Qt.
SPECIFICATION			
SCALE 1/1			
3RD ANGLE PROJ. V			

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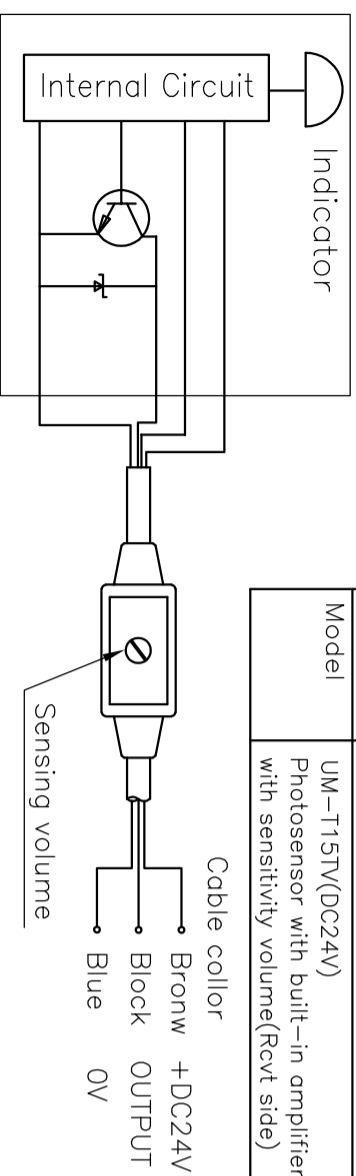
Specifications of photosensors

Power supply	DC24V±10% , Ripple 10%(max)
Current consumption	(Trns) 15mA (Rcvr) 22mA
Output mode	NPN Open collector, Sink current 80mA(30VDC)Max.
Operating mode	Light-on
Response time	0.5ms(Max)
Connection	(Trns) 0.15mm ² x2core(2m,gray) (Rcvr) 0.15mm ² x3core(2m,black)
Manufacturer	TAKENAKA ELECTRONIC INDUSTRIAL CO.,LTD.
Model	UM-T15TV(DC24V) Photosensor with built-in amplifier with sensitivity volume(Rcvr side)

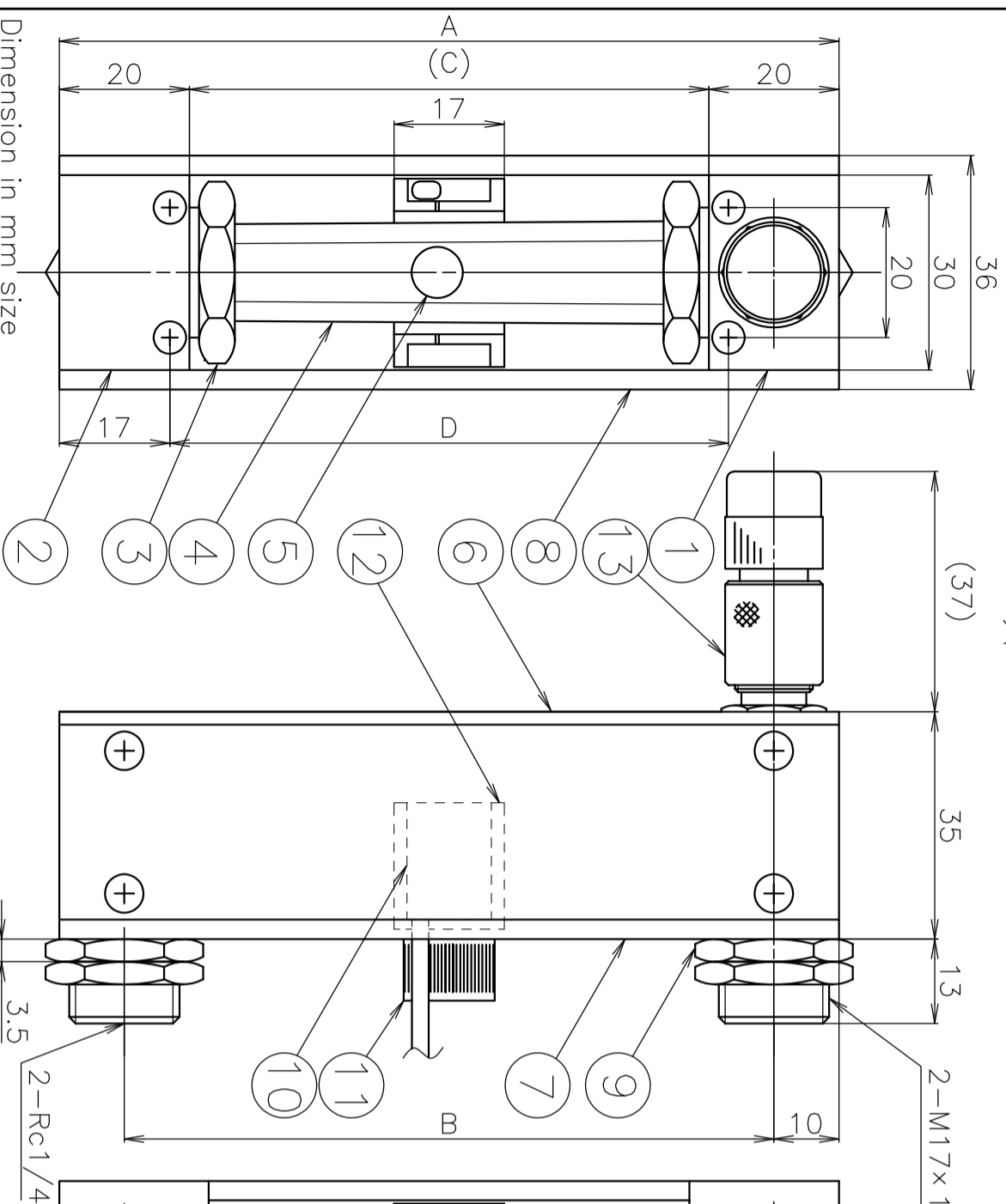
Standard Specifications

Fluids	Gases Standard gases: Air,N ₂ ,O ₂ ,H ₂ ,He,Ar,CO ₂ * Calculating calibration for other gases and consult about calibration of using gas	Liquids Standard liquid: H ₂ O * Calculating calibration for other liquid and consult about calibration of using liquid
Flow range	Various standard ranges from 4 to 40L/min and 5 to 50L/min (Air conversion-atm) 0.15 to 1.5L/min	
Proof pressure	0.5MPa(G)	
Accuracy	F.S.±2% (Measurement point)	
Available scale	10:1	
Alarm setting range	10%~90%	
Environmental temp	5~55c	
Needle valve	Precision needle valve model 2412	
Connection end	Rc1/4 (Standard)	SS
Fluid contact materials	Brass,Hard glass,316 stainless steel, NBR,POM,PTFE	316 stainless steel,Hard glass, FKM,PTFE,PTFE

CAUTION!
To prevent breaking glass by float, DO NOT put pressure change directly on this flowmeter in case you set electromagnetic valve, open and shut it when lay the flowmeter.



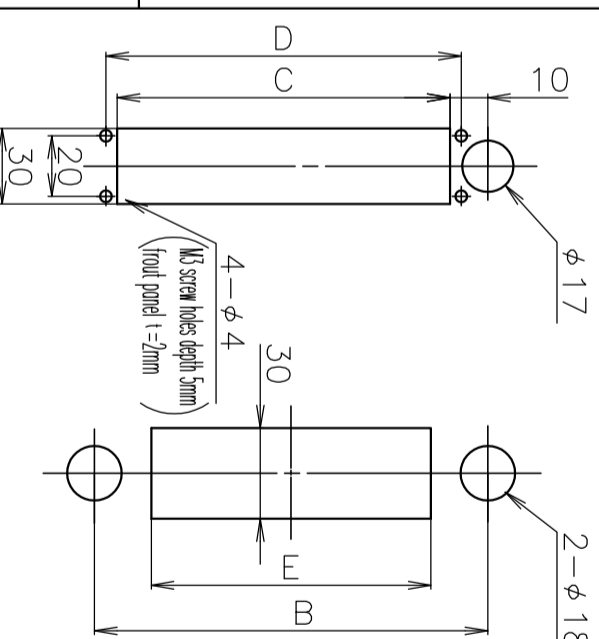
Note) When you adjust the position of a photosensor, please set up a photo-sensor after you loosen the fixed knob: (11)
Please read the attached manual carefully prior to sensor use.



Dimensions of each section by nominal size (mm)

Nome part	12	15	20	25
A	120	150	200	250
B	100	130	180	230
C	80	110	160	210
D	86	116	166	216
E	70	100	150	200

Cut Out Dimensions



Panel flush mounting (tighten with front panel cover) Panel surface mounting (mount with supplied nuts)

Dwg. No.	FR 320209A1
Name	Precision flowmeter with photosensor, MODEL RK1812(30 square) (Outline needle)
Customer	
MODEL:RK1812-**-U	
Specifications	
Fluid:	
Flow rate:	
Total length:	
Material:	
Pressure: (inlet) (outlet)	
Temperature:	
Connection:	
Remarks: Flowmeter with TAKENAKA ELECTRONIC INDUSTRIAL PHOTOSENSOR (Non-Self holding)	

13	Needle valve		1
12	Sensor holder	POM	1
11	Sensor fixed knob	POM	1
10	Photosensor	Polyester(case)	1
9	Mounting nut	Brass	4
8	Side plate	Al	2
7	Back plate	Al	1
6	Front plate	Clear acrylic resin	1
5	Float	316 Stainless steel	1
4	Tube	Hard glass	1
3	Cap nut	Brass	2
2	Lower block	Brass 316 Stainless steel	1
1	Upper block	Brass 316 Stainless steel	1
No.	NAME	B SS	Qt.
SPECIFICATION			
SCALE 1/1			
3RD ANGLE PROJ. R E V			

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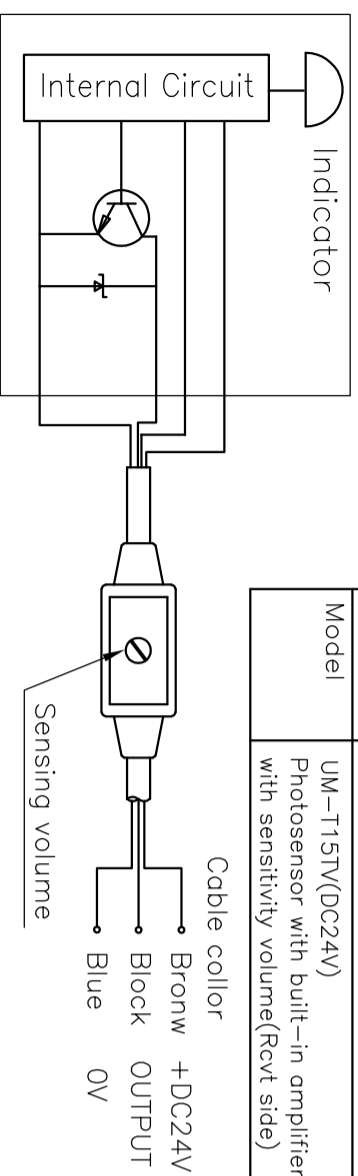
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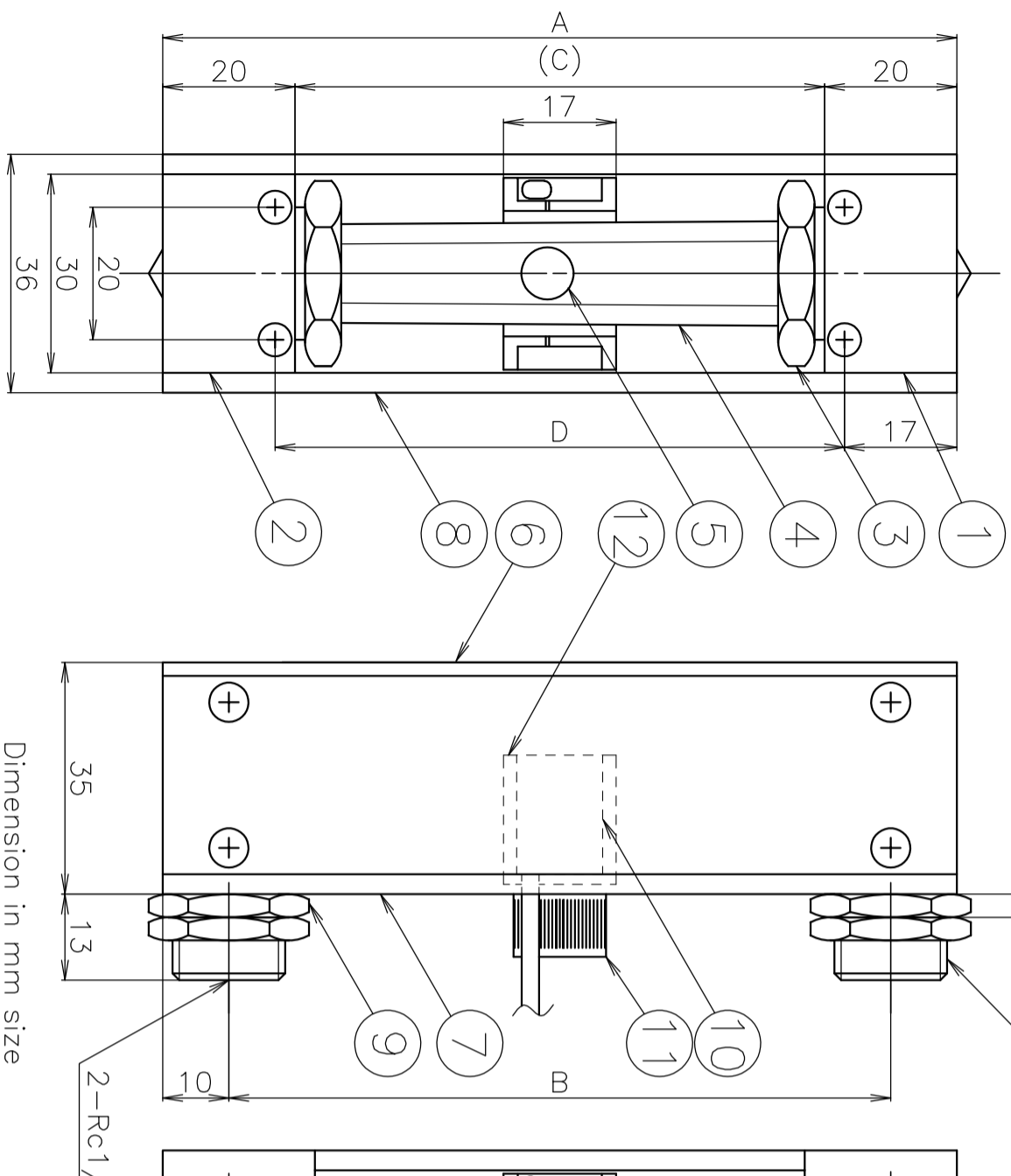
Specifications of photosensors

Power supply	DC24V±10% , Ripple 10%(max)
Current consumption	(Trns) 15mA (Rcvr) 22mA
Output mode	NPN Open collector, Sink current 80mA(30VDC)Max.
Operating mode	Light-on
Response time	0.5ms(Max)
Connection	(Trns) 0.15mm ² x2core(2m,gray) (Rcvr) 0.15mm ² x3core(2m,black)
Manufacturer	TAKENAKA ELECTRONIC INDUSTRIAL CO.,LTD.
Model	UM-T15TV(DC24V) Photosensor with built-in amplifier with sensitivity volume(Rcvr side)

CAUTION!
To prevent breaking glass by float, **DO NOT** put pressure change directly on this flowmeter in case you set electromagnetic valve, open and shut it when lay the flowmeter.



(Note) When you adjust the position of a photosensor, please set up a photo-sensor after you loosen the fixed knob. (11)
Please read the attached manual carefully prior to sensor use.



Dimension in mm size

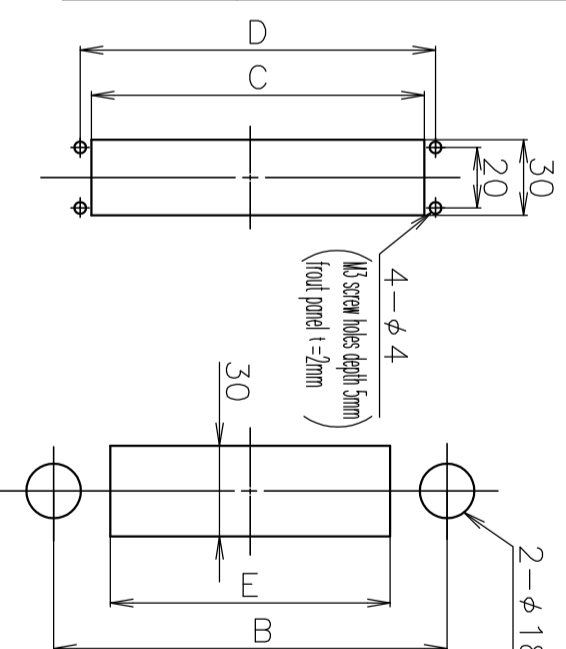
Standard Specifications

Applicable fluid	Standard gases: AIR, N ₂ , O ₂ , H ₂ , He, Ar, CO ₂ * Calculating calibration for other gases and consult about calibration of using gas	Standard liquid: H ₂ O * Calculating calibration for other liquid and consult about calibration of using liquid
Flow rate ranges	Various standard ranges from 4 to 40L/min and 5 to 50L/min (Air conversion-dtn)	0.15 to 1.5L/min
Maximum pressure	0.5MPa(G)	
Accuracy	Within ±2% F.S.	
Available scale	10:1	
Alarm setting range	10%~90%	
Environmental temp	5~55c	
Connection end	Rc1/4 (Standard)	SS
Fluid contact materials	Bronze, Hard glass, 316 stainless steel, NBR, PTFE	316 stainless steel, Hard glass, FKM, PTFE

Dimensions of each section by nominal size (mm)

Section	12	15	20	25
A	120	150	200	250
B	100	130	180	230
C	80	110	160	210
D	86	116	166	216
E	70	100	150	200

Cut Out Dimensions



Panel flush mounting (tighten with front panel cover)
Panel surface mounting (mount with supplied nuts)

Dwg. No.	FR320210A1
Name	Precision flowmeter with photosensor MODEL RK1814(30 square)
Customer	
MODEL:RK1814-**-**	
Specifications	
Fluid:	
Flow rate:	
Total length:	
Material:	
Temperature:	
Fitting:	Rc1/4
Remarks:	Flowmeter with TAKENAKA ELECTRONIC INDUSTRIAL PHOTOSENSOR (Non-Self holding)

12	Sensor holder	POM	1		
11	Sensor fixed knob	POM	1		
10	Photosensor	Polyester(case)	1		
9	Mounting nut	Brass	4		
8	Side plate	Al	2		
7	Back plate	Al	1		
6	Front plate	Clear acrylic resin	1		
5	Float	316 Stainless steel	1		
4	Tube	Hard glass	1		
3	Cap nut	Brass	2		
2	Lower block	Brass 316 Stainless steel	1		
1	Upper block	Brass 316 Stainless steel	1		
No.	NAME	B	SS	Qt.	NOTES
SCALE	1/1	R	E	V	
3RD ANGLE PROJ.					

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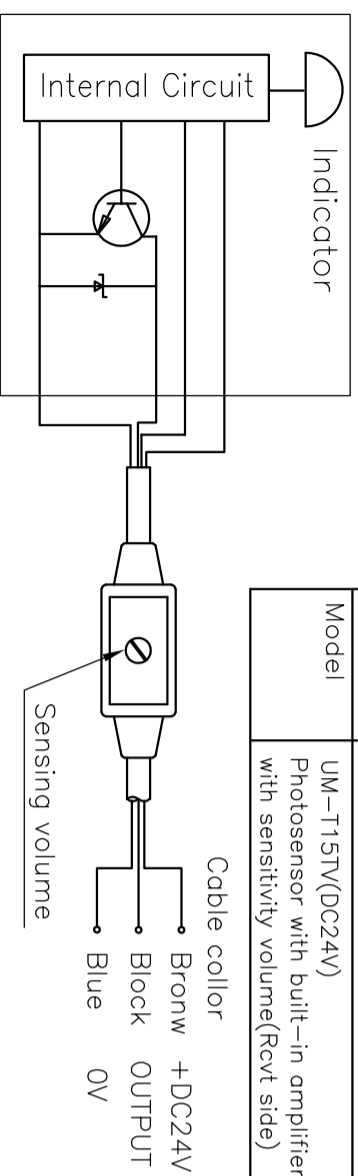
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Specifications of photosensors

Power supply	DC24V±10% , Ripple 10%(max)
Current consumption	(Trns) 15mA (Rcvr) 22mA
Output mode	NPN Open collector, Sink current 80mA(30VDC)Max.
Operating mode	Light-on
Response time	0.5ms(Max)
Connection	(Trns) 0.15mm ² x2core(2m,gray) (Rcvr) 0.15mm ² x3core(2m,black)
Manufacturer	TAKENAKA ELECTRONIC INDUSTRIAL CO.,LTD.
Model	UM-115TV(DC24V) Photosensor with built-in amplifier with sensitivity volume(Rcvr side)

CAUTION!
To prevent breaking glass by float, **DO NOT** put pressure change directly on this flowmeter in case you set electromagnetic valve, open and shut it when lay the flowmeter.



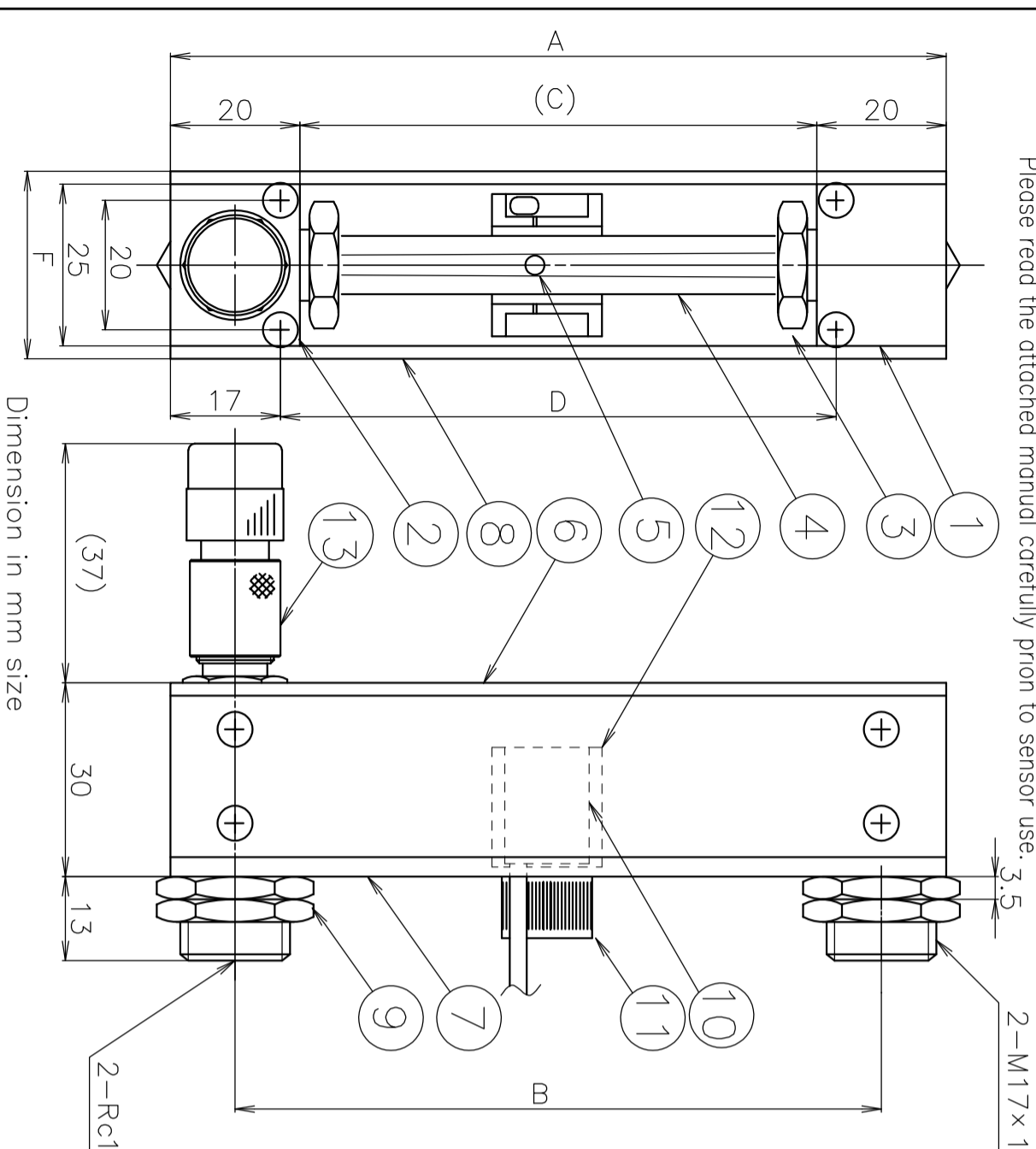
Note) When you adjust the position of a photosensor, please set up a photo-sensor after you loosen the fixed knob. (11)
Please read the attached manual carefully prior to sensor use.

Standard Specifications

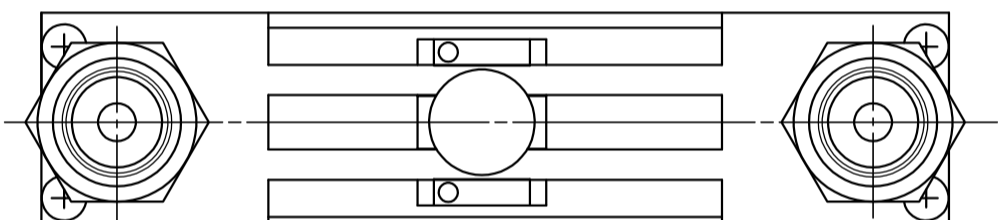
Fluids	Gases	Liquids
	Standard gases: Air,N ₂ ,O ₂ ,H ₂ ,He,Ar,CO ₂ * Calculating calibration for other gases and consult about calibration of using gas	Standard liquid: H ₂ O * Calculating calibration for other liquid and consult about calibration of using liquid
Flow range	Various standard ranges from 5 to 50mL/min and 3 to 30L/min (Air conversion-dtm)	Various standard ranges from 2 to 20mL/min and 0.1 to 1L/min
Proof pressure	1.0MPa(G) for 100mL/min or less 0.7MPa(G) for 5L/min or less 0.5MPa(G) for 10L/min or more	1.0MPa(G) for 20mL/min or less 0.7MPa(G) for 150mL/min or less 0.5MPa(G) for 200mL/min or more
Accuracy	F.S.±2% (Measurement point)	
Available scale	10:1	
Alarm setting range	20%~90% F.S.	
Environmental temp.	5~55°C	
Needle valve	Precision needle valve model 2412	
Connection end	Rc 1/4 (Standard) φ6 hoses nipple, φ8 hoses nipple.etc. (Optional)	SS
Fluid contact materials	Brass, Hard glass, 316 stainless steel, NBR,POM,(PTFE)	316 stainless steel, Hard glass, FKW,PCTFE,(PTFE)

Dimensions of each section by nominal size (mm)

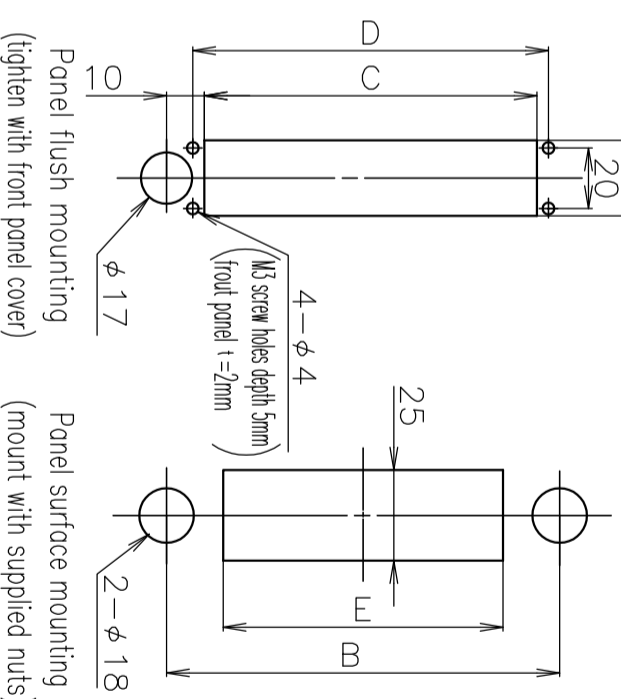
name part	12	15	20	25
A	120	150	200	250
B	100	130	180	230
C	80	110	160	210
D	86	116	166	216
E	70	100	150	200
F	29	29	31	31



Dimension in mm size



Cut Out Dimensions



Dwg. No.	FR320182A1
Name	Precision flowmeter with photosensor MODEL RK1812 (inline needle)
Customer	
MODEL:RK1812-**-D	

Specifications

Fluid:
Flow rate:
Total length:
Material:
Pressure: (inlet) (outlet)
Temperature:
Connection:
Flood:
Remarks: Flowmeter with TAKENAKA ELECTRONIC INDUSTRIAL PHOTOSENSOR (Non-Self holding)

No.	NAME	Material	Qt.	NOTES
13	Needle valve	—	1	
12	Sensor holder	POM	1	
11	Sensor fixed knob	POM	1	
10	Photosensor	Polyester(case)	1	
9	Mounting nut	Brass	4	
8	Side plate	Al	2	
7	Back plate	Al	1	
6	Front plate	Clear acrylic resin	1	
5	Flood	Hard glass or Stainless steel 316	1	
4	Tube	Hard glass	1	
3	Cap nut	Brass	2	
2	Lower block	Brass 316 Stainless steel	1	
1	Upper block	Brass 316 Stainless steel	1	

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DATE			