

# PROTECTION CLASS (IP RATING)











**IP67**  
is

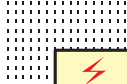

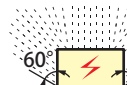
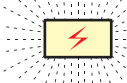
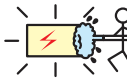



● IEC60529 standard is a system for classifying the degrees of protection provided by the enclosures of electrical equipment, such as against dust and water.

**IP**

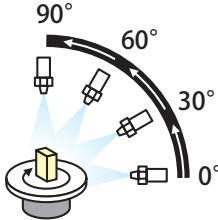
## First digit : Solid particle protection

## Second digit: Liquid ingress protection

No.	Protection against ingress of solid foreign objects	Protection against access to hazardous parts
<b>0</b>	<b>No Protection</b>	<b>No Protection</b>
<b>1</b>	 Protected against solid objects over 50mm.	 Protected against accidental touch by a large surface of the body, such as by hands. (Tested with a 50mm diameter steel ball.)
<b>2</b>	 Protected against solid objects over 12.5mm.	 Protected against accidental touch by fingers or similar objects (Tested with a 12mm diameter, 80mm long articulated finger)
<b>3</b>	 Protected against solid objects over 2.5mm.	 Protected against accidental touch by tools or thick wires. (Tested with a 2.5mm diameter, 100mm long bar)
<b>4</b>	 Protected against solid objects over 1.0mm.	 1.0 Protected against accidental touch by most wires and screws. (Tested with a 1.0mm diameter, 100mm long wire)
<b>5</b>	 Protected against dust; limited ingress, no harmful deposits.	
<b>6</b>	 Complete protection against dust.	

No.	Protection against ingress of liquid
<b>0</b>	<b>No Protection</b>
<b>1</b>	 Dripping water (vertically falling drops) for 10 minutes.
<b>2</b>	 Vertically dripping water when tilted at 15° for 10 minutes (2.5 minutes per position).
<b>3</b>	 Spraying water (at any angle) of 0.07ℓ/min up to 60° from the vertical for 10 minutes.
<b>4</b>	 Spraying water of 0.07ℓ/min from all directions for 10 minutes.
<b>5</b>	 Jets of water projected by a φ6.3 nozzle of 12.5ℓ / min from all directions at 1 min / 1m <sup>2</sup> for at least 3 minutes.
<b>6</b>	 Powerful jets of water projected by a φ12.3 nozzle of 100ℓ / min from all directions at 1 min / 1m <sup>2</sup> for at least 3 minutes.
<b>7</b>	 Immersion, up to 1 meter depth (for 30 mins).
<b>8</b>	 Immersion (test depth and duration beyond IPX7 requirements)

**69K**



80 to 100 barrel steam jets at 80°C (±5°C) from a 0°, 30°, 60°, and 90° angle, at a distance of 100 ~ 150mm for 30 sec x 5 sets

### A point of note for Waterproof Boxes

- For outdoor use, direct sunlight will accelerate the degradation of the box. For more information, please see page Outdoor Use - 1.
- For customers planning to attach their own original mounting brackets onto the waterproof boxes, it is recommended to mill larger holes with enough clearance to attach the bracket. If the milled hole and clearance is too small, it may cause irreparable damage to the box.
- Waterproof boxes made of Polycarbonate or ABS plastic material may be damaged if certain types of washing chemicals, solvents, oils, or thread locking adhesives are present on the box. Furthermore, paint not suitable to be used on plastic materials may also cause damage.

# IP67 UV-PROTECT NETWORK PLASTIC BOX WP SERIES



## Waterproofing ability by using silicone gasket

Highly elastic and durable silicone gasket for high waterproof ability. The use of insert nuts allows the unit to retain its waterproof ability even after multiple opening and closing.



## Weather-resistant ASA material

The white gray "G" type utilize a UV resistant, durable ASA material. Recommended for outdoors usage as a communication device type equipment.

### Outdoors Use Example

IT Sensor Data Logger for agriculture  
Product by Nishimu Electronics Industries Co., Ltd.  
Website : [nishimu.co.jp/index-e.html](http://nishimu.co.jp/index-e.html)



## Easy installation on walls and brackets

Easy mounting onto walls and brackets by opening the blind lids. A clean and sleek appearance can be maintained as screws are hidden away by the blind lids.



## Easy installation on electrical poles

By using a pole mounting accessory, it can be attached to poles with ease.



## How to make buttons and switches waterproof

Utilize a waterproof membrane keypad, membrane switch or overlay.

Note that the waterproof performance will be lost once holes or cutouts for buttons and/or switches drilled/machined on waterproof enclosures.



Product by Arrow7 (Japan)

## How to make waterproof buttons and switches

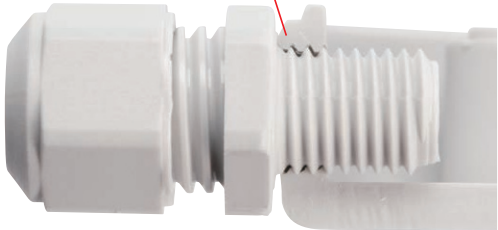
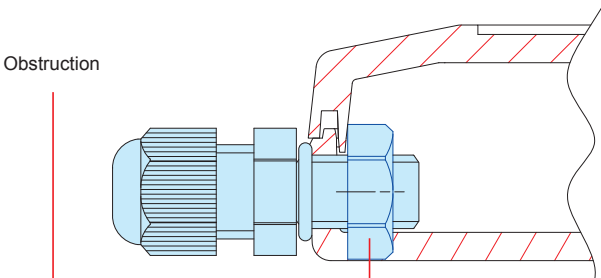
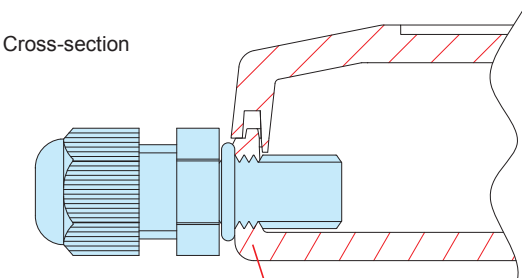
Please utilize a waterproof membrane keypad, membrane switch or overlay.

Note that the waterproof performance will be lost by drilling/milling holes or cutouts for buttons or switches on waterproof enclosures.



Please utilize a waterproof membrane keypad, membrane switch or overlay.

Note that the waterproof performance will be lost by drilling/milling holes or cutouts for buttons or switches on waterproof enclosures.



Thread hole milling from M6 ~ M32 sizes can be drilled as per your requirements.



# WP SERIES

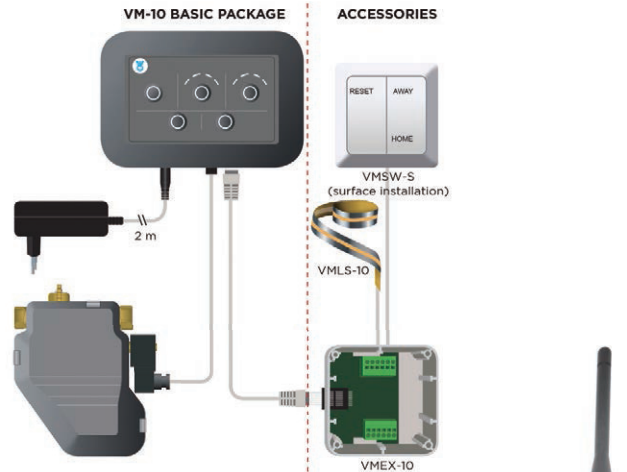
# APPLICATION EXAMPLE



## LeakLess Monitor - Industrial Pressure/Flow Data Logger



## Leak Guard - Home Water Leak Detector



## Wireless Temperature/Humidity Transmitter



## LoRaWAN Network Air Pressure Sensor



## Sigfox Remote Surveillance Sensor



## Network Sensor for Agriculture

Product by Demand Side Instruments (France)



## Remote Sprinkler Control Unit



Product by Demand Side Instruments (France)

## Argonomic Parameter Surveillance Unit LoRa Gateway

Product by  
Argotec Engineering (Spain)



## Maritime GPS Tracking System

Product by HidnSeek (France)





- IP67 protection class allows the unit to be used outdoors while protecting the internal components from dust and water.
- Available in 2 types : UV-resistant ASA in white gray color, and flame-resistant ABS in charcoal gray color.
- Addition of 8 sizes for a total of 24 different selectable sizes.
- Mount on walls or brackets by simply opening the blind lids.
- Pole mounting is possible via an optional pole mounting bracket accessory.

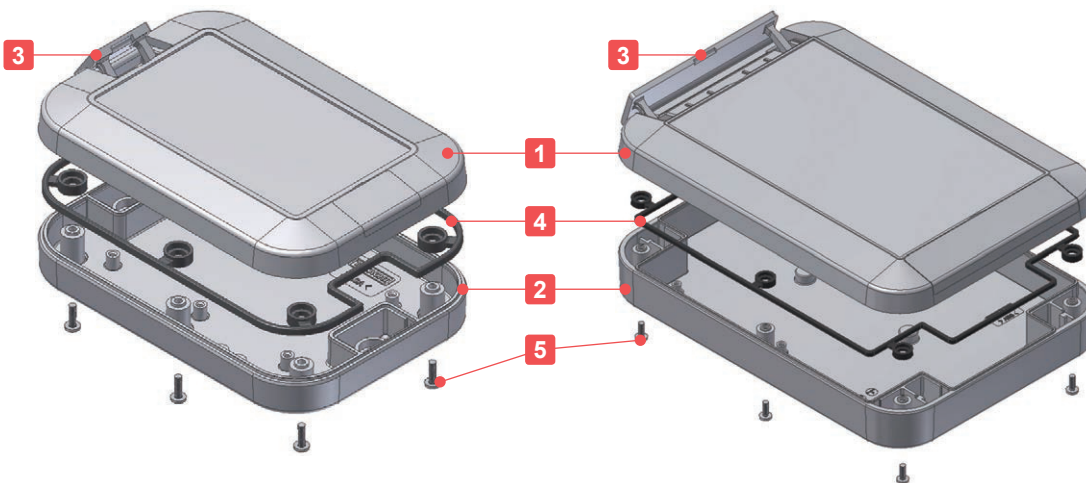


Technical Data	
Protection class :	IP67
Operating temperature :	ASA* -30 ~ +60°C
	ABS -10 ~ +50°C

\*May become brittle and break under impact when temperature is lowered close to -30°C.

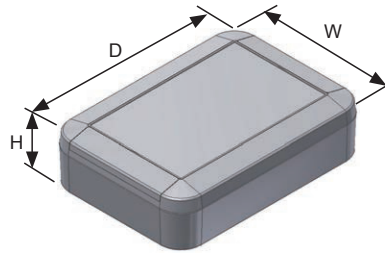
WP5-7-2 ~ WP13-18-5

WP15-15-4 ~ WP20-28-7



Components

No.	Part name	Pcs	Material / Color
1	Top cover	1	ASA UL94HB / White gray : Flame-resistant ABS UL94V-0 / Charcoal gray
2	Bottom base	1	ASA UL94HB / White gray : Flame-resistant ABS UL94V-0 / Charcoal gray
3	Blind lids	2	ASA UL94HB / White gray : Flame-resistant ABS UL94V-0 / Charcoal gray
4	Gasket	1	Silicone / Black
5	Screw	4 ~ 8	Stainless steel binding head screw / Unfinished



**Product no. / Dimensions**

Product no.		Dimensions			Weight (g)	Screw	Recommended torque (N · m)	
● White gray (ASA)	● Charcoal gray (ABS)	W	D	H			Box Assembling	PCB Mounting
WP 5- 7-2G	WP 5- 7-2C	52	65	18	31.5	M2-8 x 4 pcs	0.2 ~ 0.25	0.12 ~ 0.15
WP 5- 7-3G	WP 5- 7-3C	52	65	27	39.5	M2-8 x 4 pcs	0.2 ~ 0.25	0.12 ~ 0.15
WP 6- 8-2G	WP 6- 8-2C	60	80	20	41.5	M2-8 x 4 pcs	0.25 ~ 0.3	0.12 ~ 0.15
WP 6- 8-3G	WP 6- 8-3C	60	80	30	49	M2-8 x 4 pcs	0.25 ~ 0.3	0.12 ~ 0.15
WP 8- 8-2G	WP 8- 8-2C	75	75	22	57.5	M2.5-8 x 4 pcs	0.25 ~ 0.35	0.12 ~ 0.15
WP 8- 8-4G	WP 8- 8-4C	75	75	35	88.5	M2.5-16 x 4 pcs	0.25 ~ 0.35	0.12 ~ 0.15
WP 8-10-2G	WP 8-10-2C	75	100	22	74	M2.5-8 x 4 pcs	0.25 ~ 0.35	0.12 ~ 0.15
WP 8-10-4G	WP 8-10-4C	75	100	35	95	M2.5-16 x 4 pcs	0.25 ~ 0.35	0.12 ~ 0.15
WP 9-13-3G	WP 9-13-3C	90	130	25	113	M2.5-8 x 6 pcs	0.25 ~ 0.35	0.2 ~ 0.25
WP 9-13-4G	WP 9-13-4C	90	130	40	141	M2.5-16 x 6 pcs	0.25 ~ 0.35	0.2 ~ 0.25
WP10-10-3G	WP10-10-3C	100	100	25	96	M2.5-8 x 4 pcs	0.25 ~ 0.35	0.2 ~ 0.25
WP10-10-4G	WP10-10-4C	100	100	40	121	M2.5-16 x 4 pcs	0.25 ~ 0.35	0.2 ~ 0.25
WP11-15-3G	WP11-15-3C	110	150	27	153	M2.5-8 x 6 pcs	0.25 ~ 0.35	0.2 ~ 0.25
WP11-15-4G	WP11-15-4C	110	150	40	181	M2.5-16 x 6 pcs	0.25 ~ 0.35	0.2 ~ 0.25
WP13-18-3G	WP13-18-3C	130	175	30	225	M2.5-8 x 6 pcs	0.25 ~ 0.35	0.2 ~ 0.25
WP13-18-5G	WP13-18-5C	130	175	45	266	M2.5-16 x 6 pcs	0.25 ~ 0.35	0.2 ~ 0.25
<b>NEW</b> WP15-15-4G	<b>NEW</b> WP15-15-4C	150	150	40	239	M3-8 x 4 pcs	0.35 ~ 0.45	0.2 ~ 0.3
<b>NEW</b> WP15-15-6G	<b>NEW</b> WP15-15-6C	150	150	55	282.5	M3-8 x 4 pcs	0.35 ~ 0.45	0.2 ~ 0.3
<b>NEW</b> WP15-21-4G	<b>NEW</b> WP15-21-4C	150	210	40	323	M3-8 x 6 pcs	0.35 ~ 0.45	0.2 ~ 0.3
<b>NEW</b> WP15-21-6G	<b>NEW</b> WP15-21-6C	150	210	55	367.5	M3-8 x 6 pcs	0.35 ~ 0.45	0.2 ~ 0.3
<b>NEW</b> WP20-20-5G	<b>NEW</b> WP20-20-5C	200	200	45	434	M3-8 x 8 pcs	0.35 ~ 0.45	0.2 ~ 0.3
<b>NEW</b> WP20-20-7G	<b>NEW</b> WP20-20-7C	200	200	65	505	M3-8 x 8 pcs	0.35 ~ 0.45	0.2 ~ 0.3
<b>NEW</b> WP20-28-5G	<b>NEW</b> WP20-28-5C	200	280	45	557.5	M3-8 x 8 pcs	0.35 ~ 0.45	0.2 ~ 0.3
<b>NEW</b> WP20-28-7G	<b>NEW</b> WP20-28-7C	200	280	65	646	M3-8 x 8 pcs	0.35 ~ 0.45	0.2 ~ 0.3

■ Recommended torque listed is for reference only; actual may differ. Assemble after testing torque.

■ G color type shall undergo a revision. Color shall change from "White gray - RAL7035" to "Munsell N8.75 or similar".



**Accessories (Optional parts)**



Pole mount bracket WPMB series  
See page WPMB-1

Rubber feet PFRF series  
See page PFRF · MR-1

TORX screw MR series  
See page PFRF · MR-1

PCB mounting screw EM series  
See page EM · MR-1

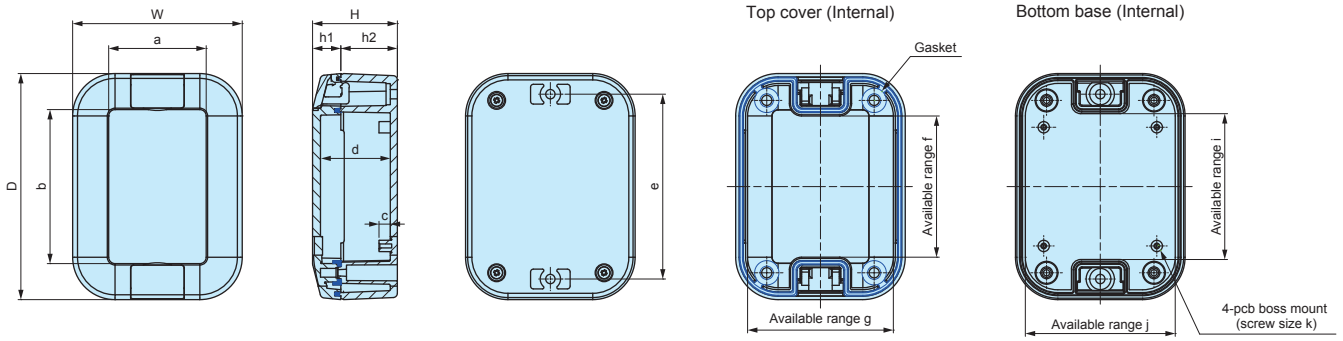
Protective vent PMF series  
See PMF pages

Cable gland  
See cable gland pages

Pole mounting belt PKB series  
See page PKB-1

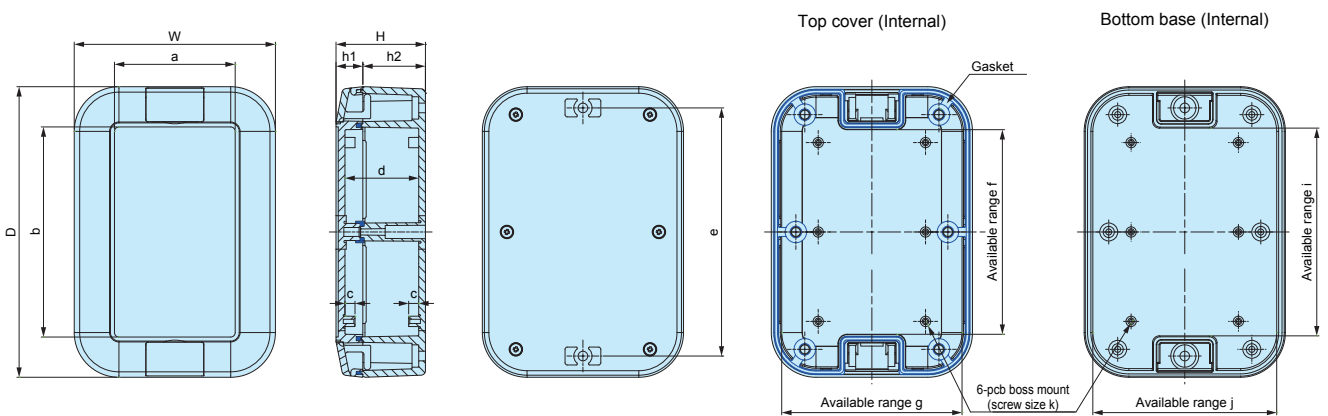
**WP dimensions**

■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



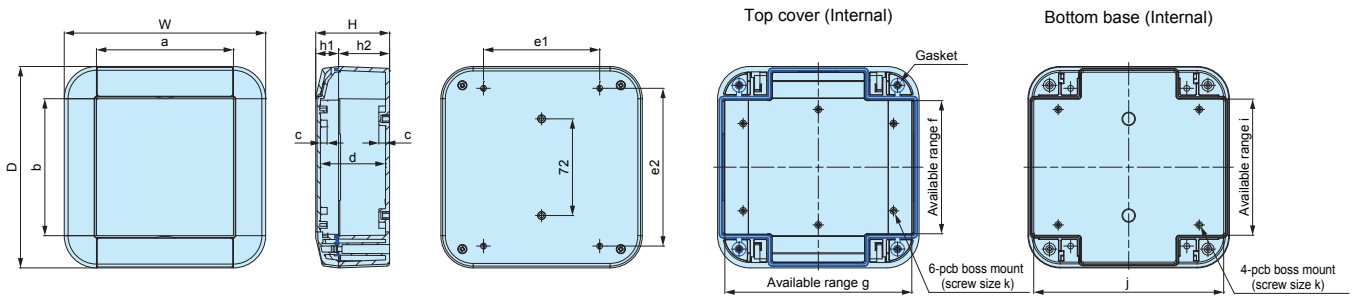
※Boss for PCB are located inside top covers of certain models. Detailed information available on DXF/DWG/PDF drawings.

Product no.	W	D	H	h1	h2	a	b	c	d	e	f	g	i	j	k
WP 5- 7-2	52	65	18	10	8	26.5	38.8	4	13	50.6	34.5	43.5	37	46	M2
WP 5- 7-3	52	65	27	10	17	26.5	38.8	4	22	50.8	34.5	43.5	36.5	45	M2
WP 6- 8-2	60	80	20	10	10	34.5	53.8	4	14.7	65.8	50	51.5	52	53.5	M2
WP 6- 8-3	60	80	30	10	20	34.5	53.8	4	24.7	65.4	50	51.5	51	53	M2
WP 8- 8-2	75	75	22	10	12	49.5	48.8	4	16.4	60.6	44	66	42	67	M2
WP 8- 8-4	75	75	35	10	25	49.5	48.8	4	29.4	60.4	43	66	42	66	M2
WP 8-10-2	75	100	22	10	12	46	71	4	16	85.6	69	66	67	67	M2
WP 8-10-4	75	100	35	10	25	46	71	4	29	85.4	69	66	67	66	M2
WP10-10-3	100	100	25	12	13	63.8	63.7	4.5	18	81.2	60	89	61	90	M2.3
WP10-10-4	100	100	40	12	28	63.8	63.7	4.5	33	81	60	89	61	90	M2.3

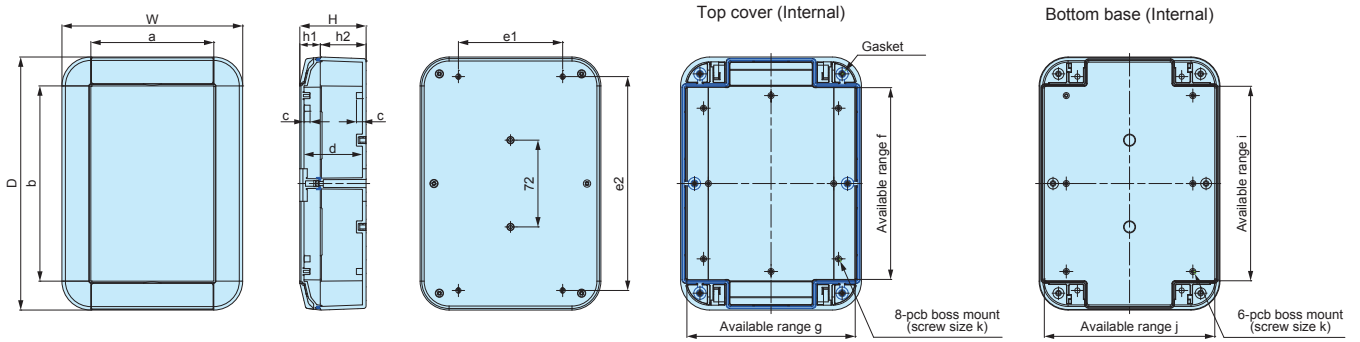


Product no.	W	D	H	h1	h2	a	b	c	d	e	f	g	i	j	k
WP 9-13-3	90	130	25	12	13	53.8	93.7	4.5	18	111.2	90	79	91	81	M2.3
WP 9-13-4	90	130	40	12	28	53.8	93.7	4.5	33	111	90	79	91	81	M2.3
WP11-15-3	110	150	27	12	15	73.7	113.5	4.5	20	131.2	110	99	110	100	M2.3
WP11-15-4	110	150	40	12	28	73.7	113.5	4.5	33	131	110	99	110	100	M2.3
WP13-18-3	130	175	30	12	18	93.8	138.8	4.5	23	156.2	136	120	135	120	M2.3
WP13-18-5	130	175	45	12	33	93.8	138.8	4.5	38	156.2	136	120	135	120	M2.3

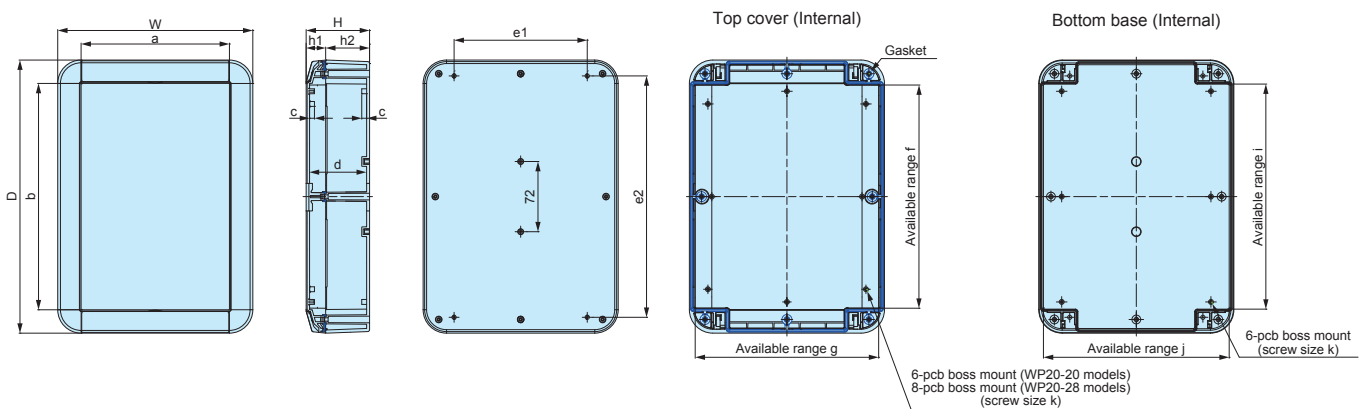




Product no.	W	D	H	h1	h2	a	b	c	d	e1	e2	f	g	i	j	k
WP15-15-4	150	150	40	17	23	102	102	5	33.5	86.5	117.5	99	139	100	141	M2.6
WP15-15-6	150	150	55	17	38	102	102	5	48.5	86.5	117.5	99	139	100	140	M2.6



Product no.	W	D	H	h1	h2	a	b	c	d	e1	e2	f	g	i	j	k
WP15-21-4	150	210	40	17	23	102	162	5	33.5	86.5	177.5	159	139	160	141	M2.6
WP15-21-6	150	210	55	17	38	102	162	5	48.5	86.5	177.5	159	139	160	140	M2.6



Product no.	W	D	H	h1	h2	a	b	c	d	e1	e2	f	g	i	j	k
WP20-20-5	200	200	45	20	25	152	152	5	38.5	136.5	167.5	148	187	150	190	M2.6
WP20-20-7	200	200	65	20	45	152	152	5	58.5	136.5	167.5	148	187	149	189	M2.6
WP20-28-5	200	280	45	20	25	152	232	5	38.5	136.5	247.5	227	187	230	190	M2.6
WP20-28-7	200	280	65	20	45	152	232	5	58.5	136.5	247.5	227	187	229	189	M2.6

# WEATHERBILITY / DURABILITY TEST DATA for IP rated boxes

**Weather resistance is the ability of a material to prevent corrosion, loss of material or any sort of deterioration due to prolonged exposure to harsh environmental and weather conditions.**

**The test data for our weather resistance waterproof/dustproof cases are as detailed below.**

## TEST DETAILS • TEST INSTRUMENT

Tester : Super Xenon Weather Meter SX75 - Suga Test Instruments Co., Ltd.  
 (Testing under conditions closest to the spectral distribution of sunlight by utilizing a xenon lamp and filter system.)  
 Irradiation Condition : 180 W/m<sup>2</sup> at 300 ~ 400nm  
 Black panel humidity : 63±3 °C  
 Relative Humidity : 50±10 %  
 Cycle conditions : 120 minutes (18 min. irradiation + water spray and 102 min. irradiation)  
 Test Time : 500 hours (continuous test)  
 Radiation Exposure : 324 MJ/m<sup>2</sup>  
 Measurements : Color measurements performed based upon JIS Z 8722 standard, with the results based upon JIS Z8781-4 standard.  
 \*Lesser color difference infers better weather resistance.

## TEST DATA

\*Test data results are reference data only; does not reflect actual usage conditions.

### Before testing (plastic material color)



①                      ②                      ③                      ④                      ⑤                      ⑥



### After 500 hours testing (plastic material color)



No.	Target box / Material	Test time	Color difference ΔEab
①	WP series - G color type ASA material	100 hrs.	0.9
		500 hrs.	3.3
②	SPCP • SPCM series (Body) Glassfiber-filled Polycarbonate material	100 hrs.	2.9
		500 hrs.	7.8
③	BCPC • BCPK series (Top cover) Polycarbonate material	100 hrs.	3.8
		500 hrs.	7.9
④	BCPC • BCPK series (Base) Glassfiber-filled Polycarbonate material	100 hrs.	4.7
		500 hrs.	8.6
⑤	SPCP • SPCM series (Cover) Polycarbonate material	100 hrs.	3.7
		500 hrs.	10.6
⑥	BCAP series ABS material	100 hrs.	3.6
		500 hrs.	10.8

**Better weather resistance**



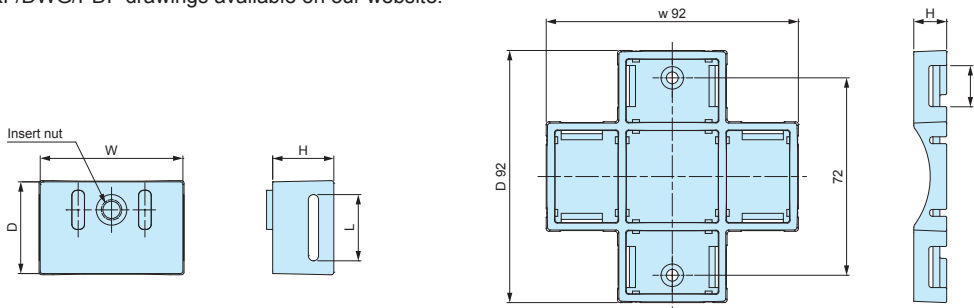
WPMB SERIES

POLE MOUNT BRACKET

← NEW SIZE



- Pole mount bracket made from weather resistant ASA material.
- Hole milling is not required when installing the mount bracket, thus allowing the enclosure to maintain its IP67 protection.
- WPMB-M4-2 can be used both for vertical and horizontal installation.
- Together with WPMB series, the PKB series mounting belt enables the unit to be mounted onto a pole.
- DXF/DWG/PDF drawings available on our website.



Color Type

Code	Color
G	White gray
D	Dark Gray

WPMB-M3 □ WPMB-M4

WPMB-M4-2

Product no. / Dimensions

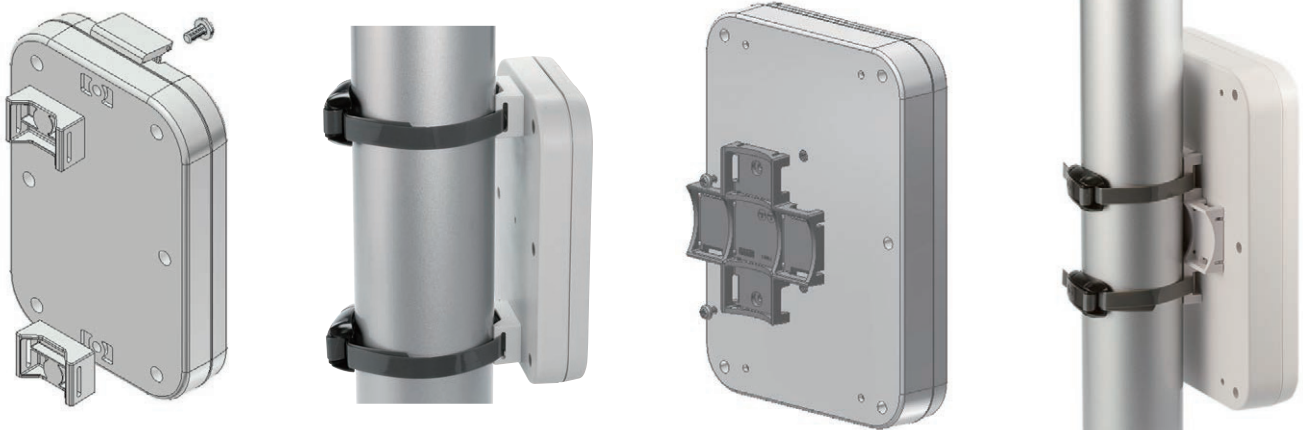
■ Please suffix color code at the end of the product number.

Product no.	Dimensions				Material / Finish	Screw	Suitable enclosures	Recommended torque (N · m)	Weight (g)	Pack of
	W	D	H	L						
WPMB-M3 □	18	14	9.5	11	ASA UL94HB	Stainless steel M3-6 x 2 pcs	WP5-7-2 • 5-7-3 • 6-8-2 • 6-8-3 • 8-8-2 • 8-8-4 • 8-10-2 • 8-10-4	0.4 ~ 0.45	3	2 (pair)
WPMB-M4 □	28	18	12	13	ASA UL94HB	Stainless steel M4-8 x 2 pcs	WP9-13-3 • 9-13-4 • 10-10-3 • 10-10-4 • 11-15-3 • 11-15-4 • 13-18-3 • 13-18-5	0.45 ~ 0.5	10	2 (pair)
<b>NEW</b> WPMB-M4-2 □	92	92	12	13	ASA UL94HB	Stainless steel M4-6 x 2 pcs	WP15-15-4 • 15-15-6 • 15-21-4 • 15-21-6 • 20-20-5 • 20-20-7 • 20-28-5 • 20-28-7	0.45 ~ 0.5	24	1

■ Recommended torque listed is for reference only; actual may differ. Assemble after testing torque.

WPMB-M3/WPMB-M4

WPMB-M4-2





PKB-10PM, 10P

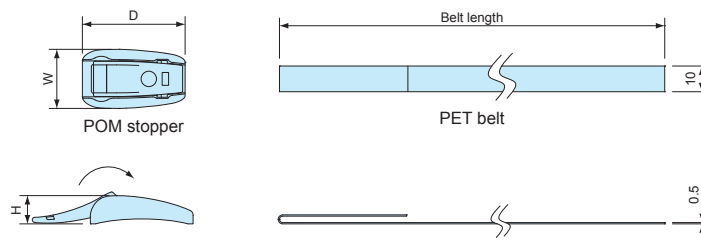


PKB-10S, 20S

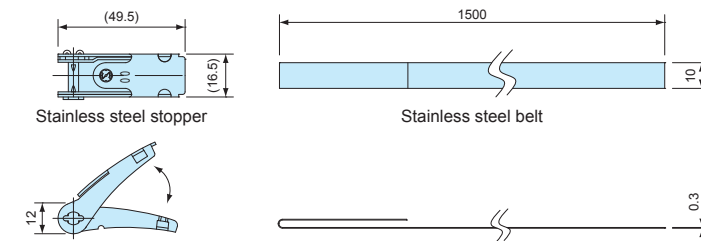
- New shorter belt type PKB-10PM is available for  $\phi 25$  to  $\phi 60$ mm poles. Other belt types are for  $\phi 60$  to  $\phi 400$ mm poles.
- Designed for one time use only (not reusable).
- Strong stainless steel clamping type and easy installation plastic type are available.
- Use SSK mounting bracket for installation onto a pole.
- Drawings below are reference examples only. DXF/DWG/PDF drawings available on our website.

**PKB dimensions**

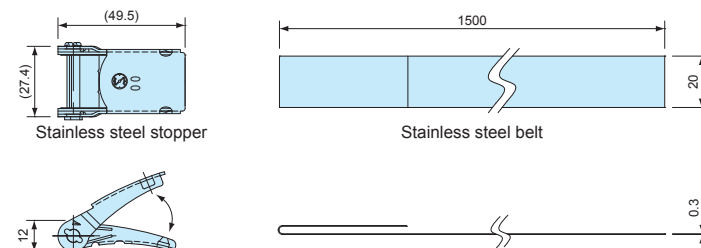
**PKB-10PM, 10P**



**PKB-10S**



**PKB-20S**



**Components**

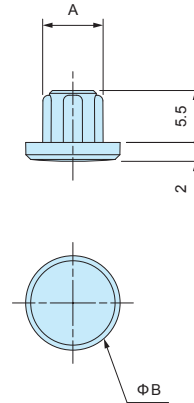
Part name	Pcs	Material	Color / Finish
Stopper	2	POM • Stainless steel SUS304	Black • Barrel finish
Belt	2	PET • Stainless steel SUS430	Gray • Bright Annealed finish

**Product no. / Dimensions**

Product no.	W	D	H	Belt material	Belt length	Tensile strength (horizontal)	Weight (g)	Pack of
<b>NEW</b> PKB-10PM	24	23	11	PET	500mm	0.8kN	14	2
PKB-10P	23	40	11	PET	1,500mm	1.3kN	31.8	2
PKB-10S	—	—	—	Stainless steel	1,500mm	1.4kN	101.6	2
PKB-20S	—	—	—	Stainless steel	1,500mm	2.9kN	182.2	2

**PFRF SERIES**

**RUBBER FEET**



- Recommended to be used with WP series as a desktop-type unit.
- No additional hole milling required as the rubber feet fits snugly into the screw holes.
- Made from elastomer material.
- Unavailable for use with WP5-7-2, 5-7-3, 6-8-2, and 6-8-3 models.

**Product no. / Dimensions**

■ UL94HB

Product no.	Dimensions		Material	Color	Suitable enclosures	Pack of
	A	B				
PFRF-M2.5D	6.4	10	Elastomer UL94HB	Dark gray	WP models: 8-8-2 • 8-8-4 • 8-10-2 • 8-10-4 • 9-13-3 • 9-13-4 • 10-10-3 • 10-10-4 • 11-15-3 • 11-15-4 • 13-18-3 • 13-18-5	4
PFRF-M3D	7.2	11	Elastomer UL94HB	Dark gray	WP models: 15-15-4 • 15-15-6 • 15-21-4 • 15-21-6 • 20-20-5 • 20-20-7 • 20-28-5 • 20-28-7	4

**MR SERIES**

**TORX SCREW for WP**

**NEW SIZE**



Head type (with pin)



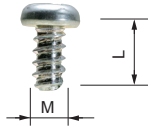
- Recommended to be used for tamper resistance, or for an elegant look and feel.
- Requires the use of a specialized screwdriver.
- Unavailable for use with WP5-7-2, 5-7-3, 6-8-2, and 6-8-3 models.

**Product no. / Dimensions**

Product no.	Dimensions		TORX head no.	Material	Finish	Suitable enclosures	Pack of
	M	L					
MR2.5-8ST	2.5	8	T 8 (with pin)	Stainless steel	Unfinished	WP8-8-2 • 8-10-2 • 9-13-3 • 10-10-3 • 11-15-3 • 13-18-3 / WSC series	20
MR2.5-16ST	2.5	16	T 8 (with pin)	Stainless steel	Unfinished	WP8-8-4 • 8-10-4 • 9-13-4 • 10-10-4 • 11-15-4 • 13-18-5	20
<b>NEW</b> MR3-8ST	3	8	T10 (with pin)	Stainless steel	Unfinished	WP15-15-4 • 15-15-6 • 15-21-4 • 15-21-6 • 20-20-5 • 20-20-7 • 20-28-5 • 20-28-7	20

EM SERIES

PCB MOUNTING SCREW



- Self-tapping screws for mounting PCB on bosses or standoffs.
- EM-3-6 self-tapping screws are suitable for mounting 1.6mm or thicker PCB.

Product no. / Dimensions

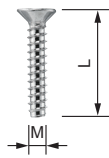
Product no.	M	L	Material	Finish	Suitable enclosures	Pack of
EM-1.6	1.6	4	Steel	Trivalent chromate	WC • CSS • CS • PS (M1.6 size)	50
EM-2	2	5	Steel	Trivalent chromate	PS • TW • TWN • TWF • WP (M2 size)	50
EM-2.3	2.3	6	Steel	Trivalent chromate	WH • LC • LCT • LCS • LCE • PFE WSC (Top cover bosses) PF • PFF (M2.3 size) TW • TWN • TWF (M2.3 size) WP (M2.3 size)	50
<b>NEW</b> EM-2.3-8	2.3	8	Steel	Trivalent chromate	WSC (Bottom base bosses)	50
EM-2.6	2.6	6	Steel	Trivalent chromate	PF • PFF • WP (M2.6 size)	50
EM-3	3	5	Steel	Trivalent chromate	SU TWS • TW • TWN • TWF (M3 sizes)	50
EM-3-6	3	6	Steel	Trivalent chromate		50

MR SERIES

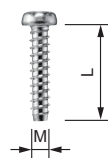
TORX SCREW



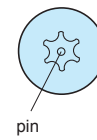
Countersunk head



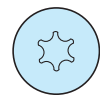
Pan head



With pin



★ Without pin



★ : MR1.6-6S, MR-2S, MR2.6-10□, and MR3-14□ are without pin.

Product no. / Dimensions

★Mark = Without pin

Product no.	M	L	head no.	Head style	Material	Finish	Suitable enclosures	Pack of
MR1.6-6S★	1.6	6	T3	Pan	Steel	Nickel plated	CS • CSS	20
MR2.5-8PS	2.5	8	T8	Pan	Steel	Nickel plated	PF • PFE • PFF (M2.5 size)	20
MR2.6-10S★	2.6	10	T8	Countersunk	Steel	Nickel plated	TW • TWN (M2.6 models) TWF (M2.6 models)	20
MR2.6-10B★	2.6	10	T8	Countersunk	Steel	Black trivalent chromate	MX • MXA • MXB • MXF (M2.6 models)	20
MR2.6-12PS	2.6	12	T8	Pan	Steel	Nickel plated	LCT • LCS • LC115-F2 / F3 LCT • LCS • LC145S-F6	20
MR2.6-14PS	2.6	14	T8	Pan	Steel	Nickel plated	LCT • LCS • LC115H-F2 / F3 / M2 / 9V LCT • LCS • LC135-F4 / M2 / M3 / 9V LCT • LCS • LC135H-F4 / M2 / M3 / 9V LCT • LCS • LC145-F6 / M2 / M4 LCT • LCS • LC145H-F6 / M2 / M4 LCT • LCS • LC165-M4 LCT • LCS • LC165H-M4	20
MR2.6-14S	2.6	14	T8	Countersunk	Steel	Nickel plated	LCT • LCS • LC115-N / F2 / F3 LCT • LCS • LC145S-F6 / 145S-N LCE115-N TW • TWN7-2-11 / 7-4-11 / 7-5-11 TWF7-2-11 / 7-4-11 / 7-5-11 / 8-2-8 / 8-4-8	20
MR2.6-18S	2.6	18	T8	Countersunk	Steel	Nickel plated	LCT • LCS • LC115H-N / F2 / F3 / M2 / 9V LCT • LCS • LC135-N / F4 / M2 / M3 / 9V LCT • LCS • LC135H-N / F4 / M2 / M3 / 9V LCT • LCS • LC145-N / F6 / M2 / M4 LCT • LCS • LC145H-N / F6 / M2 / M4 LCT • LCS • LC165-N / M4 LCT • LCS • LC165H-N / M4 LCE115H-N • LCE135-N • LCE145H-N • LCE165H-N	20
MR3-8PS	3	8	T10	Pan	Steel	Nickel plated	PF • PFE • PFF (M3 size)	20
MR3-14S★	3	14	T10	Countersunk	Steel	Nickel plated	TW • TWN (M3 models) TWF (M3 models)	20
MR3-14B★	3	14	T10	Countersunk	Steel	Black trivalent chromate	MX • MXA • MXB • MXF (M3 models)	20
MR-2S★	3	10	T10	Countersunk	Steel	Nickel plated	HEN	20

# Effect of PMF Series Protective Vent on WP series Box

WP series enclosure comes with a silicone gasket, which allows the enclosure to be extremely airtight when assembled. When facing with high temperature fluctuations over a period of time, the pressure within the enclosure will increase accordingly. If this air pressure within is unable to be properly vented, it may cause the enclosure to deform, such as expanding past its normal size. By installing the PMF series protective vent, it will assist in equalizing the air pressure, and prevent potential deformation.

**[Evaluation Target]** 1. WP20-28-7G                      2. WP20-28-7G - PMF-12HAG Installed on 1 side

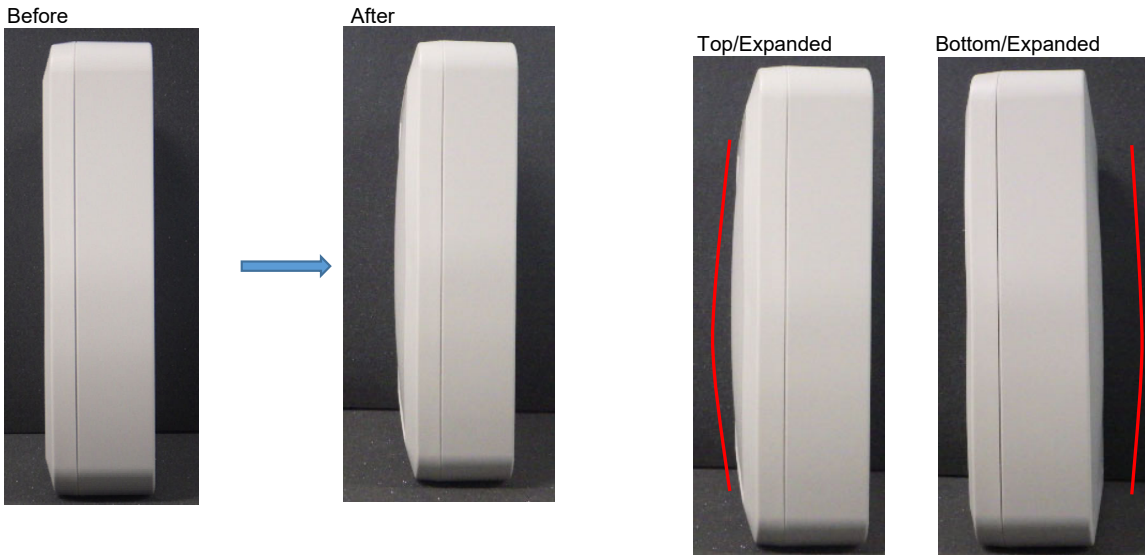
**[Test Conditions]**    Heat Cycle Test

Device :    Constant temperature/humidity test chamber - LH43-W14P  
 Make :     NAGANO SCIENCE CO., LTD.

Heat cycle testing in -10°C ~ +60°C (Operating temperature for WP enclosures)  
 1 cycle :    -10°C 3 hours / 60°C 3 hours  
 Tested 5 cycles.

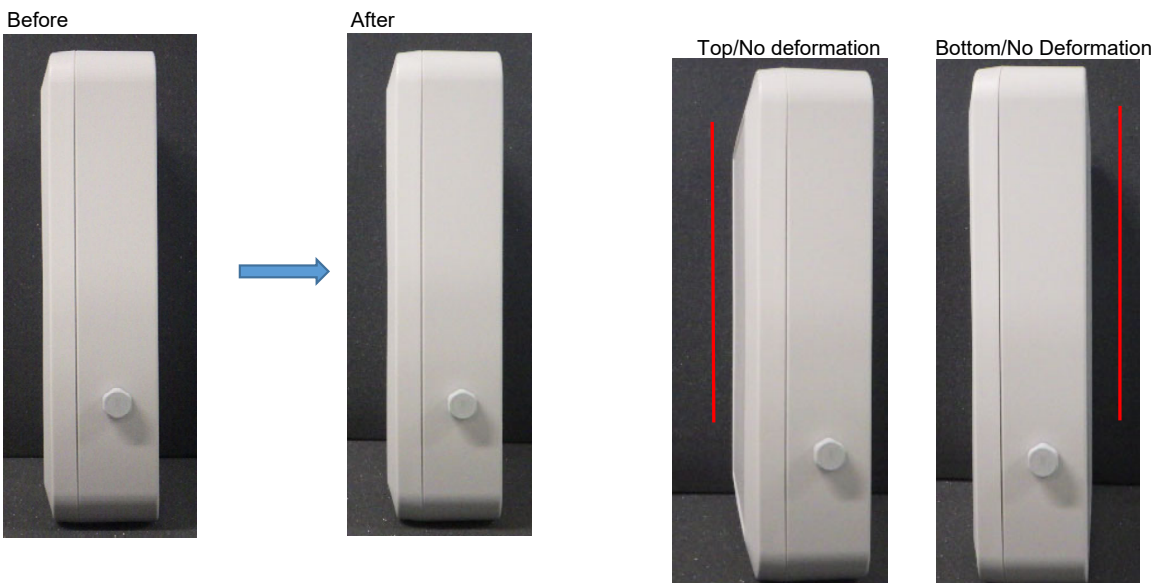
**Test Result : 1. WP20-28-7G :**

Increased air pressure within the enclosure and unable to be balanced/vented (deformation).



**Test Result : 2. WP20-28-7G - PMF-12HAG Installed on 1 side**

Air pressure within the enclosure balanced/vented through the protective vent (no deformation).



# WSC SERIES IP67 SLOPED PLASTIC CASE



## Ergonomic design and streamlined shape.

Best suited for desktop operation with its sloped surface.

2 different inclined angles, 13° and 18° are available to select for various operating environments.

Streamlined shape enables the unit to be gripped better when used as a handheld instrument.



2 angles : 13° and 18°

Photo : 13° type



## Best suited for desktop operation with its sloped surface.

High elasticity and good durability for maintaining waterproofing capability.

Built-in insert nut use for long-lasting protection even after frequent opening and closing.





# APPLICATION EXAMPLE

Medical Measurement Device · Medical Controller



Digital Card Reader



Transmitter · Network Equipment



## How to make waterproof buttons and switches

Please utilize a waterproof membrane keypad, membrane switch or overlay.  
Note that the waterproof performance will be lost by drilling/milling holes or cutouts for buttons or switches on waterproof enclosures.



## How to make waterproof cable hole

Please utilize a cable gland from our available range of cable gland accessories.





Technical Data
Protection class : IP67
Operating temperature : -10°C ~ +60°C
Recommended torque : 0.2 ~ 0.3N · m

- Suitable as a desktop controller or measurement instrument with its ergonomic design.
- Streamlined shape enables the unit to be gripped better when used as a handheld instrument.
- IP67 protection class allows the unit to be used outdoors or under environments with water splashes, such as medical, research or measurement equipments.

Components

No.	Part name	Pcs	Material	Color / Finish
1	Top Cover	1	Flame-resistant ABS UL94V-0	Off white · Black
2	Bottom base	1	Flame-resistant ABS UL94V-0	Off white · Black
3	Gasket	1	Silicone	Black
4	Screw	4	Stainless steel binding head screw M2.5-8	Unfinished
5	Rubber feet	4	Polyurethane	Transparent

Accessories (Optional parts)



PCB mounting screw EM series  
See page EM · MR-1



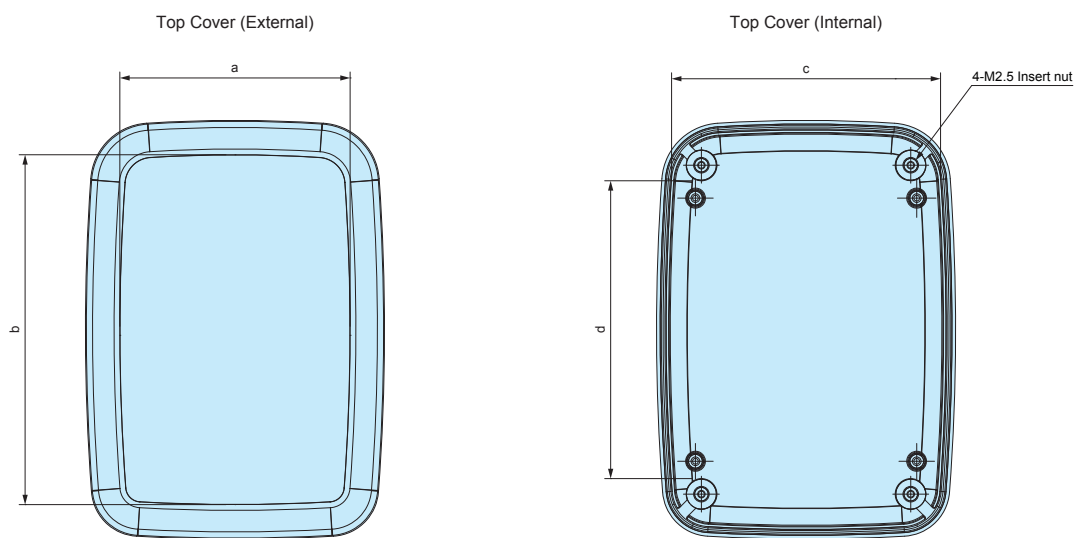
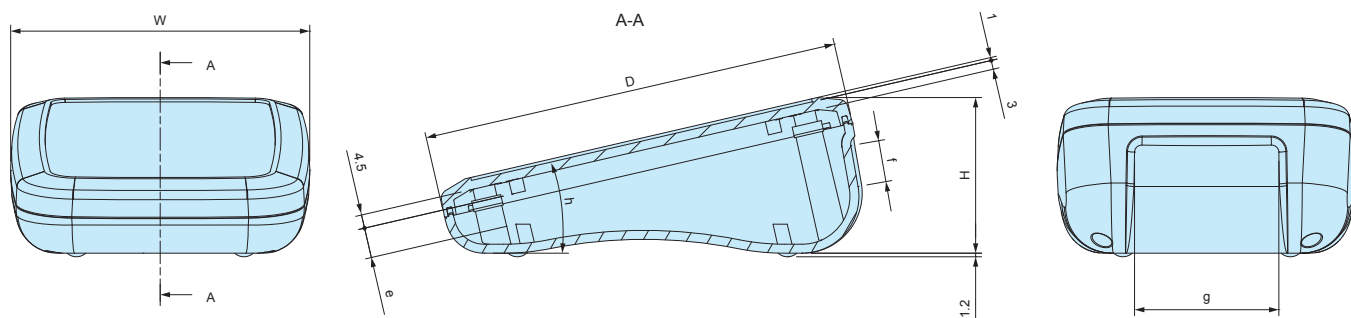
Cable gland  
See cable gland pages



TORX screw MR series  
See page EM · MR-1

WSC dimensions

■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.

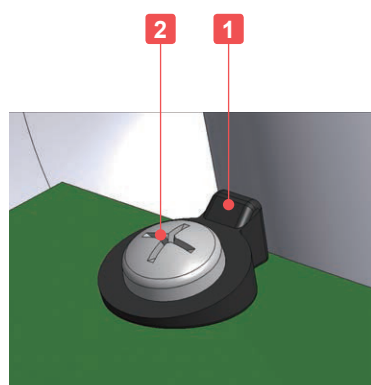


Product no. / Dimensions

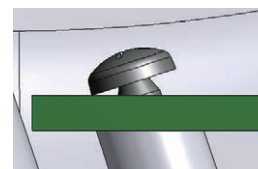
Product no.		Dimensions										Face angle	
● Off white	● Black	W	D	H	a	b	c	d	e	f	g	h	
<b>NEW</b> WSC10-14-5W	<b>NEW</b> WSC10-14-5B	100	140	52	77	117	87	100	10	13.9	48.2	13°	
<b>NEW</b> WSC10-14-7W	<b>NEW</b> WSC10-14-7B	100	140	72	77	117	87	100	22	27.4	48.2	18°	
<b>NEW</b> WSC14-14-5W	<b>NEW</b> WSC14-14-5B	140	140	52	117	117	128	100	10	13.8	80.5	13°	
<b>NEW</b> WSC14-14-7W	<b>NEW</b> WSC14-14-7B	140	140	72	117	117	128	100	22	27.4	80.5	18°	
<b>NEW</b> WSC18-14-5W	<b>NEW</b> WSC18-14-5B	175	140	52	152	117	163	95	11.3	13.8	103.5	13°	
<b>NEW</b> WSC18-14-7W	<b>NEW</b> WSC18-14-7B	175	140	72	152	117	163	95	23.7	27.4	103.5	18°	

WSP-M2.3

INCLINED SPACER



- Due to the sloped shape of the WSC series, boss-tops are also angled. So when mounting PCB on, some gap between the screw head and PCB surface will be generated as shown the diagram. WSP-M2.3 helps to fill the gap.
- EM-2.3-8 as PCB mounting screws are available for bosses in bottom base. (See page 22)



Components

No.	Part name	Pcs	Material	Color / Finish
1	Inclined spacer	4	POM	Black
2	Screw (Tapping M2.3-8)	4	Steel	Trivalent chromate

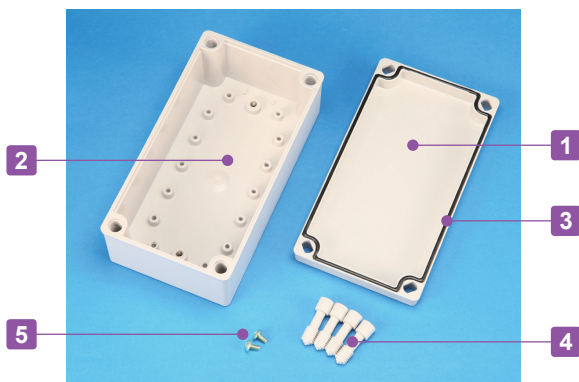
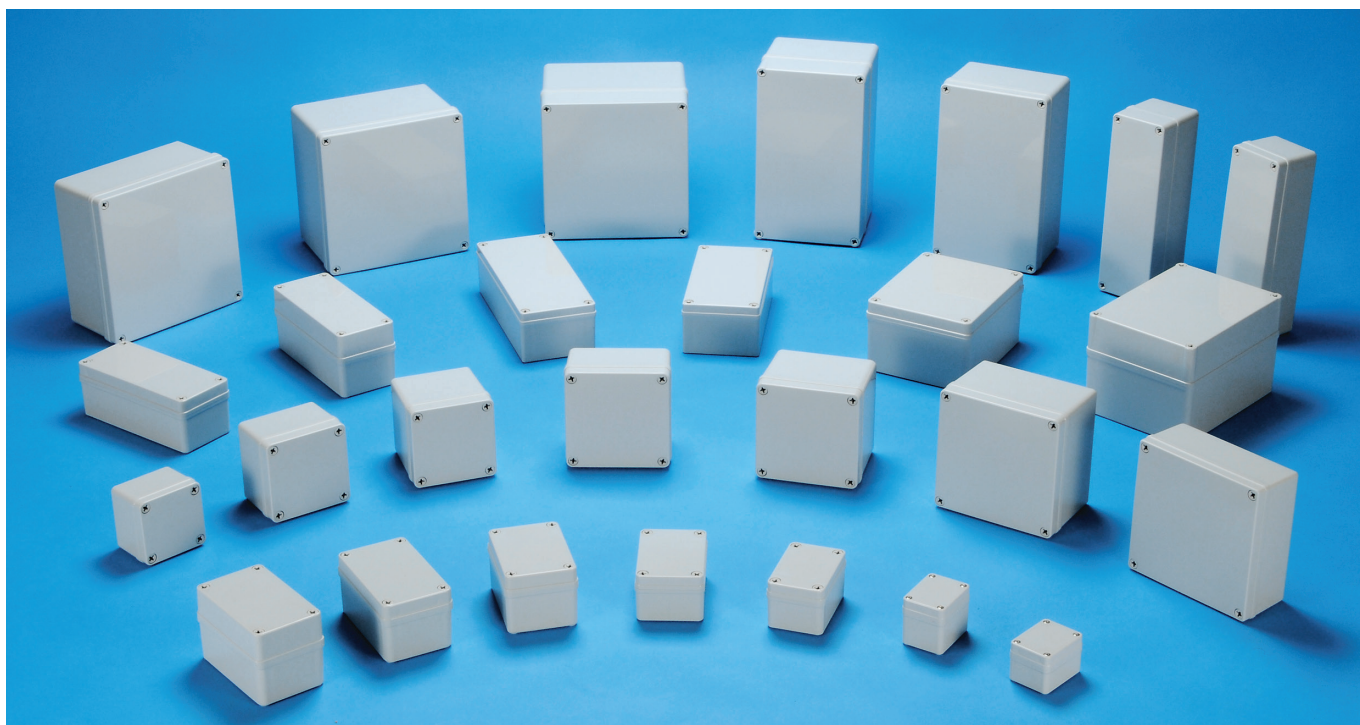
■ Torque 0.1N · m

Product no. / Details

Product no.	Suitable enclosures	Pcs
<b>NEW</b> WSP-M2.3	WSC (for bottom base PCB boss)	4

# BCAS SERIES

# IP65 PLASTIC PULL BOX



### Technical Data

Protection class: IP65  
 Operating temperature: -10°C ~ +60°C  
 Recommended torque:  
 1N · m ~ 1.5N · m  
 (1N · m for BCAS050604G, BCAS050605G)

- Small-sized frontal screw fastening type waterproof box.
- Available in 39 different sizes.
- Applicable for various uses as wiring pull box, terminal junction box, switch box and so on.

### Components

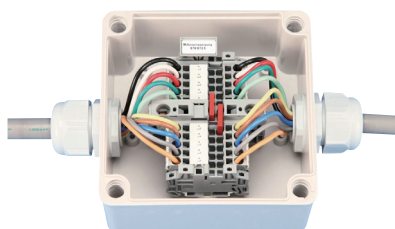
No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94HB	White gray
2	Body	1	ABS UL94HB	White gray
3	Gasket	1	Polyurethane	Black
4	Cover screw	4	Nylon · Stainless steel (BCAS050604G and BCAS050605G only)	White gray · Unfinished
5	Tapping screw (for mounting plate)	2 ~ 4	Steel	Trivalent chromate

## APPLICATION EXAMPLE

### SWITCH BOX



### TERMINAL JUNCTION BOX



### AIR PIPE CONTROLLER

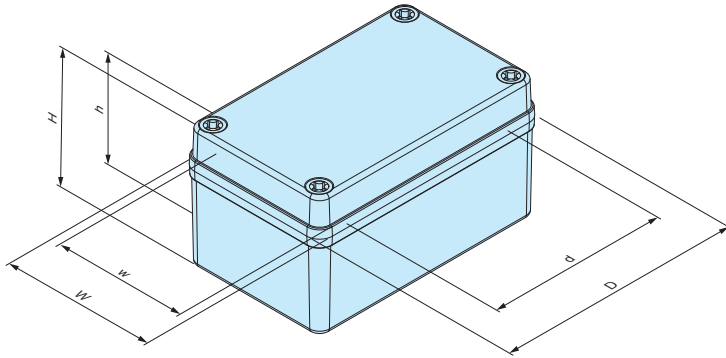


### METEOROLOGICAL MONITOR TRANSMITTER



Product by Midori Engineering Laboratory (Japan)

**BCAS dimensions**



■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.

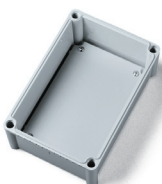
◎ : Guide markings for installation of optional latch/hinge parts.



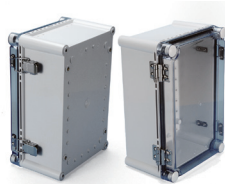
**Product no. / Dimensions**

Product no.	Dimensions (External)			Dimensions (Internal)			Weight (g)
	W	D	H	w	d	h	
BCAS050604G	50	65	45	43.5	41	33	69
BCAS050605G	50	65	55	43.5	41	43	76
BCAS060905G	65	95	55	55.5	59	41.5	124
BCAS071005G	75	105	55	66	69	41.3	148
BCAS080806G	80	80	60	70.5	44	46.4	133
BCAS081104G	80	110	45	71	74	32.2	138
BCAS081107G	80	110	70	69.5	73.5	57	165
BCAS081108G	80	110	85	70	75	71.8	191
BCAS081110G	80	110	100	70	75	86.2	227
BCAS081307G	80.5	130	70	70.5	94	56.5	188
BCAS081308G	80	130	85	70.5	94	71.5	222
BCAS081807G	80	180	70	70.5	143.5	57	233
BCAS081808G	80	180	85	70.5	143.5	71.5	275
BCAS082507G	80	250	70	70	213.5	56.5	294
BCAS082508G	80	250	85	70	213.5	71.5	348
BCAS101007G	101.5	101.5	75	91	64	61.5	212
BCAS101010G	101.5	101.5	100	90	64	86.5	253
BCAS101807G	100	185	70	90	148.5	56.7	298
BCAS102007G	100	200	70	90.5	163.5	56.5	282
BCAS102307G	100	230	70	90.5	193.5	56.4	336
BCAS121207G	125	125	75	114	88.5	62	252
BCAS121210G	125	125	100	114	87.5	87	311
BCAS141709G	143	173	95	133	134	82	416
BCAS142309G	140	230	95	129	193	81.5	485
BCAS151507G	150	150	75	140	114	61.5	322
BCAS151510G	150	150	100	139	114	86.5	398
BCAS152004G	150	200	46	140	164	32.4	335
BCAS152007G	150	200	75.5	138	164	61.5	423
BCAS152010G	150	200	100.5	139	161.5	86.5	473
BCAS152013G	150	200	130.5	139.5	161	116.5	582
BCAS152016G	150	200	160	139	163	146.5	631
BCAS152510G	150	250	100	139.5	214	86.4	565
BCAS152513G	150	250	130	139.5	214	116.4	687
BCAS161607G	160	160	70	150	123.5	56.5	334
BCAS202010G	200	200	100	189	164.5	86	604
BCAS202013G	200	200	130	189	164.5	117	685
BCAS202016G	201	201	161	187.5	164.5	147	801
BCAS202019G	201	201	190	187.5	164.5	176.3	907.5
BCAS212310G	210	230	100.3	198.8	194.2	87.1	644.5

**Accessories (Optional parts)**



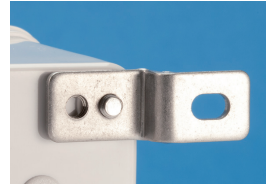
Mounting plate BMP series  
See page BCAS-3 ~ BCAS-4



Latch • Hinge BCL55 • BCH55  
See page BCAS • BCAL-ACC-1



Spare cover screw CB series  
See page BCAS • BCAL-ACC-3



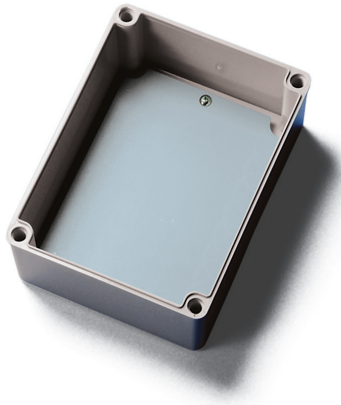
Mounting bracket CK series  
See page BCAS • BCAL-ACC-2



Cable gland  
See cable gland pages

**BMP-Z SERIES**

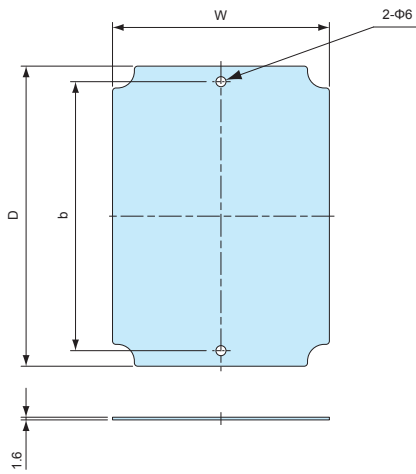
**STEEL MOUNTING PLATE**



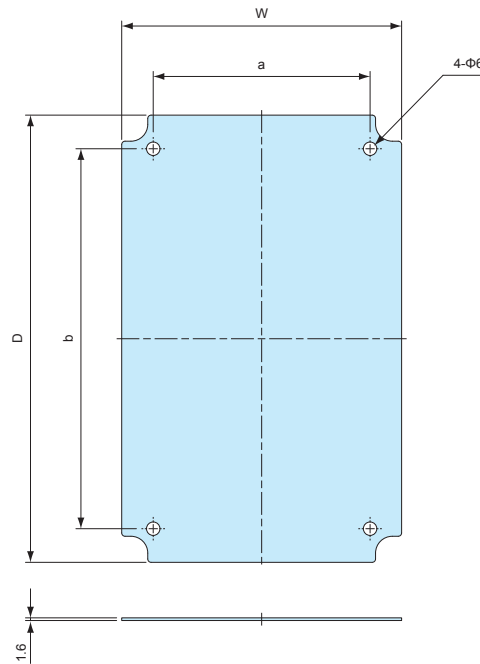
■ Strong but easily customizable.

■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.

BMP0506Z ~ 1525Z



BMP2020Z, 2123Z



**Components**

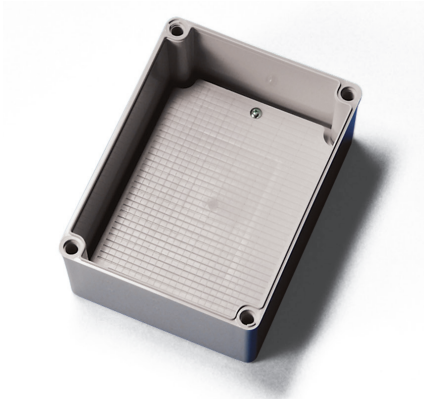
Part name	Material	Color / Finish
Mounting plate	Steel t=1.6	Zinc coated

**Product no. / Dimensions**

Product no.	W	D	a	b	Suitable box	Weight (g)
BMP0506Z	41	56	-	40	BCAS050604, 050605	23
BMP0609Z	52	82	-	65	BCAS060905	41
BMP0710Z	62	92	-	75	BCAS071005	63
BMP0808Z	67	67	-	50	BCAS080806	47
BMP0811Z	68	98	-	80	BCAS081104, 081107, 081108, 081110	72
BMP0813Z	68	118	-	99	BCAS081307, 081308	87
BMP0818Z	69	169	-	150	BCAS081807, 081808	134
BMP0825Z	69	239	-	220	BCAS082507, 082508	193
BMP1010Z	86	86	-	60	BCAS101007, 101010	80
BMP1018Z	89	173	-	139	BCAS101807	177
BMP1121Z	77	177	-	158	BCAS102007	159
BMP1023Z	88	218	-	184	BCAS102307	226
BMP1212Z	114	114	-	70	BCAS121207, 121210	151
BMP1417Z	132	162	-	130	BCAS141709	251
BMP1423Z	123	213	-	190	BCAS142309	305
BMP1515Z	121	121	-	110	BCAS151507, 151510	172
BMP1616Z	142	142	-	120	BCAS161607	237
BMP1520Z	126	176	-	160	BCAS152004, 152007, 152010, 152013, 152016	262
BMP1525Z	127	227	-	210	BCAS152510, 152513	346
BMP2020Z	176	176	120	150	BCAS202010, 202013, 202016, 202019	371
BMP2123Z	183	203	160	180	BCAS212310	447

**BMP-P SERIES**

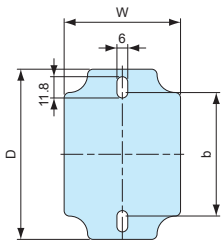
**PLASTIC MOUNTING PLATE**



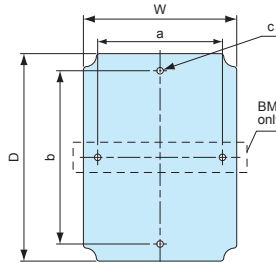
- Lightweight ABS plastic mounting plate.
- Not available for BCAS050604, 050605, 060905, 071005, 080806, 101807, 102307, and 212310 models.

■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.

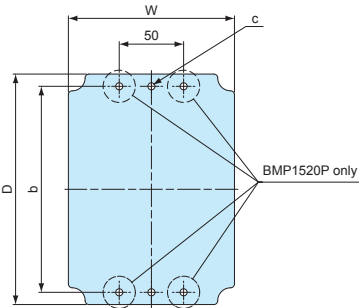
BMP0811P



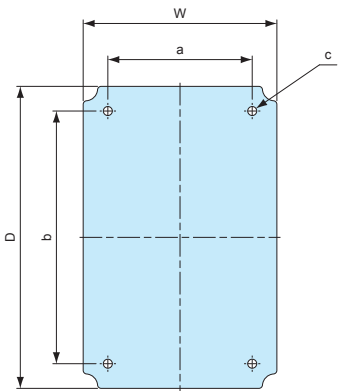
BMP0813P ~ 1616P



BMP0825P, 1423P, 1520P, 1525P



BMP2020P



**Components**

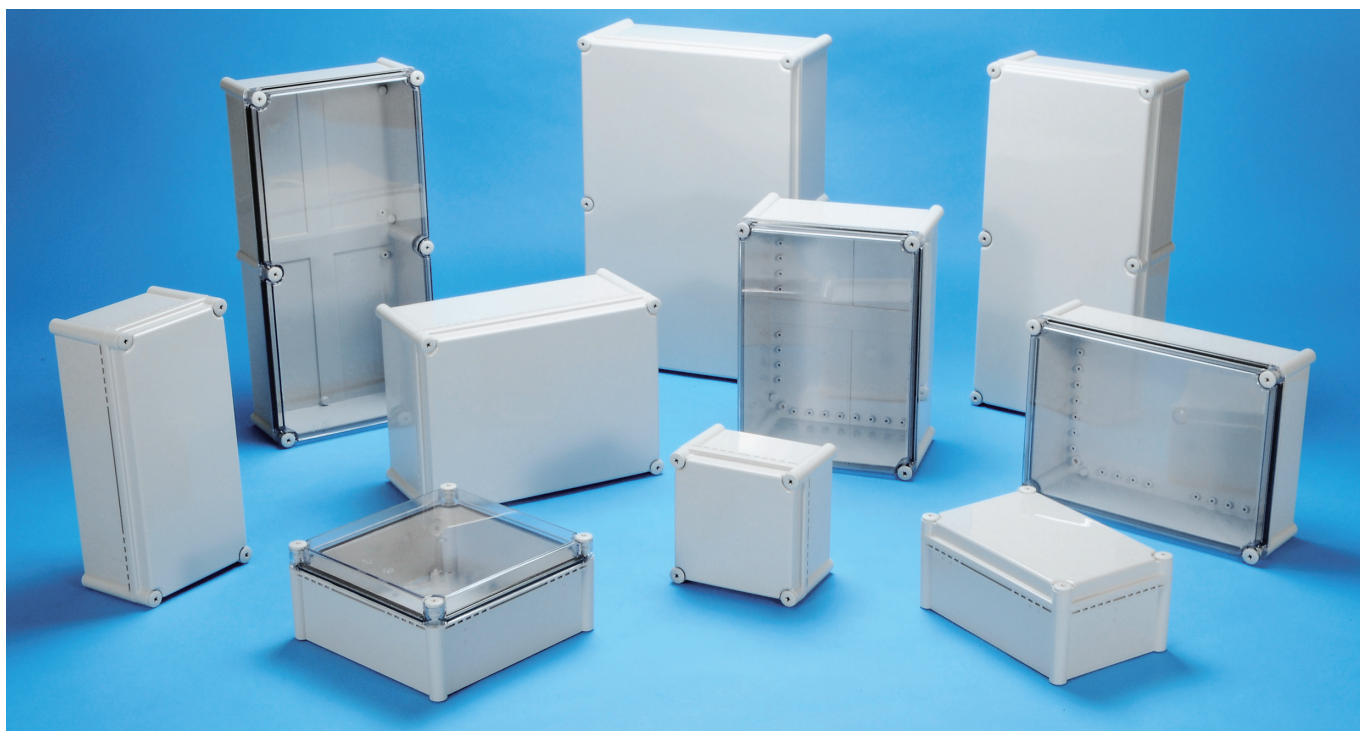
Part name	Material	Color / Finish
Mounting plate	ABS	White gray

**Product no. / Dimensions**

Product no.	W	D	a	b	c(Φ)	Thickness	Suitable box	Weight (g)
BMP0811P	64.5	94.3	-	68.4	-	3.5	BCAS081104, 081107, 081108, 081110	21
BMP0813P	64.5	114.5	-	99	Φ6	3.5	BCAS081307, 081308	24
BMP0818P	64.5	164	-	148.5	Φ6	3.5	BCAS081807, 081808	37
BMP0825P	64.2	234.5	-	219.5	Φ6	3.5	BCAS082507, 082508	59
BMP1010P	81.5	81.2	-	60	Φ6	3.5	BCAS101007, 101010	22
BMP1121P	76.5	175.8	-	157.8	Φ6	3	BCAS102007	40
BMP1212P	107	107	-	70	Φ5.5	3.5	BCAS121207, 121210	39
BMP1417P	125.5	155.5	-	130	Φ6	3.5	BCAS141709	69
BMP1423P	122.6	212.5	-	190	Φ5.5	3.7	BCAS142309	103.5
BMP1515P	123	123	110	110	Φ6	3.5	BCAS151507, 151510	52
BMP1616P	143.5	143.5	-	120	Φ6	3.2	BCAS161607	66
BMP1520P	129	179	-	160	Φ5.5	3.5	BCAS152004, 152007, 152010, 152013, 152016	92
BMP1525P	129	228.5	-	210	Φ6	3.5	BCAS152510, 152513	112
BMP2020P	178.5	178.5	120	150	Φ5.5	3.5	BCAS202010, 202013, 202016, 202019	125

# BCAL SERIES

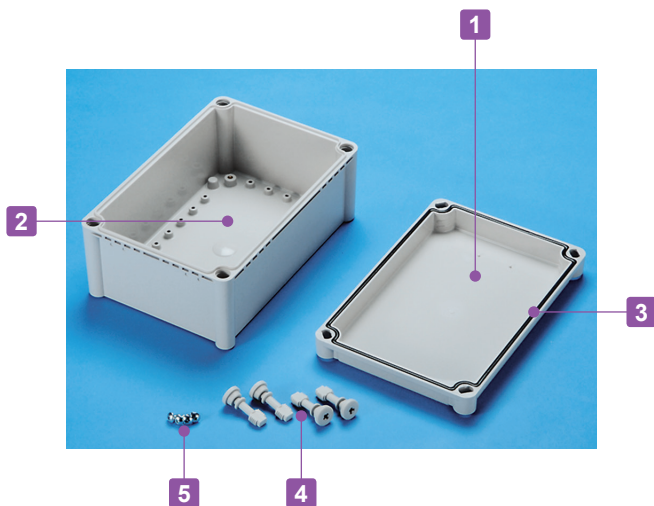
# IP65 PLASTIC BOX



### Technical Data



Protection class: IP65  
 Operating temperature: -10°C ~ +60°C  
 Recommended torque: 1N • m ~ 1.5N • m



- Large-sized frontal screw fastening type waterproof box.
- 11 different sizes available.
- Applicable for uses in various fields such as FA, control box, network communication, and so on.
- 2 different top cover models (ABS-White gray • Polycarbonate-Transparent) are available.
- Guide markings are available for installation of optional latch/hinge parts.

◎ : Guide markings



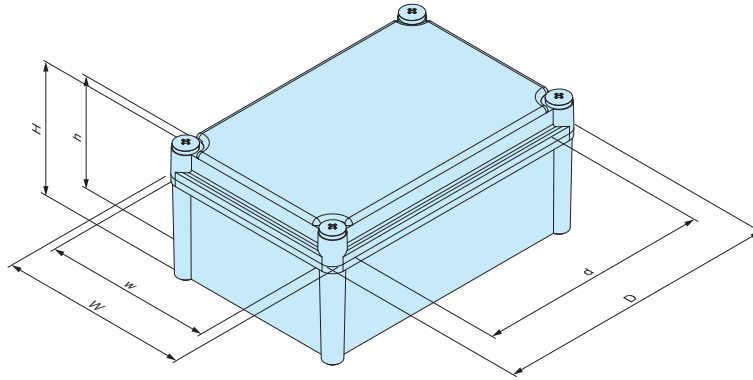
### Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94HB • Polycarbonate (UL94V-0)	White gray • Transparent
2	Body	1	ABS UL94HB	White gray
3	Gasket	1	Polyurethane	Black
4	Cover screw	4 ~ 6	Nylon	White gray • Unfinished
5	Tapping screw (for mounting plate)	4	Steel	Trivalent chromate



**BCAL dimensions**

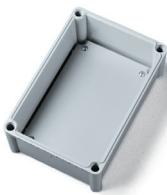
■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



**Product no. / Dimensions**

Product no.		Product no.		Dimensions (External)			Dimensions (Internal)			Weight (g)
G type		T type		W	D	H	w	d	h	
Top cover	Body	Top cover	Body							
● White gray		○ Transparent	● White gray							
BCAL191913G		BCAL191913T		190	190	128	167	140	111.5	722
BCAL192813G		BCAL192813T		190	280	128	166	229	111.5	896
BCAL192818G		BCAL192818T		190	280	178	164	230	162	1,009
BCAL193813G		BCAL193813T		190	380	128	167	329	111	1,143
BCAL193818G		BCAL193818T		190	380	178	165	327.5	162	1,258
BCAL282813G		BCAL282813T		280	280	128	256	229	112	1,148
BCAL283413G		BCAL283413T		280	340	128	255.5	287	111.8	1,441
BCAL283813G		BCAL283813T		280	380	128	256	329	111.5	1,423
BCAL283818G		BCAL283818T		280	380	178	254	324	161.5	1,745
BCAL285613G		BCAL285613T		280	560	128	255	507	112	2,272
BCAL385618G		BCAL385618T		380	560	178	354	505	159.7	2,948

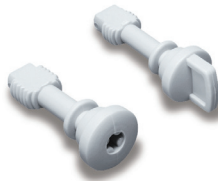
**Accessories (Optional parts)**



Mounting plate BMP series  
See page BCAL-3



Latch • Hinge BCL65 • BCH65  
See page BCAS • BCAL-ACC-1



Spare Cover screw CB28 series  
See page BCAS • BCAL-ACC-3



Mounting bracket CK-26P  
See page BCAS • BCAL-ACC-2



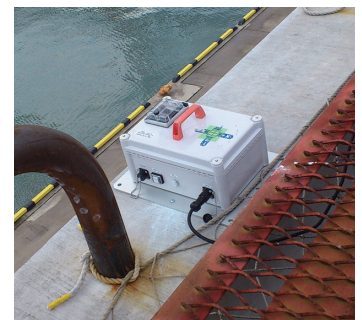
Cable gland  
See cable gland pages

**APPLICATION EXAMPLE**

**CONTROL BOX**

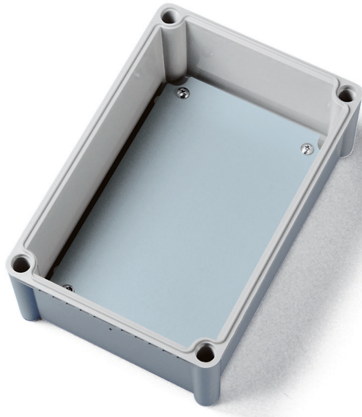


**INCLINOMETER for Bridge Construction**  
Product by Akasakatec Inc. (Japan)

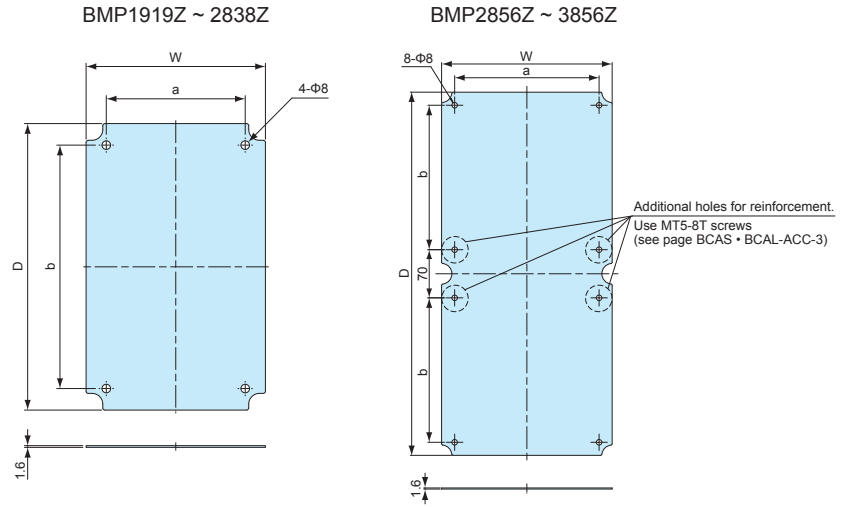


**BMP-Z SERIES**

**STEEL MOUNTING PLATE**



DXF/DWG/PDF drawings available on our website.



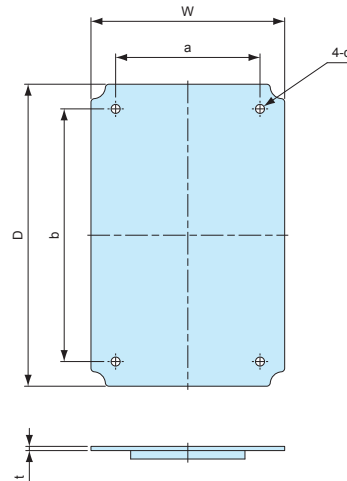
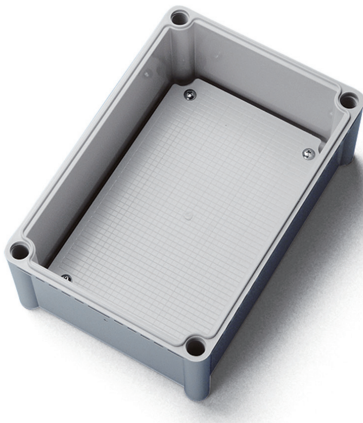
- Strong but easily customizable.
- Material/Finish : Steel t=1.6mm / Zinc coated

**Product no. / Dimensions**

Product no.	W	D	a	b	Suitable box	Weight (g)
BMP1919Z	159	159	120	120	BCAL191913	303
BMP1928Z	157	247	120	210	BCAL192813, 192818	462.5
BMP1938Z	159	347	120	310	BCAL193813, 193818	676.5
BMP2828Z	246	246	210	210	BCAL282813	727.5
BMP2834Z	246	306	210	270	BCAL283413	920
BMP2838Z	246	346	210	310	BCAL283813, 283818	1,018
BMP2856Z	248	528	210	210	BCAL285613	1,571
BMP3856Z	348	528	310	210	BCAL385618	2,210

**BMP-P SERIES**

**PLASTIC MOUNTING PLATE**



- Not available for BCAL283413, 285613, and 385618 models.
- Material/Color : ABS / White gray

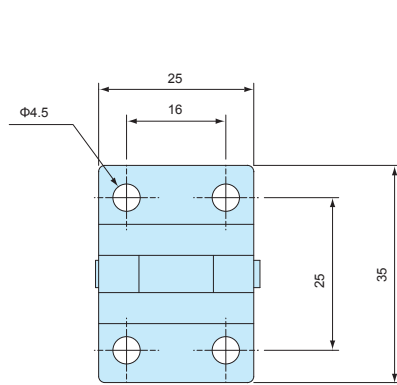
**Product no. / Dimensions**

Product no.	W	D	a	b	c (Φ)	t	Suitable box	Weight (g)
BMP1919P	159	159	120	120	Φ8	4	BCAL191913	104
BMP1928P	158.5	248	120	210	Φ8	3.5	BCAL192813, 192818	162
BMP1938P	159	348	120	310	Φ8	4.5	BCAL193813, 193818	236
BMP2828P	248.5	248.5	210	210	Φ8	4	BCAL282813	237
BMP2838P	248	347.5	209	309.5	Φ8	4	BCAL283813, 283818	368

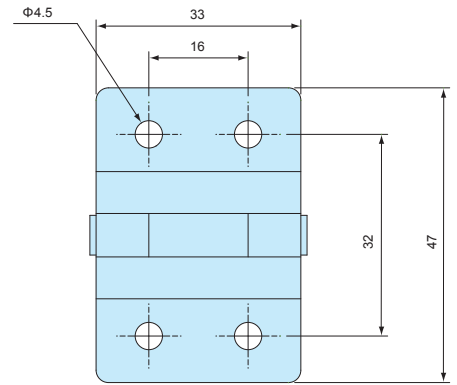
**BCH SERIES**

**HINGE for BCAS • BCAL**

■ Refer to ☉ guide markings on BCAS • BCAL box when installing.



BCH55



BCH65

**Components**

Part name	Pcs	Material	Color / Finish
Hinge	1	Stainless steel SUS304	Unfinished
Bracket	2	Stainless steel SUS304	Unfinished
Gasket	2	EPDM	Black

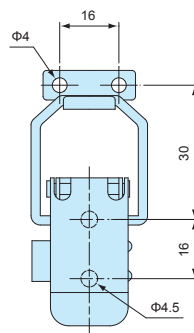
**Product no. / Suitable box**

Product no.	Suitable box	Included screw
BCH55	BCAS series Not available for BCAS050604, 050605, 060905, 071005, 080806, 081104, 101807, 102007, 102307, 152004, and 161607 models.	Truss head M4-10
BCH65	BCAL series	Truss head M4-10

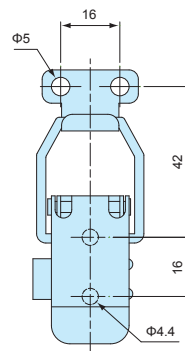
**BCL SERIES**

**LATCH for BCAS • BCAL**

■ Refer to ☉ guide markings on BCAS • BCAL box when installing.



BCL55



BCL65

**Components**

Part name	Pcs	Material	Color / Finish
Latch	1	Stainless steel SUS304	Unfinished
Hook	1	Stainless steel SUS304	Unfinished
Bracket	2	Stainless steel SUS304	Unfinished
Gasket	2	EPDM	Black

**Product no. / Suitable box**

Product no.	Suitable box	Included screw
BCL55	BCAS series Not available for BCAS050604, 050605, 060905, 071005, 080806, 081104, 101807, 102007, 102307, 152004, and 161607 models.	Truss head M4-10
BCL65	BCAL series	Truss head M4-10

**BCM SERIES**

**BLIND PLUG for BCAS • BCAL**



- Blind plug for BCAS • BCAL when installing hinges and latches.  
Not usable when using cover screws.

**Components**

Part name	Material	Color
Blind plug	ABS	White gray

**Product no. / Suitable box**

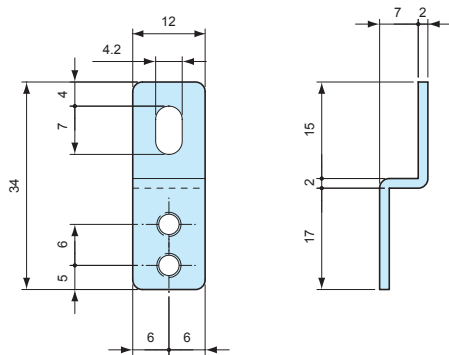
Product no.	Suitable box	Pack of
BCM-1	BCAS series (Not available for BCAS050604, 050605 models)	1
BCM-2	BCAL series	1

**CK SERIES**

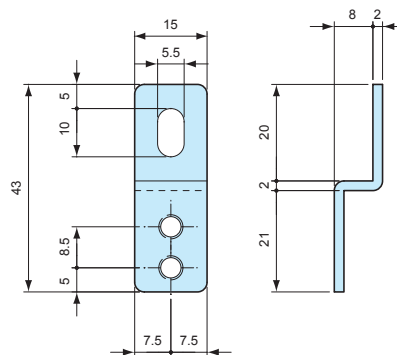
**STAINLESS STEEL MOUNT BRACKET**



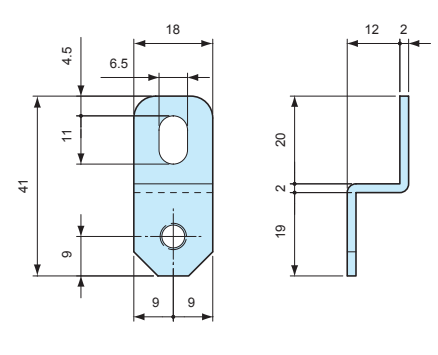
CK-34Z dimensions



CK-35P dimensions



CK-26P dimensions



- CK-34Z model requires the use of MT4-10 screw.

**Product no. / Suitable box**

Product no.	Material	Finish	Suitable box	Included screw	Pack of
CK-34Z	Stainless steel SUS304	Barrel finish	BCAS series (Not applicable for BCAS050604, 050605 models)	-	4
CK-35P	Stainless steel SUS304	Barrel finish	BCAS050604G, BCAS050605G	Pan head tapping M4-10	4
CK-26P	Stainless steel SUS304	Barrel finish	BCAL series	Pan head M5-10	4

**MT4-10**

**MOUNTING SCREW**

- Use together with CK-34Z.

**Product no. / Feature**

Product no.	Material	Finish	Pack of
MT4-10 (Pan head M4-10)	Stainless steel	Unfinished	4

**MT SERIES**

**PCB MOUNTING SCREW**



■ Mounting screw for the bosses without insert-nut.

**Product no. / Feature**

Product no.	Material	Finish	Pack of
MT4-8T (Binding head tapping M4-8)	Steel	Trivalent chromate	20
MT5-8T (Binding head tapping M5-8)	Steel	Trivalent chromate	20

**Suitable box chart**

Product no.	Suitable box	Tightening torque
MT4-8T	BCAS071005, 081104, 081107, 081108, 081110, 081307, 081308, 081807, 081808, 082507, 082508, 101007, 101010, 101807, 102007, 102307, 121207, 121210, 141709, 142309, 151507, 151510, 152004, 152007, 152010, 152013, 152016, 152510, 152513, 161607, 202010, 202013, 202016, 202019, and 212310 models.	0.7N • m
MT5-8T	BCAL series	1.4N • m

**CB SERIES**

**SPARE COVER SCREW for BCAS**



**Product no. / Feature / Suitable box**

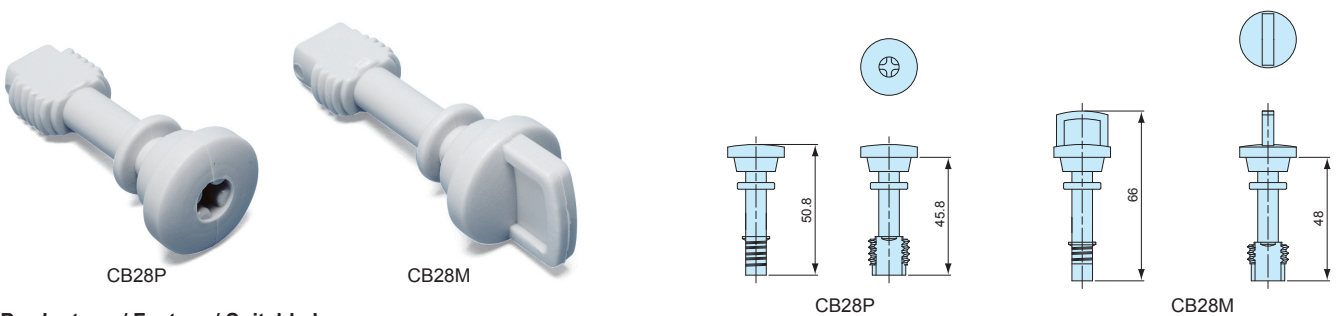
Product no.	Material	Color	Pack of
CB20	Fiberglass • Nylon	White gray	1
CB35	Fiberglass • Nylon	White gray	1
CB50	Fiberglass • Nylon	White gray	1

Product no.	Suitable box
CB20	BCAS060905, 071005, 080806, 081104, 081107, 081108, 081307, 081807, 082507, 101007, 101010, 101807, 102007, 102307, 121207, 121210, 141709, 142309, 151507, 151510, 152004, 152007, 152010, 152013, 152510, 161607, 202010, 202013, 202016, and 212310 models TMB-15PS, 20P, 20PL
CB35	BCAS081110, 081308, 081808, and 082508 models
CB50	BCAS152016, 152513, and 202019 models

**CB SERIES**

**SPARE COVER SCREW for BCAL**



**Product no. / Feature / Suitable box**

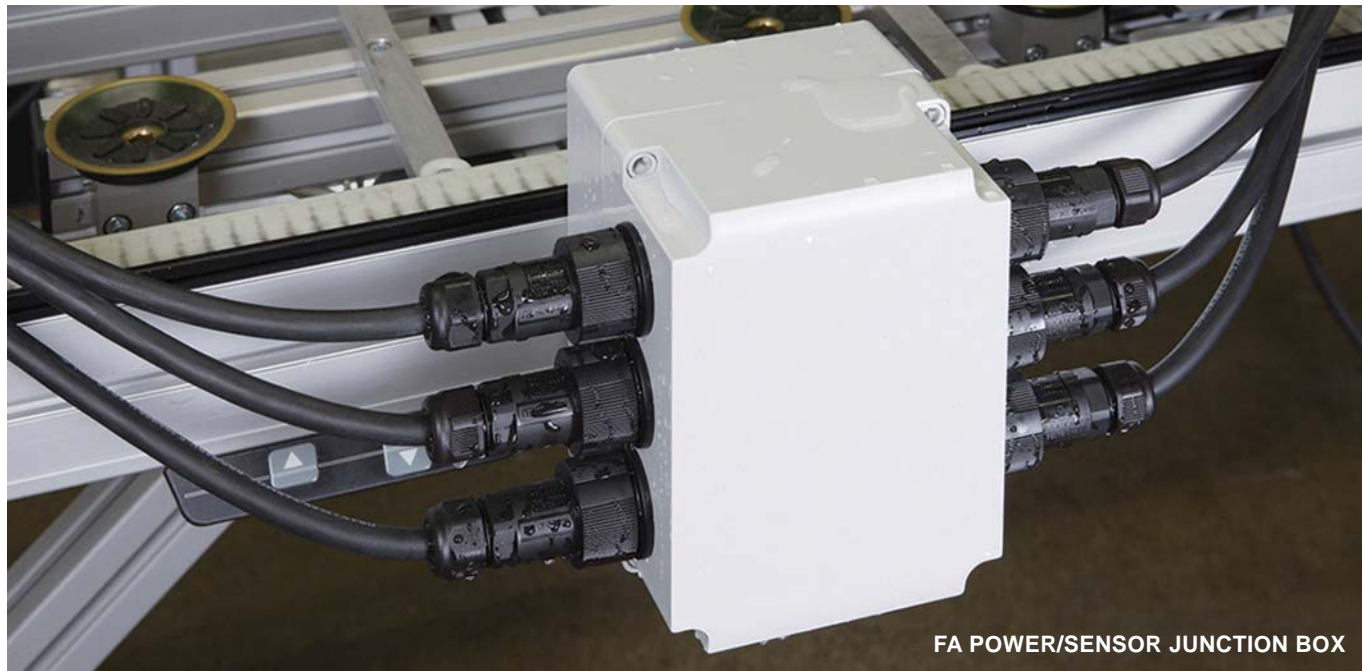
Product no.	Material	Color	Suitable box	Pack of
CB28P	Fiberglass • Nylon	White gray	BCAL series	1
CB28M	Fiberglass • Nylon	White gray	BCAL series	1

IP67 POLYCARBONATE BOX

# SPCP · SPCM SERIES APPLICATION EXAMPLE

Made from polycarbonate material, the SPCP · SPCM series features not only high durability, but also comes with IP67 protection.

Suitable to be used in a wide range of applications, such as FA/control, measurement equipment, network communication and so on.



INDUSTRIAL MOTOR JUNCTION BOX



AUTOMATIC DOOR OPEN/CLOSE SWITCH



DIGITAL DIFFERENTIAL MANOMETER

Product by KRONE CORPORATION (Japan)



PARTS FEEDER COUNTER



## REMOTE GREENHOUSE MONITORING SYSTEM

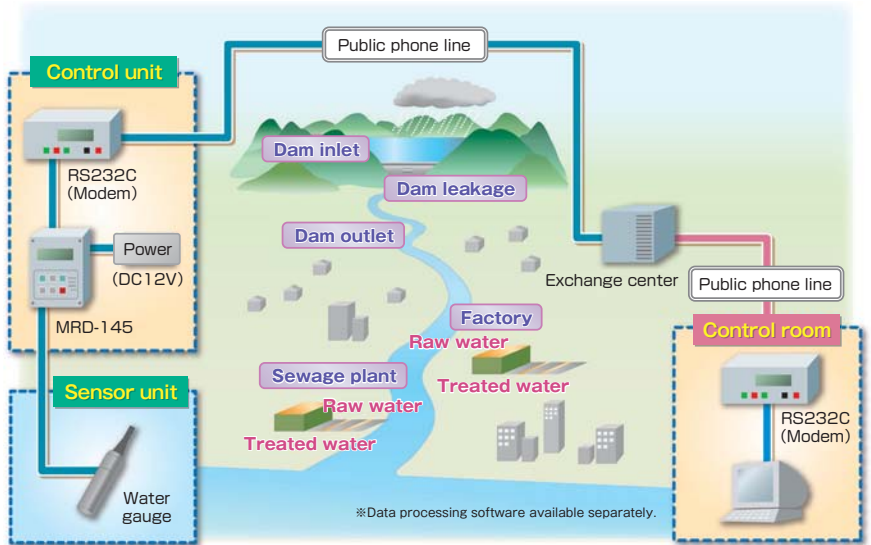


## METEOROLOGICAL MONITOR



## WATER LEVEL METER

Product by HOKUTO RIKEN (Japan)



## DIGITAL ANEMOMETER

Product by North One (Japan)



## SENSOR NETWORK MONITOR

Product by KYOSAITECHNOS (Japan)



## FIELD DATA LOGGER

Product by M.C.S (Japan)



## MONITORING CAMERA

Product by ACE PROMOTION (Japan)



# SPCP SERIES

# IP67 POLYCARBONATE BOX



### Technical Data

Protection class: IP67  
 Operating temperature: -20°C ~ +75°C  
 Recommended torque: 1N • m ~ 1.5N • m



- Tough polycarbonate material for superior impact resistance.
- Available in 28 different sizes, with 2 different cover types (white gray and transparent).
- Suitable to be used as terminal junction box, control box, communication unit and so on.
- Mountable on walls by using the cover holes for fastening.

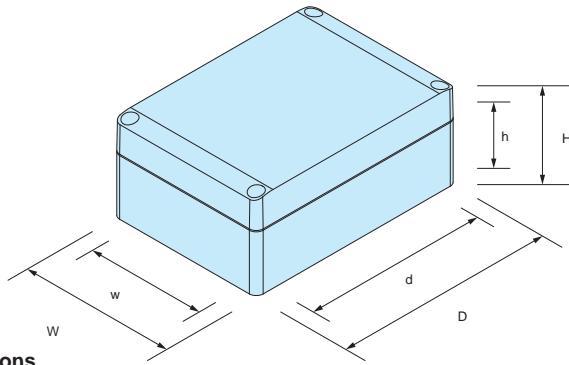
### Components

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	Polycarbonate UL94V-2	White gray • Transparent
2	Body	1	Glass fiber filled polycarbonate UL94V-0	White gray
3	Gasket	1	Polyurethane	Black
4	Cover screw	4	Polyamide	White gray
5	Tapping screw (for mounting plate)	4	Steel	Unichrome plated



SPCP dimensions

■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



Product no. / Dimensions

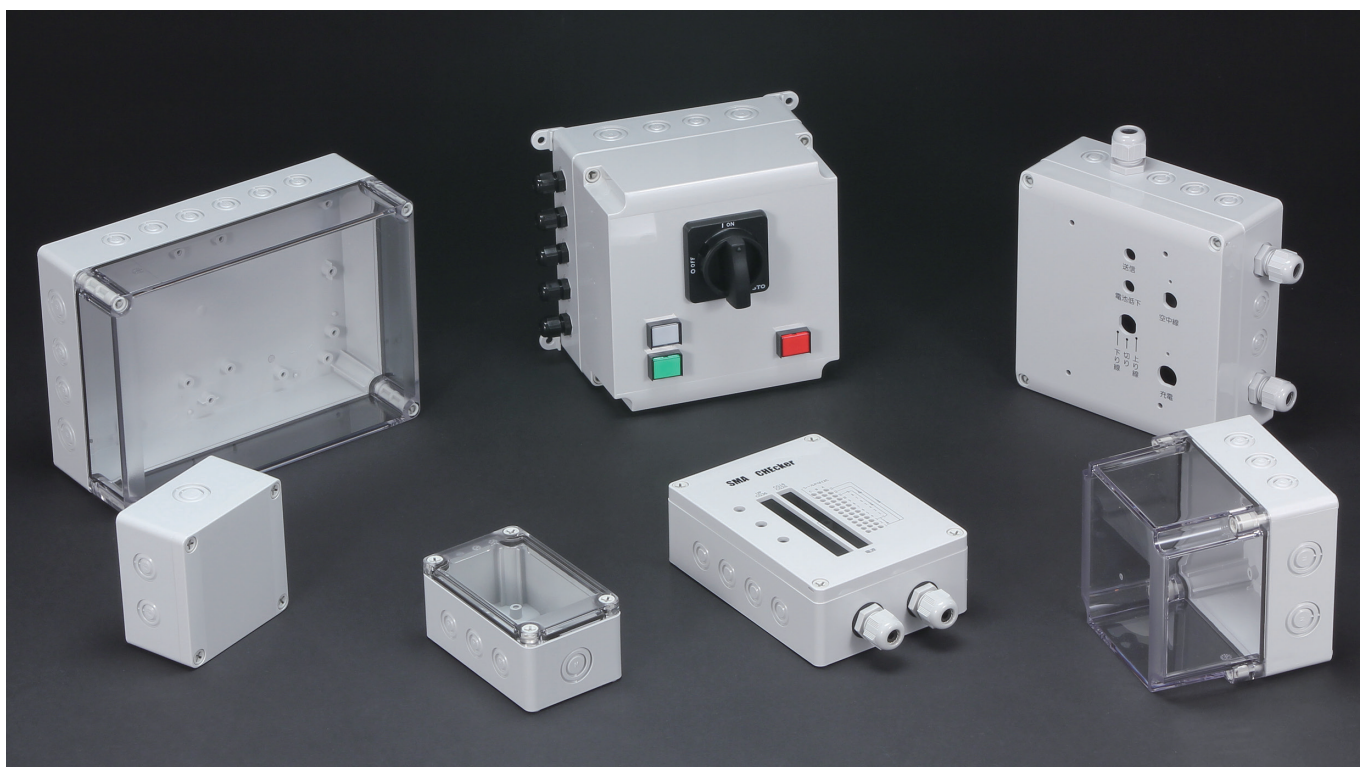
Product no.				Dimensions (External)			Dimensions (Internal)			Weight (g)
G type		T type		W	D	H	w	d	h	
Cover	Body	Cover	Body							
● White gray		○ Transparent	● White gray							
SPCP081304G			SPCP081304T	75	125	35	65.5	91	20.5	120
SPCP081305G			SPCP081305T	75	125	50	65.5	91	35.5	150
SPCP081306G			SPCP081306T	75	125	60	65.5	91	45.5	161
SPCP081308G			SPCP081308T	75	125	75	65.5	91	60.5	213
SPCP081310G			SPCP081310T	75	125	100	65	90.5	85.5	278
SPCP081313G			SPCP081313T	75	125	125	64.5	90	110.5	306
SPCP101004G			SPCP101004T	100	100	35	90.5	66	20.5	124
SPCP101006G			SPCP101006T	100	100	60	90.5	66	45.5	165
SPCP131304G			SPCP131304T	125	125	35	115.5	91	20.5	178
SPCP131305G			SPCP131305T	125	125	50	115.5	91	35.5	215
SPCP131306G			SPCP131306T	125	125	60	115.5	91	45.5	243
SPCP131308G			SPCP131308T	125	125	75	115.5	91	60.5	294
SPCP131310G			SPCP131310T	125	125	100	115	90.5	85.5	366
SPCP131313G			SPCP131313T	125	125	125	114.5	90	110.5	405
SPCP131804G			SPCP131804T	125	175	35	115.5	141	20.5	237
SPCP131805G			SPCP131805T	125	175	50	115.5	141	35.5	282
SPCP131806G			SPCP131806T	125	175	60	115.5	141	45.5	297
SPCP131808G			SPCP131808T	125	175	75	115.5	141	60.5	378
SPCP131810G			SPCP131810T	125	175	100	115	140.5	85.5	463
SPCP131813G			SPCP131813T	125	175	125	115	140.5	110.5	531
SPCP131815G			SPCP131815T	125	175	150	114	139.5	135.5	600
SPCP181808G			SPCP181808T	175	175	75	165.5	141	60.5	475
SPCP181810G			SPCP181810T	175	175	100	165	140.5	85.5	584
SPCP181813G			SPCP181813T	175	175	125	164.5	140	110.5	652
SPCP181815G			SPCP181815T	175	175	150	164	139.5	135.5	738
SPCP182508G			SPCP182508T	175	250	75	165.5	216	60.5	637
SPCP182510G			SPCP182510T	175	250	100	165	215.5	85.5	754
SPCP182515G			SPCP182515T	175	250	150	164	214.5	135.5	959

Accessories (Optional parts)

				
Terminal block • Terminal cover STB • STC series See page STB • STC-1 ~ STB • STC-4	Mounting bracket SFL-1 See page SPCM • SPCP-ACC-1	Mounting plate SMP series See page SPCM • SPCP-ACC-1	Cable gland See cable gland pages	Protective vent PMF series See PMF pages
				
DIN-Rail FDR series See page FDR-1 ~ FDR-2	Terminal block stopper TKR series See page DIN-ACC-2	DIN-Rail mounting base DRA, DRT, CKD series See page DIN-ACC-1 ~ DIN-ACC-2	Pole mounting bracket & belt SSK, PKB series See page SSK-1 ~ SSK-4	Outdoor roof SR series See page SPCM • SPCP-ACC-2

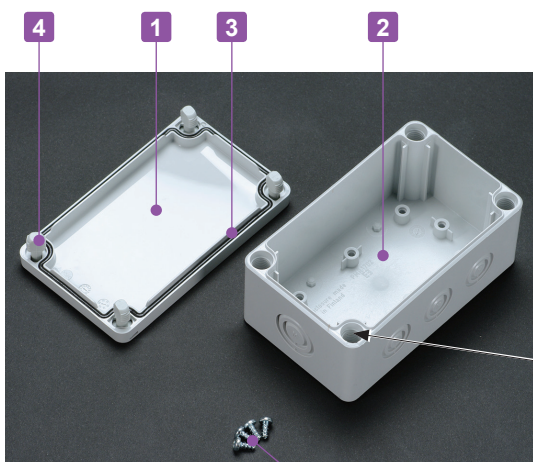
# SPCM SERIES

# IP67 POLYCARBONATE BOX with METRIC KNOCK-OUTS

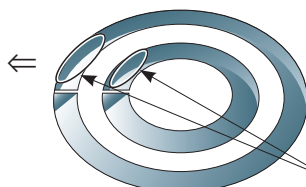


### Technical Data

Protection class: IP67  
 Operating temperature: -20°C ~ +75°C  
 Recommended torque: 1N • m ~ 1.5N • m



- Tough polycarbonate material for superior impact resistance.
- Available in 21 different sizes, with 2 different cover types (white gray and transparent).
- Molded with metric knock-outs for easy removal for cable entry.
- Suitable to be used as terminal junction box, control box, communication unit and so on.
- Mountable on walls by using the cover holes for fastening.



- To knock out the hole covers, rest a flathead screwdriver at the "A" points, and punch out the knock-outs by hammering on the rear end of the screwdriver handle with a hammer.

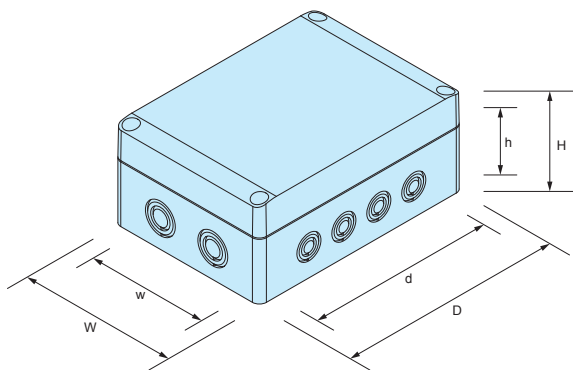
"A" point

### Components

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	Polycarbonate UL94V-2	White gray • Transparent
2	Body	1	Glass fiber filled polycarbonate UL94V-0	White gray
3	Gasket	1	Polyurethane	Black
4	Cover screw	4	Polyamide	White gray
5	Tapping screw (for mounting plate)	4	Steel	Unichrome plated

SPCM dimensions

■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



※Metric knock-outs are on all 4 sides.

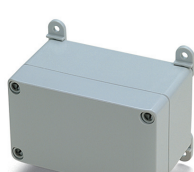
Product no. / Dimensions

Product no.				Dimensions (External)			Dimensions (Internal)			Weight (g)
G type		T type		W	D	H	w	d	h	
Cover	Body	Cover	Body							
● White gray		○ Transparent	● White gray							
SPCM081306G			SPCM081306T	75	125	60	65.5	91	45.5	159
SPCM081308G			SPCM081308T	75	125	75	65.5	91	60.5	208
SPCM081310G			SPCM081310T	75	125	100	65	90.5	85.5	275
SPCM081313G			SPCM081313T	75	125	125	64.5	90	110.5	299
SPCM101006G			SPCM101006T	100	100	60	90.5	66	45.5	164
SPCM131306G			SPCM131306T	125	125	60	115.5	91	45.5	243
SPCM131308G			SPCM131308T	125	125	75	115.5	91	60.5	292
SPCM131310G			SPCM131310T	125	125	100	115	90.5	85.5	366
SPCM131313G			SPCM131313T	125	125	125	114.5	90	110.5	401
SPCM131806G			SPCM131806T	125	175	60	115.5	141	45.5	294
SPCM131808G			SPCM131808T	125	175	75	115.5	141	60.5	373
SPCM131810G			SPCM131810T	125	175	100	115	140.5	85.5	450
SPCM131813G			SPCM131813T	125	175	125	115	140.5	110.5	519
SPCM131815G			SPCM131815T	125	175	150	114	139.5	135.5	588
SPCM181808G			SPCM181808T	175	175	75	165.5	141	60.5	468
SPCM181810G			SPCM181810T	175	175	100	165	140.5	85.5	569
SPCM181813G			SPCM181813T	175	175	125	164.5	140	110.5	639
SPCM181815G			SPCM181815T	175	175	150	164	139.5	135.5	723
SPCM182508G			SPCM182508T	175	250	75	165.5	216	60.5	633
SPCM182510G			SPCM182510T	175	250	100	165	215.5	85.5	745
SPCM182515G			SPCM182515T	175	250	150	164	214.5	135.5	946

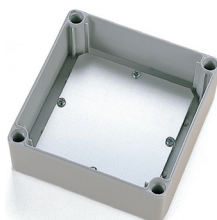
Accessories (Optional parts)



Terminal block • Terminal cover STB • STC series  
See page STB • STC-1 ~ STB • STC-4



Mounting bracket SFL-1  
See page SPCM • SPCP-ACC-1



Mounting plate SMP series  
See page SPCM • SPCP-ACC-1



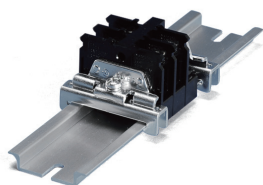
Cable gland  
See cable gland pages



Protective vent PMF series  
See PMF pages



DIN-Rail FDR series  
See page FDR-1 ~ FDR-2



Terminal block stopper TKR series  
See page DIN-ACC-2

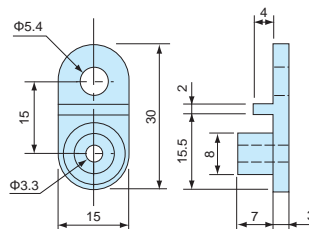
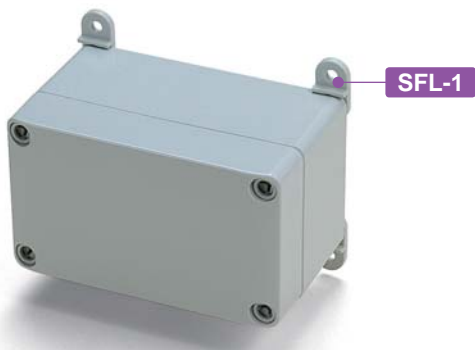


Pole mounting bracket & belt SSK, PKB series  
See page SSK-1 ~ SSK-4



Outdoor roof SR series  
See page SPCM • SPCP-ACC-2

SFL-1 PLASTIC MOUNTING BRACKET



Product no. / Feature

Product no.	Material	Screw	Pcs
SFL-1	Polycarbonate	M4 Tapping	4

SMS4-8 MOUNTING SCREW



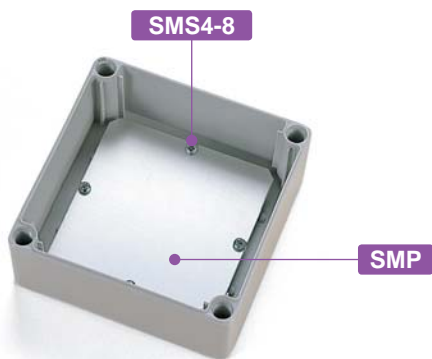
- Mounting screws for PCB mounting on SPCP • SPCM series.  
※1 set included with each SPCP • SPCM enclosure.

Product no. / Feature

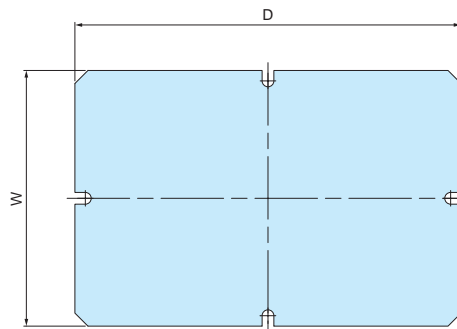
Product no.	Material	Screw	Pcs
SMS4-8 (M4-8 Pan head tapping)	Steel	Trivalent chromate	4

SMP SERIES ALUMINIUM MOUNTING PLATE

SMP dimensions



- Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



Product no. / Dimensions

Product no.	Suitable box	W	D	Weight (g)
SMP0813	SPCM • SPCP0813	48	98	18
SMP1010	SPCM • SPCP1010	78	78	24
SMP1313	SPCM • SPCP1313	98	98	40.5
SMP1318	SPCM • SPCP1318	98	148	61
SMP1818	SPCM • SPCP1818	148	148	93
SMP1825	SPCM • SPCP1825	148	223	140.5

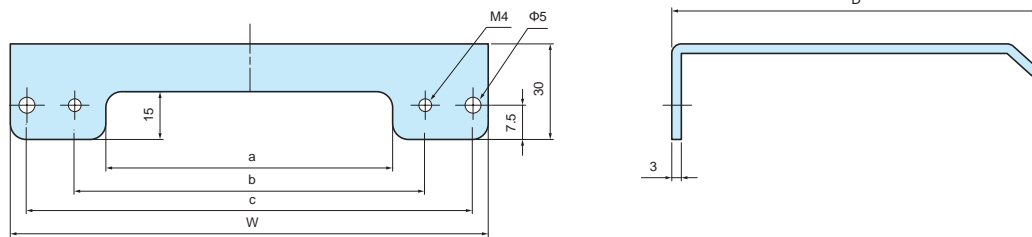
- Customization services (clinchng standoffs, hole milling, and others) available.  
See website for more details.



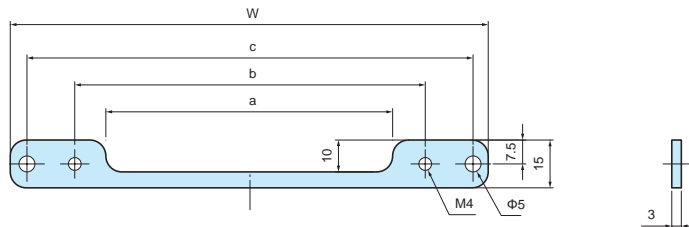


- Roof and spacer attachments are easily attached onto the enclosure using existing cover fastening holes.
- Recommended for outdoor environments for protection against rain, etc.

Roof



Spacer



Components

No.	Part name	Pcs	Material	Color / Finish
1	Roof	1	Aluminium A1050P t = 3.0mm	Light gray / Painted
2	Spacer	1	Aluminium A1050P t = 3.0mm	Light gray / Painted
-	Screw	4	Stainless steel	Unfinished
-	O-ring	4	NBR	Black

Product no. / Dimensions

Product no.	W	D	a	b	c	Suitable box
SR0808	100	90	50	60	90	SPCM • SPCP 081308
SR0810	100	115	50	60	90	SPCM • SPCP 081310
SR0813	100	140	50	60	90	SPCM • SPCP 081313
SR1308	150	90	90	110	140	SPCM • SPCP 131308 131808
SR1310	150	115	90	110	140	SPCM • SPCP 131310 131810
SR1313	150	140	90	110	140	SPCM • SPCP 131313 131813
SR1315	150	165	90	110	140	SPCM • SPCP 131815
SR1808	200	90	140	160	190	SPCM • SPCP 181808 182508
SR1810	200	115	140	160	190	SPCM • SPCP 181810 182510
SR1813	200	140	140	160	190	SPCM • SPCP 181813
SR1815	200	165	140	160	190	SPCM • SPCP 181815 182515

# STB SERIES

# TERMINAL BLOCK

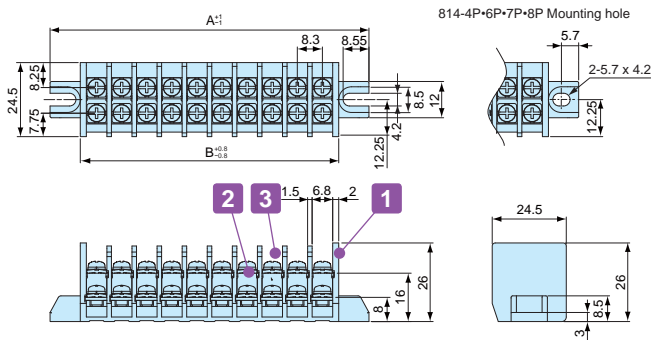


■ Terminal block for SPCM • SPCP series.

### Components

No.	Part name	Pcs	Material	Color / Finish
1	Base	1	PBT (UL94V-0)	Black
2	Terminal	1	Brass	Nickel plated
3	Terminal screw	2 x P	Steel	Nickel plated
-	Mounting screw	4	Steel	Trivalent chromate

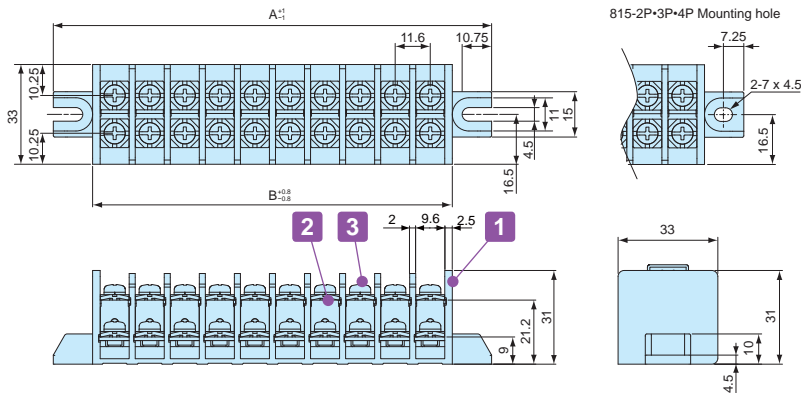
### STB-814



### Specification

1. Electrical Rating 300V 30A
2. Insulation Resistance DC500V 1000MΩ ~
3. Withstand Voltage AC2500V (Tested for 1 min.)
4. Operating Temp. Range -25°C ~ +80°C
5. Storage Temp. Range -25°C ~ +80°C

### STB-815



### Specification

1. Electrical Rating 300V 30A  
(600V 30A JIS IEC compliant)
2. Insulation Resistance DC500V 1000MΩ ~
3. Withstand Voltage AC2500V (Tested for 1 min.)
4. Operating Temp. Range -25°C ~ +80°C
5. Storage Temp. Range -25°C ~ +80°C

### Product no. / Dimensions

Product no.	P (Number of poles)	A	B	Suitable SPCM • SPCP box W x D dimensions
STB814- 3P	3	47.4	27.4	75×125
STB814- 4P	4	55.7	35.7	100×100
STB814- 6P	6	72.3	52.3	175×175
STB814- 7P	7	80.6	60.6	100×100
STB814- 8P	8	88.9	68.9	75×125, 125×125
STB814- 9P	9	97.2	77.2	125×125, 125×175, 175×250
STB814-10P	10	105.5	85.5	125×175, 175×250
STB815- 2P	2	52.2	26.2	75×125
STB815- 3P	3	63.8	37.8	100×100
STB815- 4P	4	75.4	49.4	125×125
STB815- 6P	6	98.6	72.6	125×125, 125×175, 175×250
STB815-10P	10	145	119	175×175, 175×250

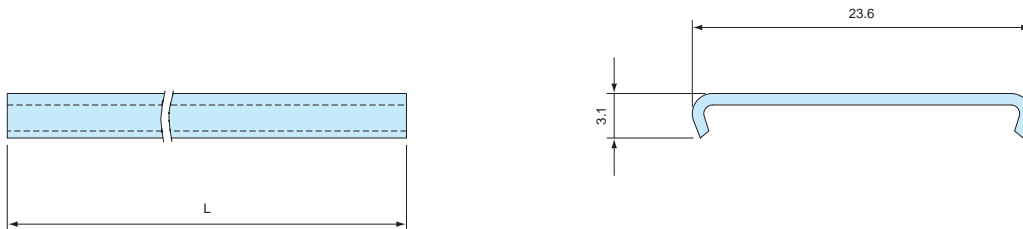
# STC SERIES

# TERMINAL COVER

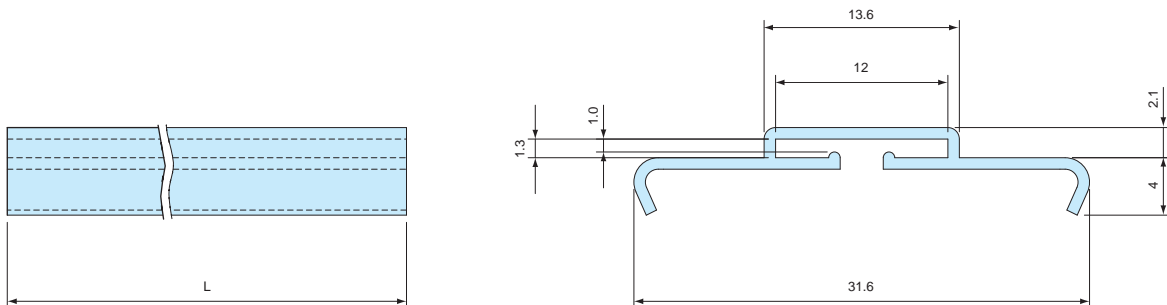


- Terminal cover for STB terminal block.
- Use for protecting terminals.

## STC814



## STC815



■ Material / Color : Polycarbonate t=0.8mm / Transparent

### Product no. / Dimensions

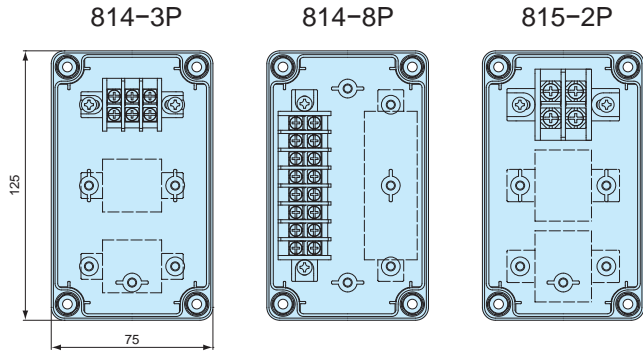
Product no.	P (Number of poles)	L	Compatible terminal
STC814- 3P	3	22.4	STB814- 3P
STC814- 4P	4	30.7	STB814- 4P
STC814- 6P	6	47.3	STB814- 6P
STC814- 7P	7	55.6	STB814- 7P
STC814- 8P	8	63.9	STB814- 8P
STC814- 9P	9	72.2	STB814- 9P
STC814-10P	10	80.5	STB814-10P
STC815- 2P	2	20.2	STB815- 2P
STC815- 3P	3	31.8	STB815- 3P
STC815- 4P	4	43.4	STB815- 4P
STC815- 6P	6	66.6	STB815- 6P
STC815-10P	10	113.0	STB815-10P

# STB TERMINAL BLOCK MOUNTING POSITION

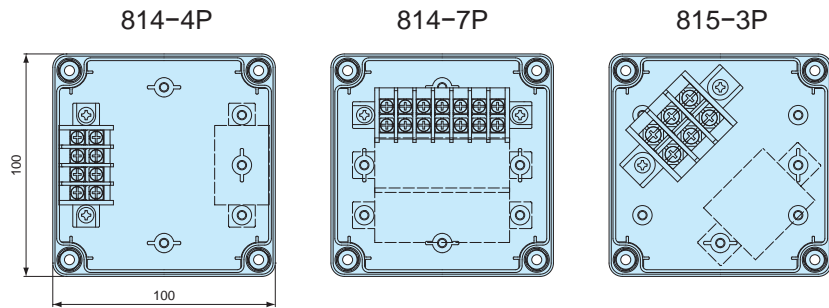
■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.

■ Terminals can be installed in the area with dotted lines.

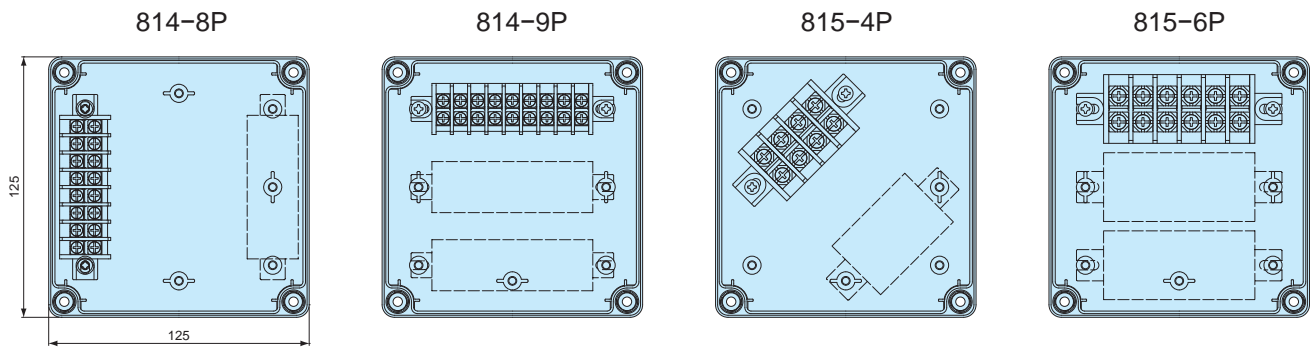
Suitable box SPCM/SPCP 081305 • 081306 • 081308 • 081310 • 081313



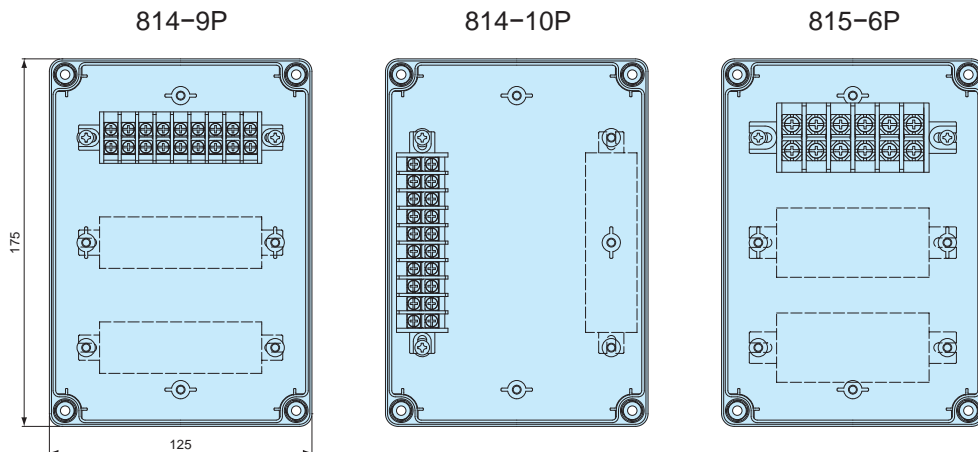
Suitable box SPCM/SPCP 101006



Suitable box SPCM/SPCP 131305 • 131306 • 131308 • 131310 • 131313



Suitable box SPCM/SPCP 131805 • 131806 • 131808 • 131810 • 131813 • 131815





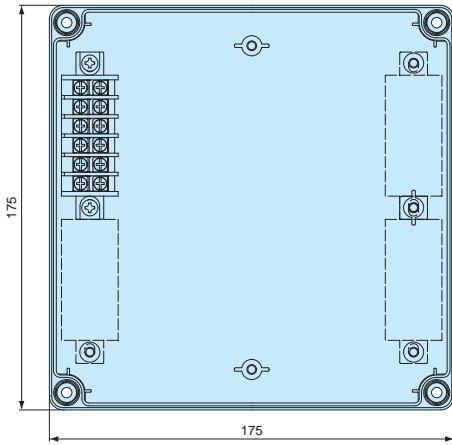
# STB TERMINAL BLOCK MOUNTING POSITION

■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.

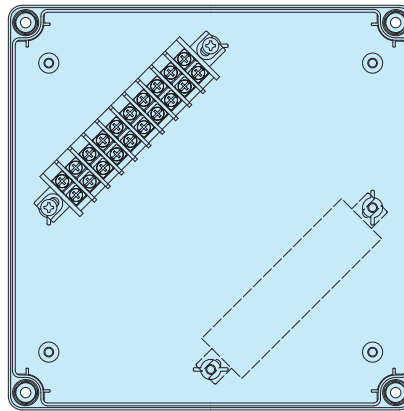
■ Terminals can be installed in the area with dotted lines.

Suitable box SPCM/SPCP 181808 • 181810 • 181813 • 181815

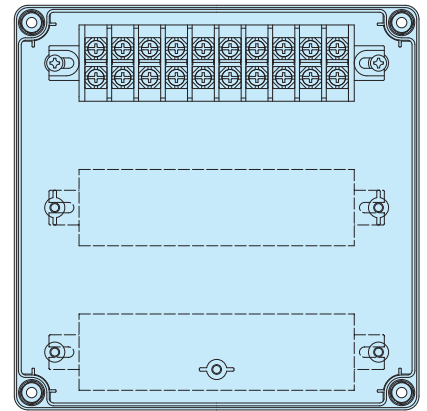
814-6P



814-10P

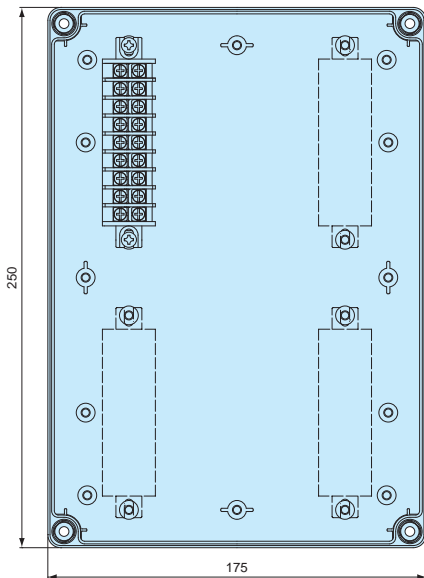


815-10P

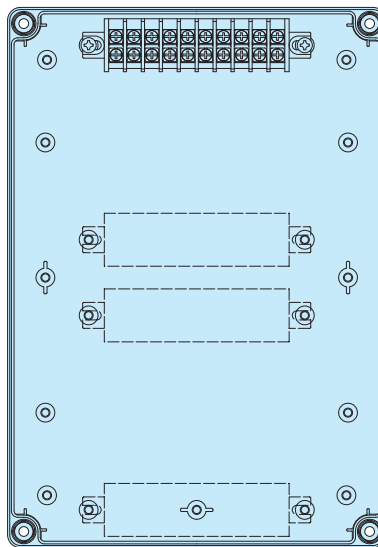


Suitable box SPCM/SPCP 182508 • 182510 • 182515

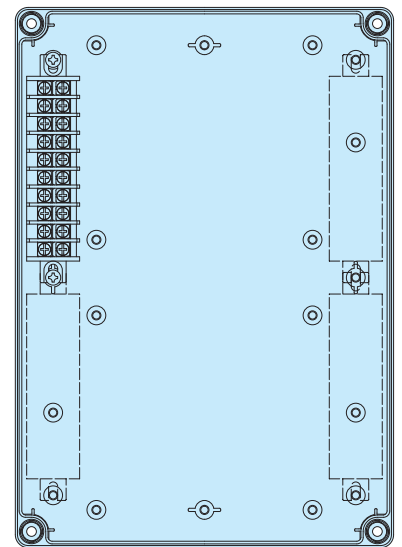
814-9P



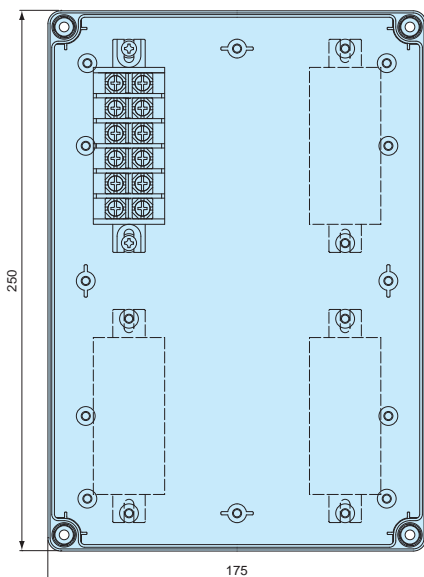
814-10P



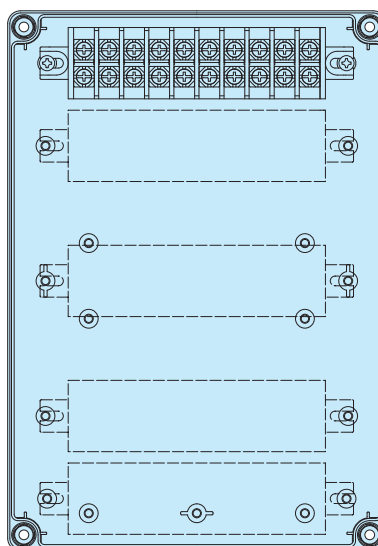
814-10P



815-6P

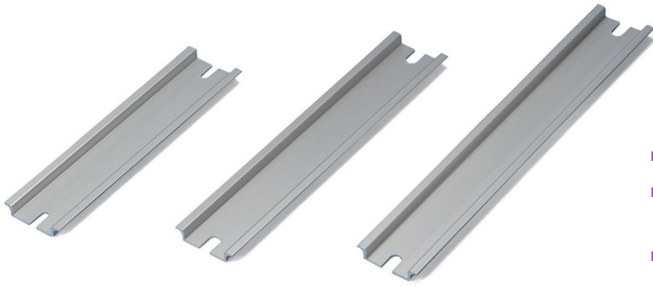


815-10P

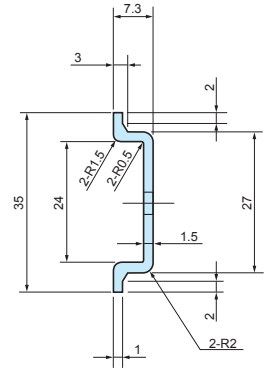
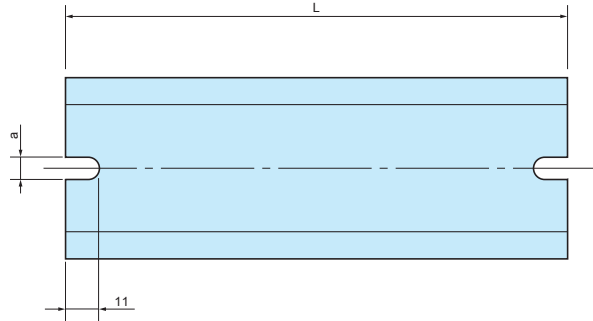
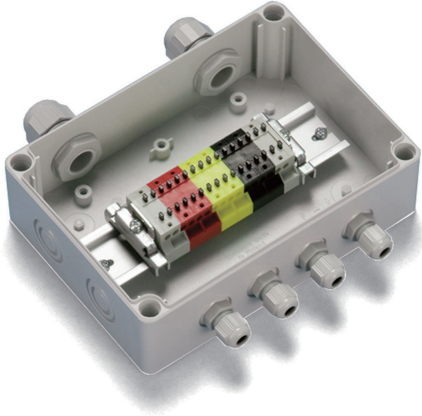


FDR SERIES

DIN-RAIL



- DIN rail for installation of terminals, relays or switches inside enclosures.
- Available in different models and lengths to fit a wide variety of mounting boss pitch.
- FDR-1000 is available if customized length is required.



Feature

Material	Finish
Extruded Aluminium A6063S-T5	Silver anodized

Product no. / Dimensions

Product no.	L	a	Matching boss pitch
FDR- 50	50	4.2	32 ~ 42
57	57	4.2	39 ~ 49
66	66	4.2	48 ~ 58
77	77	4.2	59 ~ 69
80	80	4.2	62 ~ 72
87	87	4.2	69 ~ 79
92	92	4.2	74 ~ 84
100	100	4.2	82 ~ 92
106	106	4.2	88 ~ 98
110	110	4.2	92 ~ 102
120	120	4.2	102 ~ 112
128	128	4.2	110 ~ 120
137	137	4.2	119 ~ 129
142	142	4.2	124 ~ 134
146	146	4.2	128 ~ 138
150	150	4.2	132 ~ 142
168	168	4.2	150 ~ 160
170	170	4.2	152 ~ 162
186	186	4.2	168 ~ 178
202	202	4.2	184 ~ 194
205	205	4.2	187 ~ 197
223	223	4.2	205 ~ 215
226	226	4.2	208 ~ 218
235	235	4.2	217 ~ 227
242	242	4.2	224 ~ 234
249	249	4.2	231 ~ 241
283	283	4.2	265 ~ 275
300	300	4.2	282 ~ 292
350	350	4.2	332 ~ 342
450	450	4.2	432 ~ 442
550	550	4.2	532 ~ 542

Product no.	L	a	Matching boss pitch
FDR-B102	102	6.5	86 ~ 92
<b>NEW</b> B124	124	6.5	108 ~ 114
B142	142	6.5	126 ~ 132
B160	160	6.5	144 ~ 150
B165	165	6.5	149 ~ 155
B176	176	6.5	160 ~ 166
B183	183	6.5	167 ~ 173
B223	223	6.5	207 ~ 213
B260	260	6.5	244 ~ 250
B283	283	6.5	267 ~ 273
B303	303	6.5	287 ~ 293
B338	338	6.5	322 ~ 328
B360	360	6.5	344 ~ 350
B376	376	6.5	360 ~ 366
B383	383	6.5	367 ~ 373
B463	463	6.5	447 ~ 453
B560	560	6.5	544 ~ 550
B623	623	6.5	607 ~ 613
FDR-1000	1000	—	—

■ FDR-1000 does not have mounting holes.

Matching DIN-Rail Chart

BC□□ series

Product no.	Matching DIN-Rail
091207	FDR - 80
091208	80
101507	110
101508	110
112107	170
112110	170
112607	223
112610	223
BCAP	
BCPC	
BCPK	
BCAR	
BCPR	
131508	120
131808	150
131810	150
151509	120
151512	120
162110	170
162113	170
162610	223
162613	223
172211	170
172711	223

BDN series

Product no.	Matching DIN-Rail
6- 8- 5	FDR - 50
7-10- 4	-
9- 9- 6	FDR - 80
9-13- 5	120
10-14- 7	128
11-16- 6	150
12-22- 8	205
16-26- 9	242

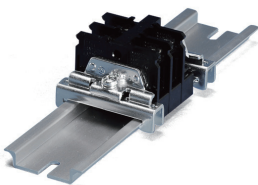
BCAS series

Product no.	Matching DIN-Rail
071005	FDR - 92
080806	66
081104	92
081107	92
081108	92
081110	92
081307	110
081308	110
081807	168
081808	168
082507	235
082508	235
101007	77
101010	77
101807	150
102007	170
102307	202
121207	80
121210	80
141709	146
142309	205
151507	120
151510	120
152004	170
152007	170
152010	170
152013	170
152016	170
152510	226
152513	226
161607	137

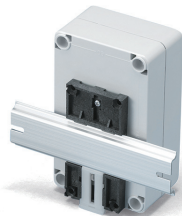
SPCM • SPCP series

Product no.	Matching DIN-Rail
081304	FDR - 50/100
081305	50/100
081306	50/100
081308	50/100
081310	50/100
081313	50/100
101004	80
101006	80
131304	100
131305	100
131306	100
131308	100
131310	100
131313	100
SPCM	
SPCP	
131804	100/150
131805	100/150
131806	100/150
131808	100/150
131810	100/150
131813	100/150
131815	100/150
181808	150
181810	150
181813	150
181815	150
182508	150/223
182510	150/223
182515	150/223

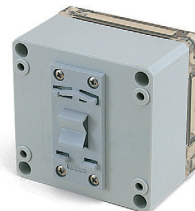
Accessories (Optional parts)



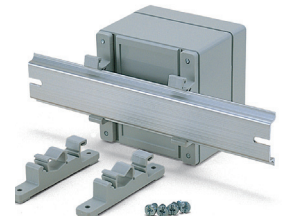
DIN-Rail stopper bracket TKR series  
See page DIN-ACC-2



DIN-Rail mounting base DRA series  
See page DIN-ACC-1



DIN-Rail mounting base DRT series  
See page DIN-ACC-1



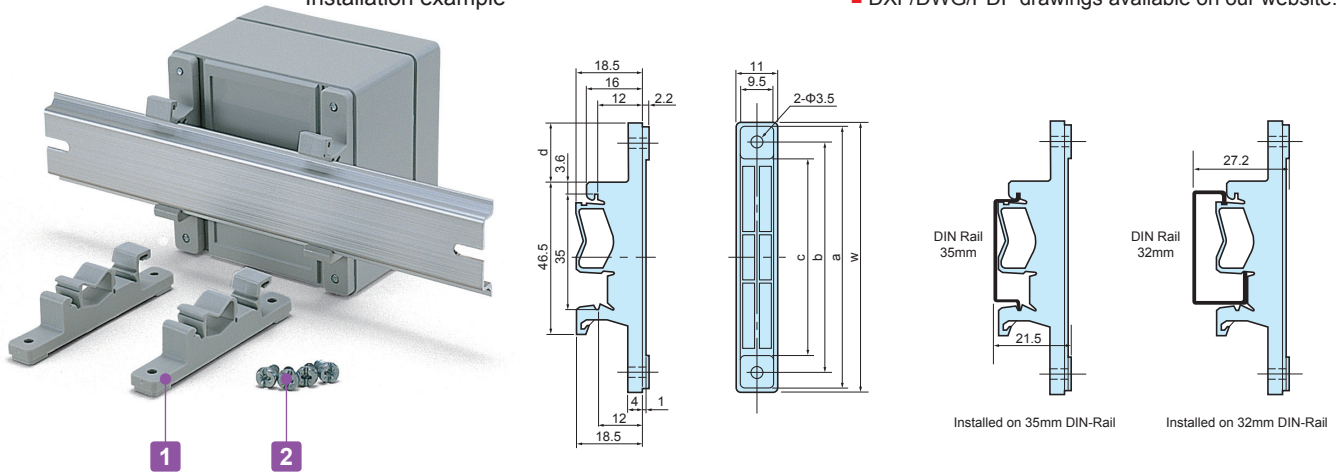
DIN-Rail mounting feet CKD series  
See page DIN-ACC-2

**CKD SERIES**

**DIN-RAIL MOUNTING FEET**

Installation example

■ DXF/DWG/PDF drawings available on our website.



■ Mounting feet for installation of enclosures, PCB and other parts onto a DIN rail. Can be easily detached.

Technical Data
Max load : 3kg

**Components**

No.	Part name	Pcs	Material	Color / Finish
1	Mounting feet	2	Polyamide	White gray
2	Screw (special type 4.2 x 9.5)	4	Screw	Unichrome plated

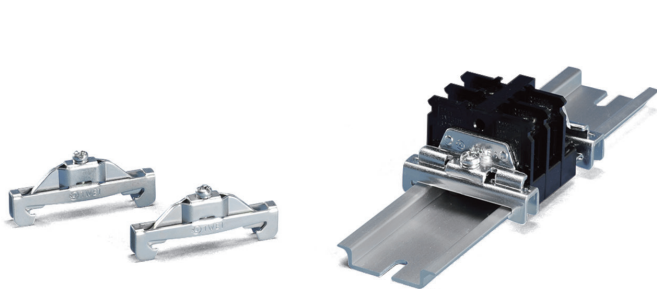
**Product no. / Dimensions**

Product no.	W	a	b	c	d	Pack of
CKD- 80	77	75	66	56	17	2
CKD-120	117	115	106	96	37	2
CKD-160	157	155	147	136	57	2

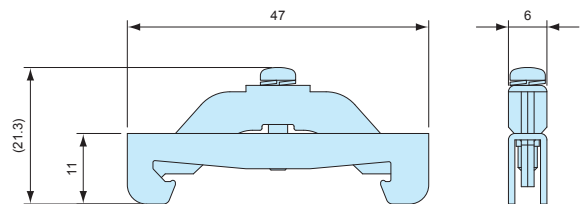
**TKR SERIES**

**DIN-RAIL TERMINAL BLOCKS END STOPPER**

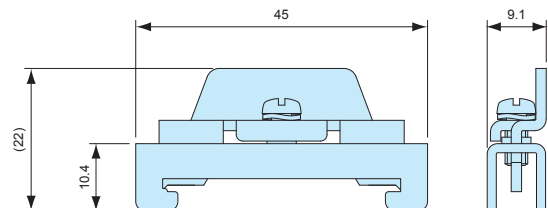
■ DXF/DWG/PDF drawings available on our website.



TKR-TWE1



TKR-JTXE3



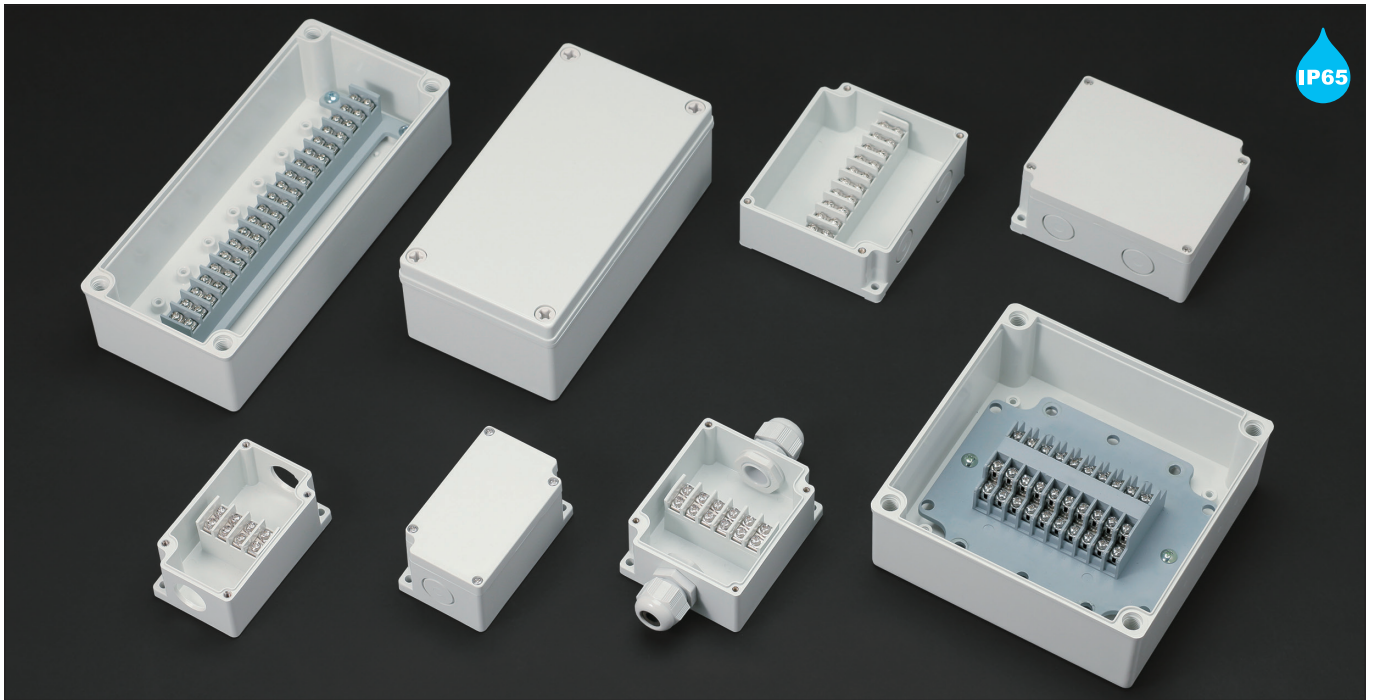
- Stopper bracket for use with 35mm DIN-rail to keep an attachment at a fixed location.
- TKR-TWE1 is used with small DIN rail attachment parts. For larger/higher attachment parts, TKR-JTXE3 is recommended for providing additional support.

**Product no. / Feature**

Product no.	Material	Color / Finish	Pack of
TKR-TWE1	Steel sheet	Trivalent chromate	2
TKR-JTXE3	Steel sheet	Trivalent chromate	2

# TMB SERIES

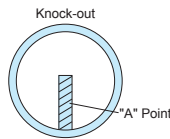
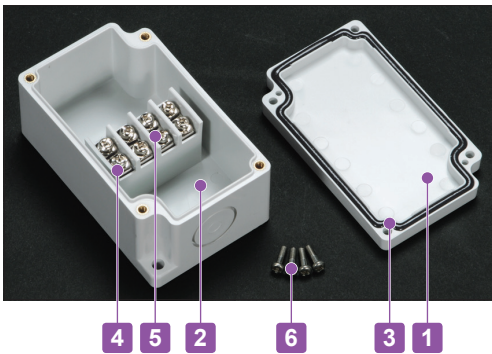
# TERMINAL JUNCTION BOX



- Terminal junction box with built-in terminal block.
- IP65 protection class.
- Made of flame-resistant ABS plastic (UL94V-0).
- TMB-4P • 6P • 10P is molded with  $\Phi 21.0\text{mm}$  metric knock-outs for M20 cable glands.
- To knock out the hole covers, rest a flathead screwdriver at the "A" points, and punch out the knock-outs by hammering on the rear end of the screwdriver handle with a hammer.

### Technical Data

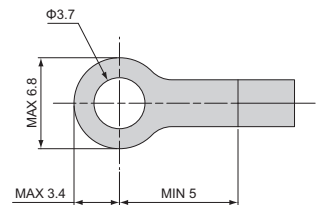
Protection class: IP65  
 Operating temperature:  $-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$   
 Recommended torque:  
 TMB-4P • 6P • 10P :  $0.6\text{N} \cdot \text{m}$   
 TMB-15PS • 20P • 20PL :  $1\text{N} \cdot \text{m}$



### Terminal Block Specification

Rated voltage	400V
Rated current	17.5A
Applicable wire	$1.5\text{mm}^2$
Standard tightening torque	$0.8\text{N} \cdot \text{m}$

### Applicable crimp terminal R1.25-3.5

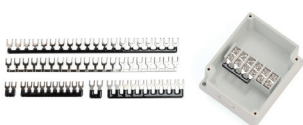


### Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94V-0	Light gray
2	Body	1	ABS UL94V-0	Light gray
3	Gasket	1	Polyurethane	Black
4	Conductive plate	4 ~ 20	Brass	Nickel plated
5	Terminal screw	8 ~ 40	Steel (M3.5)	Nickel plated
-	Terminal mount screw (15PS, 20P, 20PL models only)	2 ~ 4	Steel	Trivalent chromate
6	Cover screw	4	Stainless steel • Nylon	Unfinished

※ Cover screw material : Stainless steel - 4P, 6P, and 10P models • Nylon - 15PS, 20P, and 20PL models.

### Accessories (Optional parts)



Shorting bar SBR series  
See page SBR-1



Cable gland  
See cable gland pages



Mounting bracket CK-34Z  
See page BCAS • BCAL-ACC-2

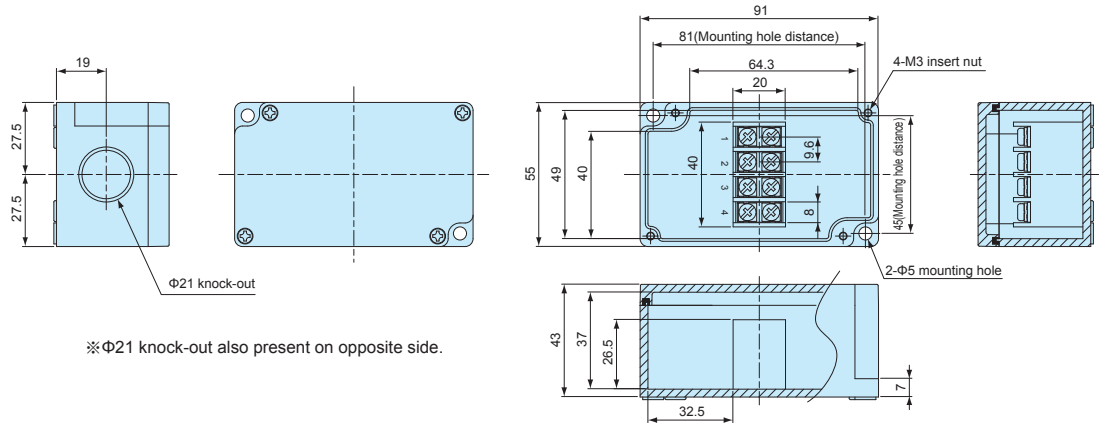
Product no. / Dimensions

Product no.	L	W	H	Number of poles	Weight (g)
TMB- 4P	91	55	43	4P	102
TMB- 6P	91	75	43	6P	134
TMB-10P	91	110	43	10P	190
TMB-15PS	185	100	70	15P	412
TMB-20P	160	160	70	10P x 2	560
TMB-20PL	230	100	70	20P	484

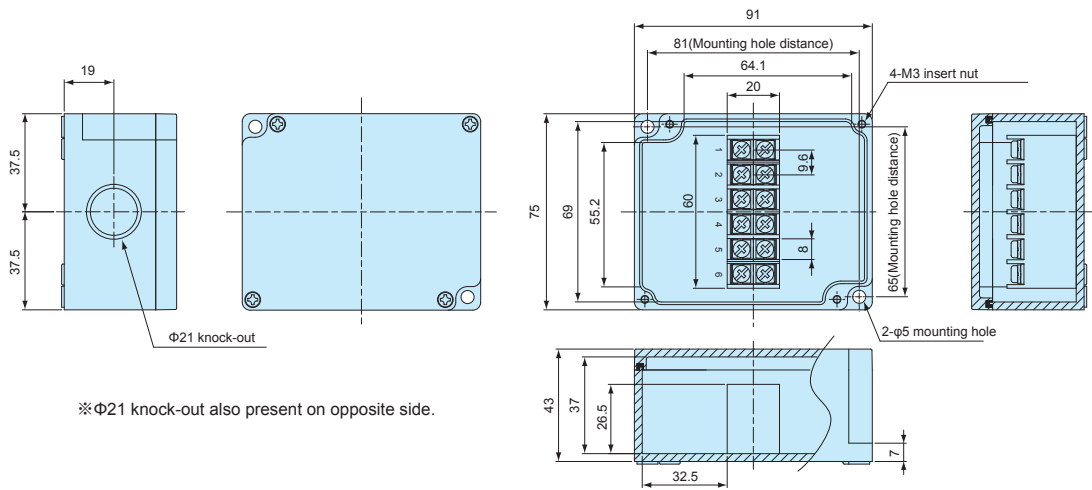
TMB dimensions

■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.

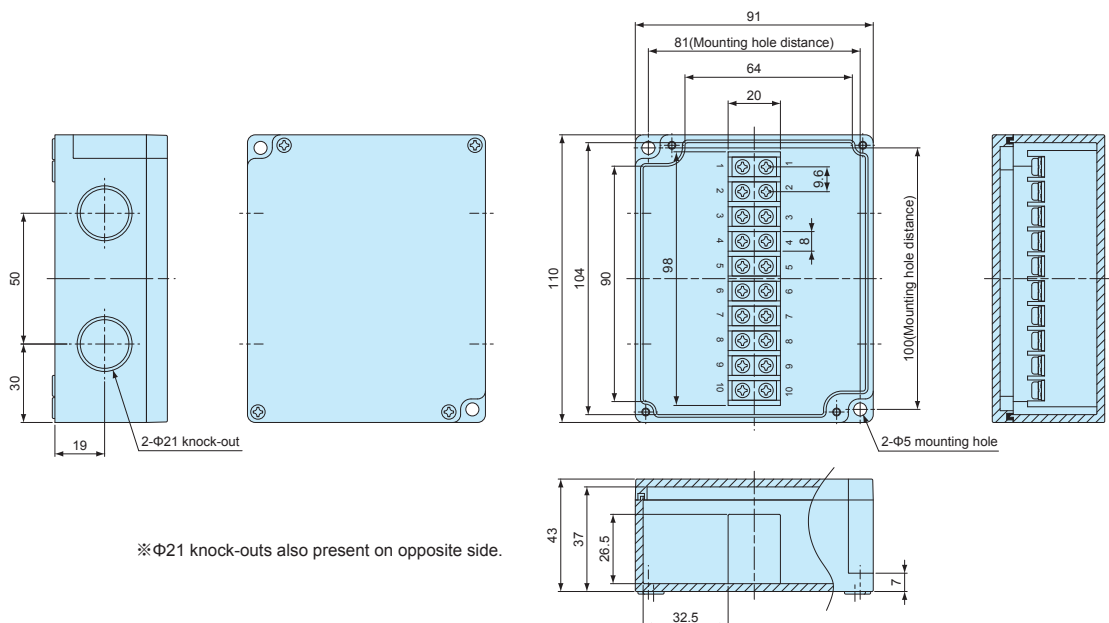
TMB-4P



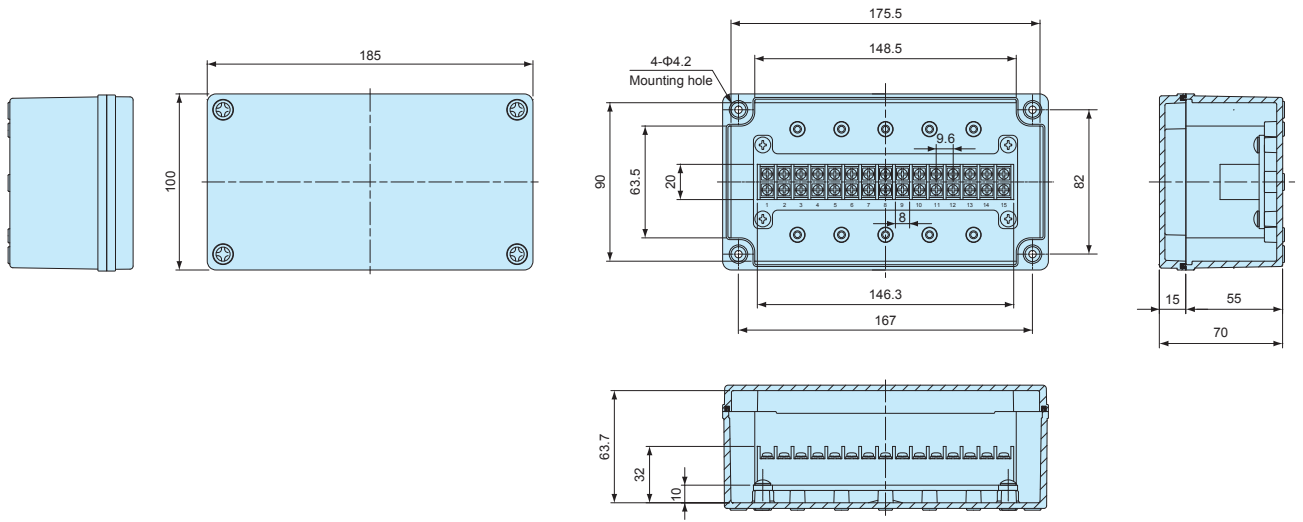
TMB-6P



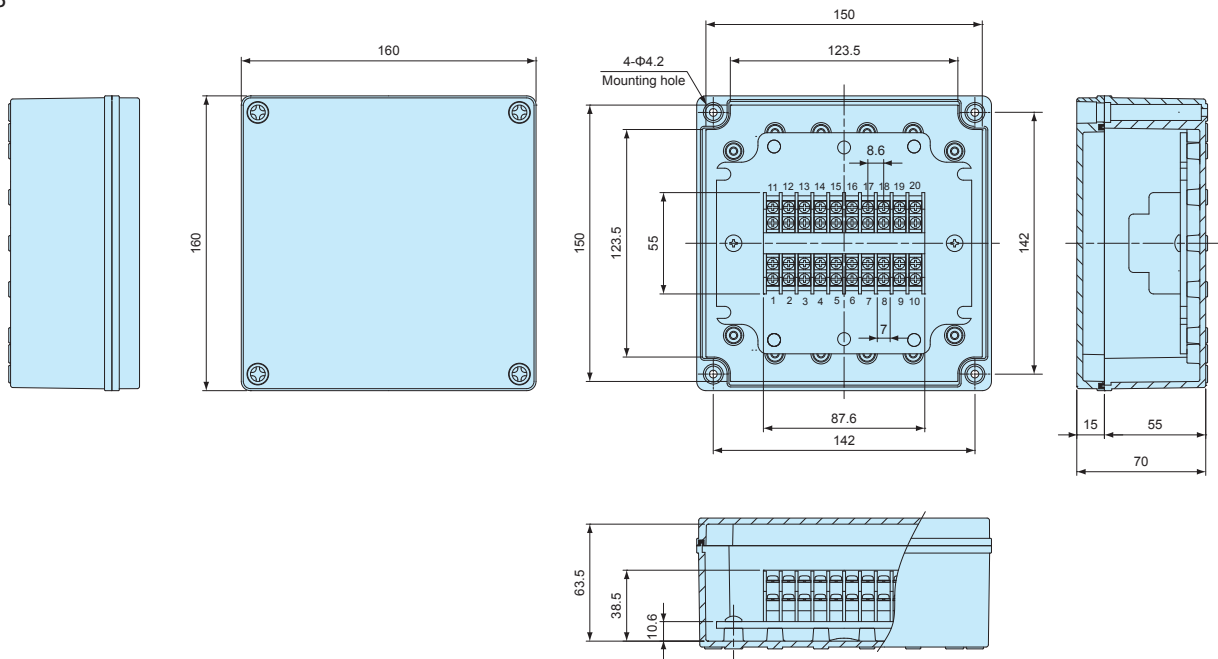
TMB-10P



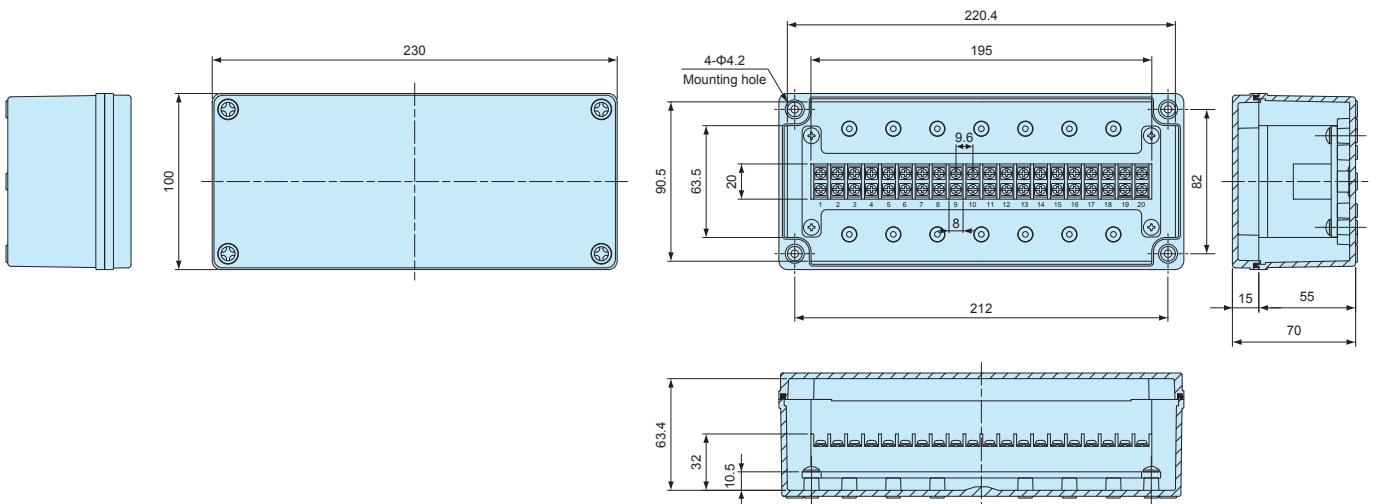
**TMB-15PS**



**TMB-20P**

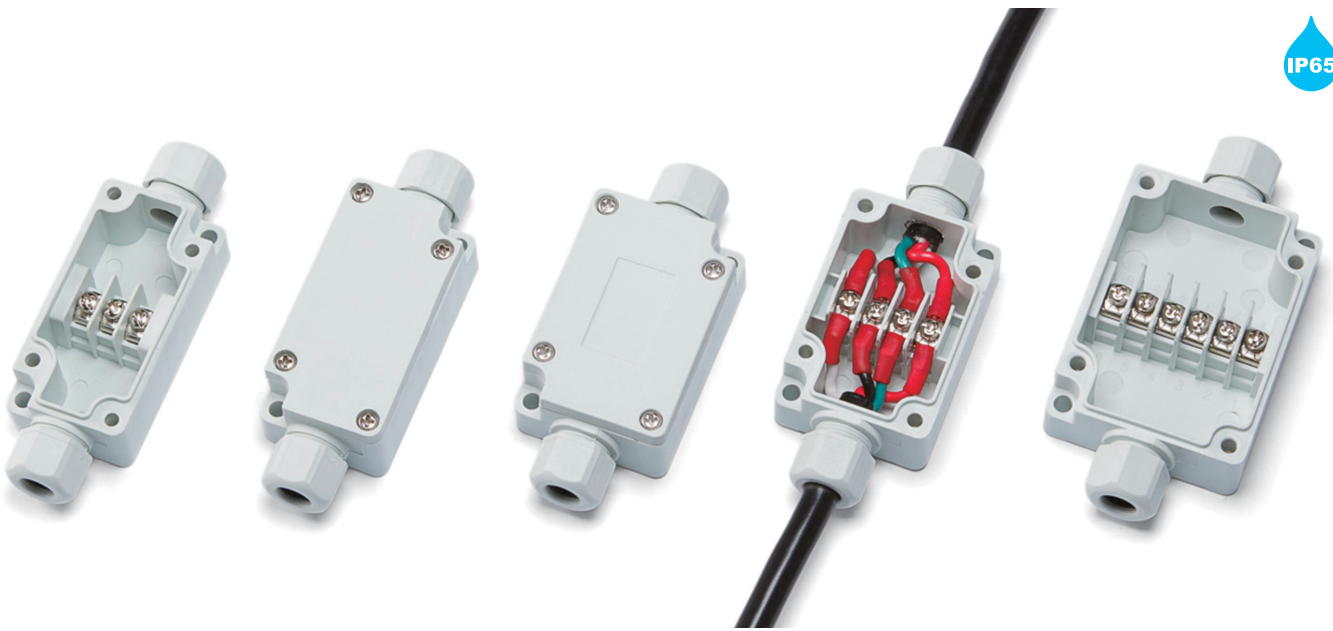


**TMB-20PL**



# TMC SERIES

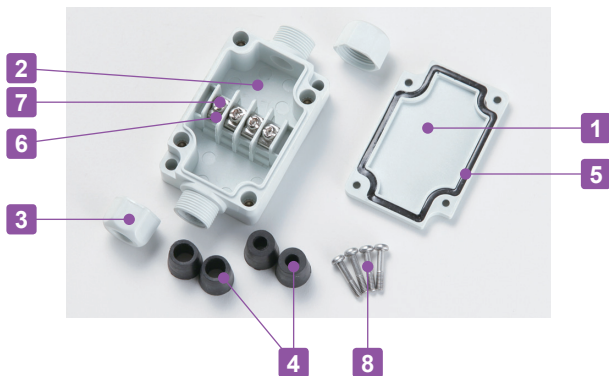
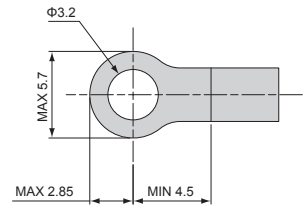
# TERMINAL JUNCTION BOX



- Integrated junction box consisting of cable glands and a terminal block.
- Suitable for industrial facilities, power cable joints, relay between motors and/or sensors.
- IP65 protection class with high oil resistant PBT material.
- 3, 4, and 6 pole types are available.
- $\Phi 5.0$  and  $\Phi 7.4$  rubber cable bushes (2 pcs each) are included.

Technical Data
Protection class: IP65
Operating temperature: -20°C ~ +75°C

Applicable crimp terminal  
R1.25-3



### Terminal Block Specification

Rated voltage	250V
Rated current	15A
Applicable wire	1.25mm <sup>2</sup>
Standard tightening torque	0.5N · m

### Components

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	PBT UL94V-0	Light gray · Black
2	Base	1	PBT UL94V-0	Light gray · Black
3	Cable cap	2	PBT UL94V-0	Light gray · Black
4	Rubber bush	2 pairs	EPDM	Black
5	Gasket	1	Polyurethane	Black
6	Conductive plate	3~6	Brass	Nickel plated
7	Terminal screw	3~6	Steel M3	Nickel plated
8	Cover screw	4	Stainless steel M3	Unfinished

### Accessories (Optional parts)



Shorting Bar SBR series  
See page SBR-1

Rubber Bush RB series  
See page RB · SZ-1



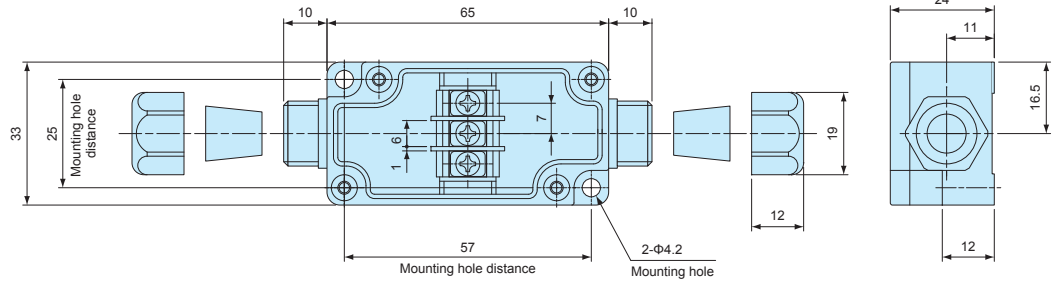
Product no. / Dimensions

Product no.	L	W	H	Number of poles	Weight (g)
● Light gray					
TMC-3PG	65	33	24	3P	52
TMC-4PG	60	40	24	4P	58
TMC-6PG	70	50	24	6P	73

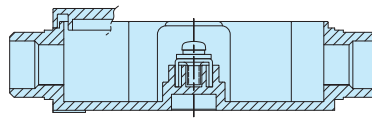
TMC dimensions

■ DXF/DWG/PDF drawings available on our website.

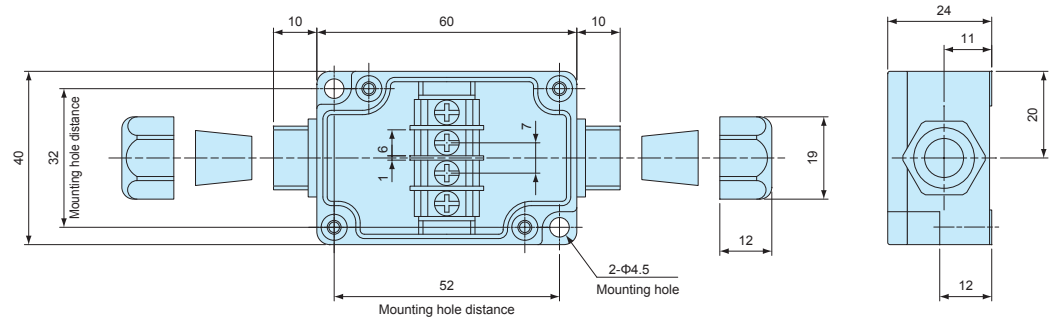
TMC-3P



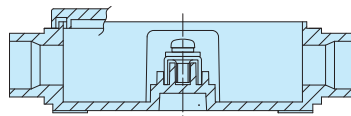
Inner diameter of rubber bush	Cable range
Φ5.0	Φ4 ~ Φ5
Φ7.4	Φ6 ~ Φ7



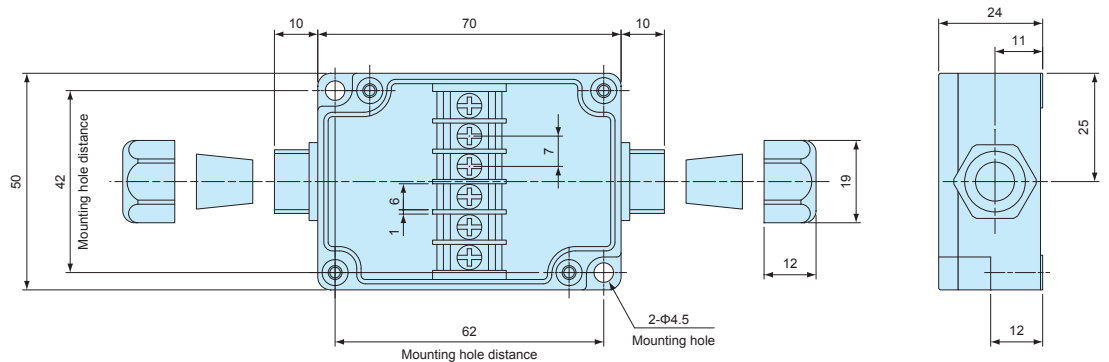
TMC-4P



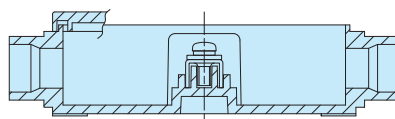
Inner diameter of rubber bush	Cable range
Φ5.0	Φ4 ~ Φ5
Φ7.4	Φ6 ~ Φ7



TMC-6P

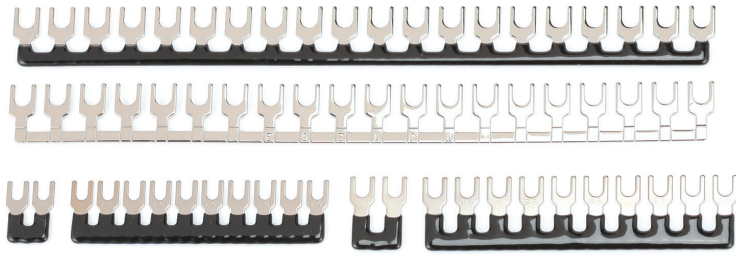


Inner diameter of rubber bush	Cable range
Φ5.0	Φ4 ~ Φ5
Φ7.4	Φ6 ~ Φ7



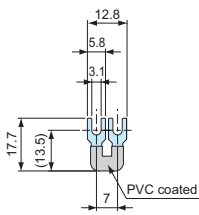
# SBR SERIES

# SHORTING BAR

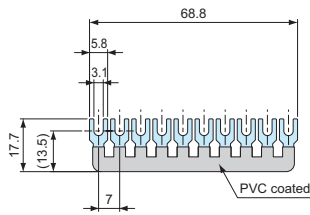


- Shorting bar for common-wiring.
- SBR70-10P, SBR85-10P, SBR95-20P, and SBR95-20N can be cut accordingly into required poles.
- PVC coated. SBR95-20 available in both PVC coated (SBR95-20P) and non PVC coated (SBR95-20N) models.
- See chart below for suitable box.

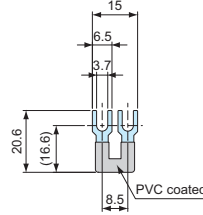
SBR70-2P



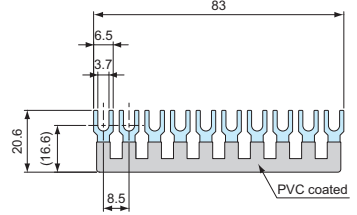
SBR70-10P



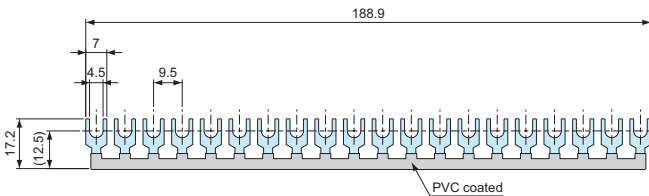
SBR85-2P



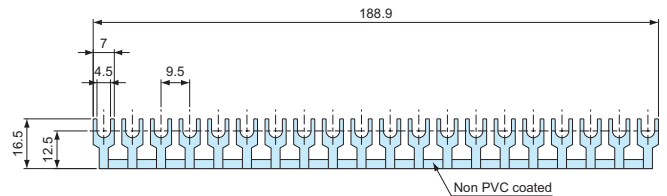
SBR85-10P



SBR95-20P



SBR95-20N



### Suitable Box Chart

Product no.	Number of poles	Pole distance	Suitable box
SBR70 - 2P	2P	7.0mm	TMC series
SBR70 -10P	10P	7.0mm	TMC series
SBR85 - 2P	2P	8.6mm	TMB-20P, TMA-20P-AS, TMA30P-AS
SBR85 -10P	10P	8.6mm	TMB-20P, TMA-20P-AS, TMA30P-AS
SBR95 -20P	20P	9.6mm	TMA • TMB series (Not applicable for TMB-20P, TMA20P-AS, and TMA30P-AS models)
SBR95 -20N	20P	9.6mm	TMA • TMB series (Not applicable for TMB-20P, TMA20P-AS, and TMA30P-AS models)

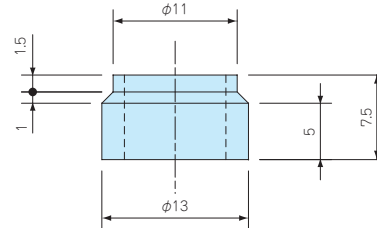
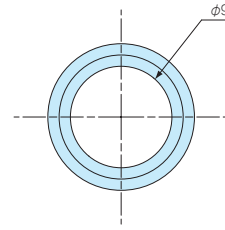
### Product no. / Feature

■ Pack quantity differs by models.

Product no.	Number of poles	Material	Finish	PVC coating	Pack of
SBR70 - 2P	2P	Brass	Nickel plated	Yes	10
SBR70 -10P	10P	Brass	Nickel plated	Yes	1
SBR85 - 2P	2P	Brass	Nickel plated	Yes	10
SBR85 -10P	10P	Brass	Nickel plated	Yes	1
SBR95 -20P	20P	Brass	Nickel plated	Yes	1
SBR95 -20N	20P	Brass	Nickel plated	No	1

**RB-9**

**RUBBER BUSH**



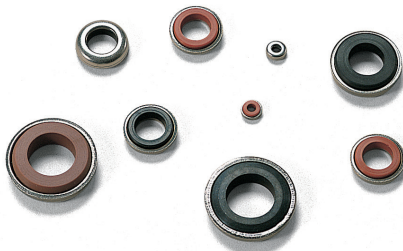
- Rubber bush for TMC series terminal junction box.
- Applicable for  $\Phi 8 \sim \Phi 9$ mm diameter cable.

**Product no. / Feature**

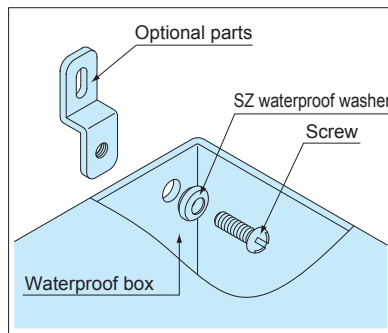
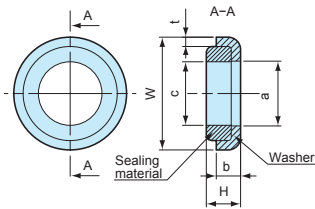
Product no.	Material	Color	Cable range	Pack of
RB-9	NBR	Black	$\Phi 8 \sim \Phi 9$ mm	2

**SZ SERIES**

**WATERPROOF WASHER**



- Waterproof washer for screwing onto waterproof boxes.
- NBR sealing material has superior oil resistance (N models only).
- Silicone sealing material has wider operating temperature with superior temperature and water resistance (S models only).



**Technical Data**

Water pressure resistance:  
 M3 ~ M10 : 200kg/cm<sup>2</sup> 5min  
 M12 ~ M16 : 100kg/cm<sup>2</sup> 5min

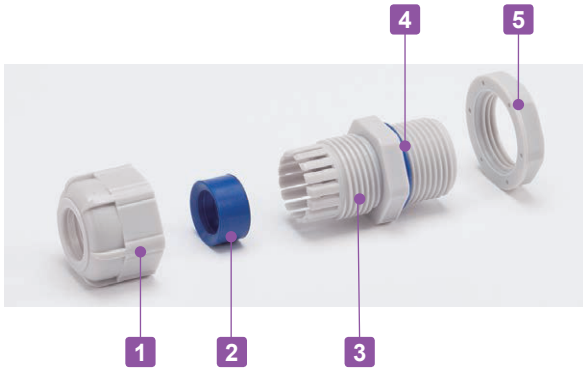
- Shape of the sealing material vary by product.

**Product no. / Dimensions**

Product no.	W	H	a	b	c	t	Washer material	Sealing material	Color	Screw size	Pack of
SZ- 3N	7	2.7	3.2	2.2	3.1	0.5	SUS304	NBR	Black	M 3	1
SZ- 3S	7	2.7	3.2	2.2	3.1	0.5	SUS304	Silicone	Brown	M 3	1
SZ- 4N	8	2.8	4.2	2.1	4.1	0.5	SUS304	NBR	Black	M 4	1
SZ- 4S	8	2.8	4.2	2.1	4.1	0.5	SUS304	Silicone	Brown	M 4	1
SZ- 5N	9.5	3.6	5.2	2.7	5.1	0.8	SUS304	NBR	Black	M 5	1
SZ- 5S	9.5	3.6	5.2	2.7	5.1	0.8	SUS304	Silicone	Brown	M 5	1
SZ- 6N	11.5	4	6.2	3	6.2	1	SUS304	NBR	Black	M 6	1
SZ- 6S	11.5	4	6.2	3	6.2	1	SUS304	Silicone	Brown	M 6	1
SZ- 8N	15.2	3.8	8.2	3.2	8.2	1	SUS304	NBR	Black	M 8	1
SZ- 8S	15.2	3.8	8.2	3.2	8.2	1	SUS304	Silicone	Brown	M 8	1
SZ-10N	18	5.3	10.2	4	10.2	1.5	SUS304	NBR	Black	M10	1
SZ-10S	18	5.3	10.2	4	10.2	1.5	SUS304	Silicone	Brown	M10	1
SZ-12N	24	6.1	14.2	4.8	12.2	1.5	SUS304	NBR	Black	M12	1
SZ-12S	24	6.1	14.2	4.8	12.2	1.5	SUS304	Silicone	Brown	M12	1
SZ-16N	30	6.8	18.4	5.3	16	1.9	SUS304	NBR	Black	M16	1
SZ-16S	30	6.8	18.4	5.3	16	1.9	SUS304	Silicone	Brown	M16	1



- Weatherproof cable gland equipped with high ultraviolet and degradation resistant silicone sealing insert and O-ring.
- Recommended to use outdoors where waterproofing is critical.

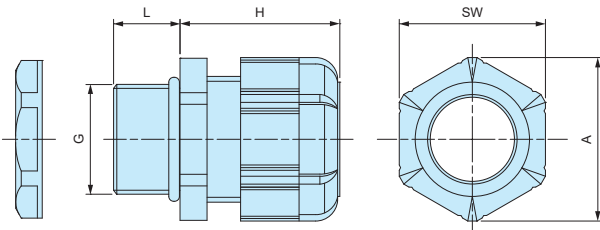


Components

■ PA = Polyamide

No.	Part name	Material
1	Cap	PA66 UL94V-2
2	Sealing insert	Silicone
3	Connector	PA66 UL94V-2
4	O-ring	Silicone
5	Nut	PA66 UL94V-2

RMW dimensions



Technical Data

Protection class: IP67  
Operating temperature: -20°C ~ +80°C

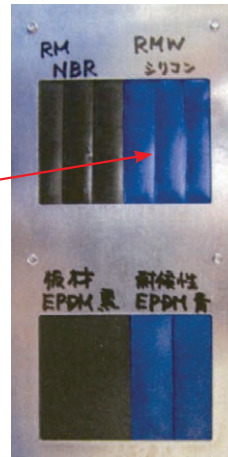
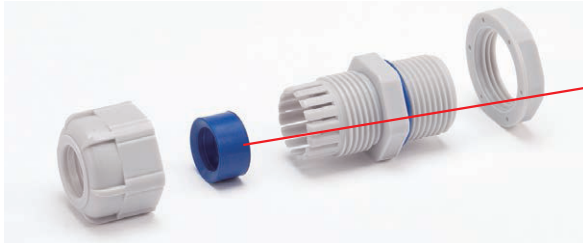
- DXF/DWG/PDF drawings available on our website.
- Lock nut is not included for RMW10S-6.  
Please drill a proper thread hole into the enclosure for installation.

Product no. / Dimensions

Product no.		G		Cable range		L	H Max	SW	A	Pack of
● Black	● Light gray	Thread size	Mounting hole	Min	Max					
RMW8L-2.5B	RMW8L-2.5S	M8×1.25	Φ8.2	1	2.5	13	19.5	11.8	13.5	1
RMW8L-4B	RMW8L-4S	M8×1.25	Φ8.2	2.5	4	13	19.5	11.8	13.5	1
RMW10S-6B	RMW10S-6S	M10×1.5	—	3	6	8	20.5	13	14.4	1
RMW10L-6B	RMW10L-6S	M10×1.5	Φ10.2	3	6	13	20.5	13	14.4	1
RMW12S-7B	RMW12S-7S	M12×1.5	Φ12.2	3.5	7	9	20.5	16	17.6	1
RMW12L-7B	RMW12L-7S	M12×1.5	Φ12.2	3.5	7	14.5	20.5	16	17.7	1
RMW16S-8B	RMW16S-8S	M16×1.5	Φ16.2	4	8	9	23.5	19	21	1
RMW16L-8B	RMW16L-8S	M16×1.5	Φ16.2	4	8	15	24	19	21	1
RMW20S-12B	RMW20S-12S	M20×1.5	Φ20.2	6	12	10	29	24	26.2	1
RMW20L-12B	RMW20L-12S	M20×1.5	Φ20.2	6	12	15	28.5	24	26.2	1
RMW25L-17B	RMW25L-17S	M25×1.5	Φ25.2	11	17	15	35	33	36.2	1
RMW32L-21B	RMW32L-21S	M32×1.5	Φ32.3	13	21	15	38	36	39.5	1
RMW40L-27B	RMW40L-27S	M40×1.5	Φ40.3	18	27	18	43.5	45.7	50.5	1
RMW50L-38B	RMW50L-38S	M50×1.5	Φ50.4	27	38	20	50.5	60	66.5	1
RMW8L-2.5B-P	RMW8L-2.5S-P	M8×1.25	Φ 8.2	1	2.5	13	19.5	11.8	13.5	100
RMW8L-4B-P	RMW8L-4S-P	M8×1.25	Φ 8.2	2.5	4	13	19.5	11.8	13.5	100
RMW10L-6B-P	RMW10L-6S-P	M10×1.5	Φ10.2	3	6	13	20.5	13	14.4	100
RMW12S-7B-P	RMW12S-7S-P	M12×1.5	Φ12.2	3.5	7	9	20.5	16	17.6	100
RMW12L-7B-P	RMW12L-7S-P	M12×1.5	Φ12.2	3.5	7	14.5	20.5	16	17.7	100
RMW16S-8B-P	RMW16S-8S-P	M16×1.5	Φ16.2	4	8	9	23.5	19	21	100
RMW16L-8B-P	RMW16L-8S-P	M16×1.5	Φ16.2	4	8	15	24	19	21	100
RMW20S-12B-P	RMW20S-12S-P	M20×1.5	Φ20.2	6	12	10	29	24	26.2	100
RMW20L-12B-P	RMW20L-12S-P	M20×1.5	Φ20.2	6	12	15	28.5	24	26.2	100
RMW25L-17B-P	RMW25L-17S-P	M25×1.5	Φ25.2	11	17	15	35	33	36.2	100

# RMW series silicone sealing insert weatherproof test report

Object: Cut into a piece of the silicone sealing insert from RMW series and attach it onto an aluminium plate.  
 For comparison, NBR sealing insert from our RM and EPDM sealing insert from another manufacturer is also attached for comparison purposes.



Before



After

**Testing conditions**

**Equipment :** 7.5kW Super Xenon Weather Meter SX75 (Suga Test Instruments Co., Ltd. - <http://www.sugatest.co.jp/english/>)  
**Conditions :** JIS B7754 : 1991

Testing with an authorized Xenon arc lamp weathering test equipment under the conditions denoted below.

Irradiance : 180W/m<sup>2</sup> at 300-400nm

Black Panel Temperature : 63±3°C Humidity Range : 50±10%

Cycle Conditions : 120 minutes cycle (18 minutes irradiation + water spray - 102 minutes irradiation)

2,000 hours (equivalent to a period of 4 years under natural conditions)

**Time period :**

**Total radiant exposure :** 1296MJ/m<sup>2</sup>

**Test result (visual / touch inspection)**

**Silicone sealing insert material :** No cracks, no gloss transition, no powder - no appearance change at all. Flexibility remains unchanged.

Before



After



**NBR material from our RM series :** Lost glossiness on the surface and material is stiffened.

Before

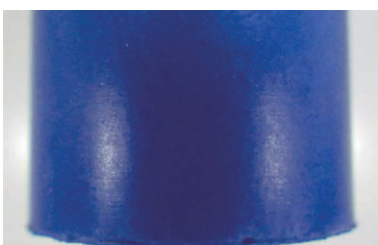


After

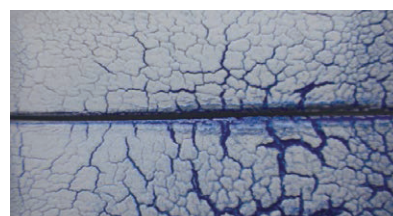


**EPDM material from weatherproof cable gland of another manufacturer :** Cracked, color drastically faded and powder appeared on the surface.

Before

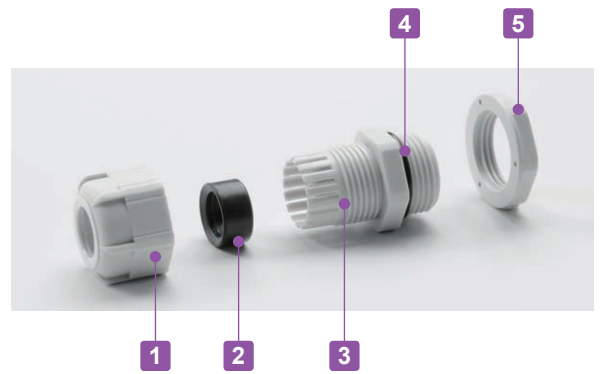


After



# RM SERIES

# POLYAMIDE CABLE GLAND



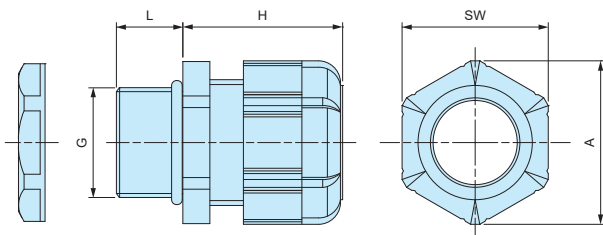
- Low cost cable glands made from polyamide material.
- Wide selection, for M8 ~ M63, suitable for  $\Phi 1\text{mm} \sim \Phi 44\text{ mm}$  cable.
- High oil resistant NBR rubber sealing and O-ring.
- IP67 protection class.

### Components

■ PA = Polyamide

No.	Part name	Material
1	Cap	PA66 UL94V-2
2	Sealing insert	NBR
3	Connector	PA66 UL94V-2
4	O-ring	NBR
5	Lock nut	PA66 UL94V-2

### RM dimensions



### Technical Data

Protection class: IP67  
Operating temperature: -20°C ~ +80°C

- DXF/DWG/PDF drawings available on our website.
- Lock nut is not included for RM8S-2.5, 8S-4, and 10S-6 models.  
Please drill a proper thread hole into the enclosure for installation.

### Product no. / Dimensions

Product no.		G		Cable range		L	H Max	SW	A	Pack of
● Black	● Light gray	Thread size	Mounting hole	Min	Max					
RM8S-2.5B	RM8S-2.5S	M8×1.25	—	1	2.5	7.5	19.5	11.8	13.5	1
RM8L-2.5B	RM8L-2.5S	M8×1.25	Φ8.2	1	2.5	13	19.5	11.8	13.5	1
RM8S-4B	RM8S-4S	M8×1.25	—	2.5	4	7.5	19.5	11.8	13.5	1
RM8L-4B	RM8L-4S	M8×1.25	Φ8.2	2.5	4	13	19.5	11.8	13.5	1
RM10S-6B	RM10S-6S	M10×1.5	—	3	6	8	20.5	13	14.4	1
RM10L-6B	RM10L-6S	M10×1.5	Φ10.2	3	6	13	20.5	13	14.4	1
RM12S-7B	RM12S-7S	M12×1.5	Φ12.2	3.5	7	9	20.5	16	17.6	1
RM12L-7B	RM12L-7S	M12×1.5	Φ12.2	3.5	7	14.5	20.5	16	17.7	1
RM16S-8B	RM16S-8S	M16×1.5	Φ16.2	4	8	9	23.5	19	21	1
RM16L-8B	RM16L-8S	M16×1.5	Φ16.2	4	8	15	24	19	21	1
RM20S-12B	RM20S-12S	M20×1.5	Φ20.2	6	12	10	29	24	26.2	1
RM20L-12B	RM20L-12S	M20×1.5	Φ20.2	6	12	15	28.5	24	26.2	1
RM25L-17B	RM25L-17S	M25×1.5	Φ25.2	11	17	15	35	33	36.2	1
RM32L-21B	RM32L-21S	M32×1.5	Φ32.3	13	21	15	38	36	39.5	1
RM40L-27B	RM40L-27S	M40×1.5	Φ40.3	18	27	18	43.5	45.7	50.5	1
RM50L-38B	RM50L-38S	M50×1.5	Φ50.4	27	38	20	50.5	60	66.5	1
RM63L-44B	RM63L-44S	M63×1.5	Φ63.4	37	44	20	53	68	75.5	1
RM8L-2.5B-P	RM8L-2.5S-P	M8×1.25	Φ8.2	1	2.5	13	19.5	11.8	13.5	100
RM8L-4B-P	RM8L-4S-P	M8×1.25	Φ8.2	2.5	4	13	19.5	11.8	13.5	100
RM10L-6B-P	RM10L-6S-P	M10×1.5	Φ10.2	3	6	13	20.5	13	14.4	100
RM12S-7B-P	RM12S-7S-P	M12×1.5	Φ12.2	3.5	7	9	20.5	16	17.6	100
RM12L-7B-P	RM12L-7S-P	M12×1.5	Φ12.2	3.5	7	14.5	20.5	16	17.7	100
RM16S-8B-P	RM16S-8S-P	M16×1.5	Φ16.2	4	8	9	23.5	19	21	100
RM16L-8B-P	RM16L-8S-P	M16×1.5	Φ16.2	4	8	15	24	19	21	100
RM20S-12B-P	RM20S-12S-P	M20×1.5	Φ20.2	6	12	10	29	24	26.2	100
RM20L-12B-P	RM20L-12S-P	M20×1.5	Φ20.2	6	12	15	28.5	24	26.2	100
RM25L-17B-P	RM25L-17S-P	M25×1.5	Φ25.2	11	17	15	35	33	36.2	100

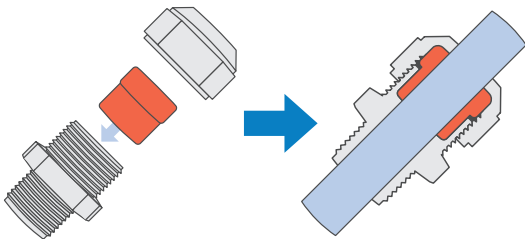


- High water protection IP68 (1bar / 30min) polyamide cable gland.
- Wide selection, for M8 ~ M50, suitable for  $\Phi 2.5\text{mm} \sim \Phi 42\text{mm}$  cable.
- Super tough and superior heat resistant PA6GF (glass fiber filled PA6) material on cap and connector.
- Safer halogen free, eco-friendly product.

Technical Data
Protection class: IP68 1bar / 30min
Operating temperature: -20°C ~ +100°C
Compliant with EN50262 Ver. A

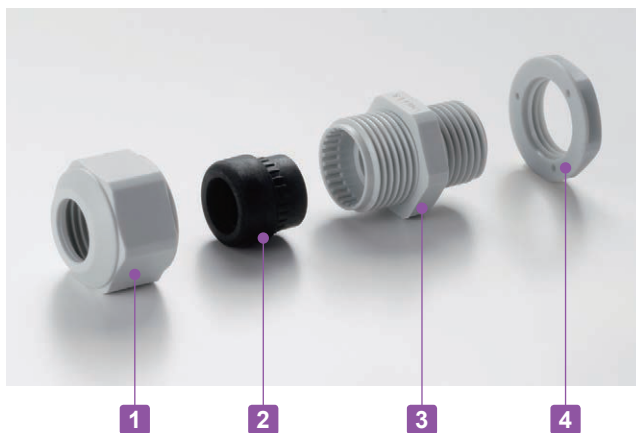
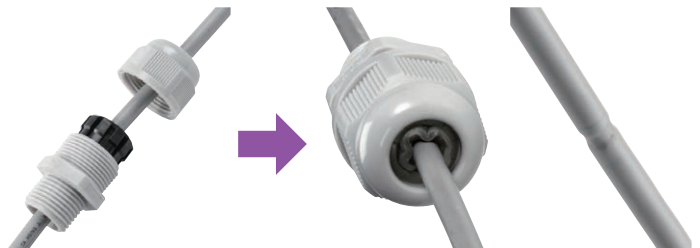
**AG Series**

Thicker sealing insert evenly hold a cable by having a larger holding area.  
Remains durable even after repeated tightening / loosening.



**Lamellar insert type**

If over-tightened, it can cause the rubber bush or cable to deform, which can allow water to seep in.



**Components**

■ PA6GF = Polyamide6 Glass Fiber Filled

No.	Part name	Material
1	Cap	PA6GF
2	Sealing insert	TPE
3	Connector	PA6GF
4	Lock nut	PA6

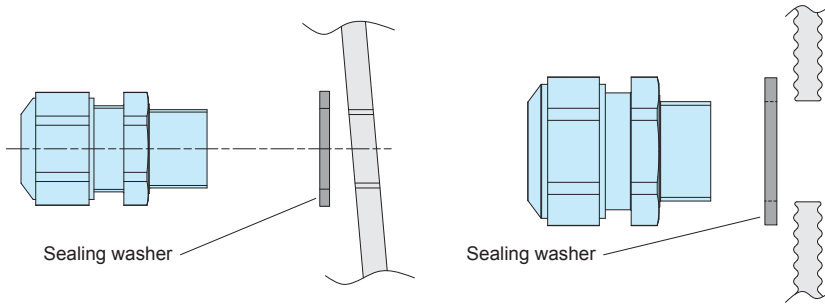
- Lock nut is not included for M8 and M10 sizes.  
Please drill a proper thread hole into the enclosure for installation.

- Proper tightening torque varies by each cable diameter.  
Tighten the cap until top of the sealing insert forms a small bead between the cap and the cable.



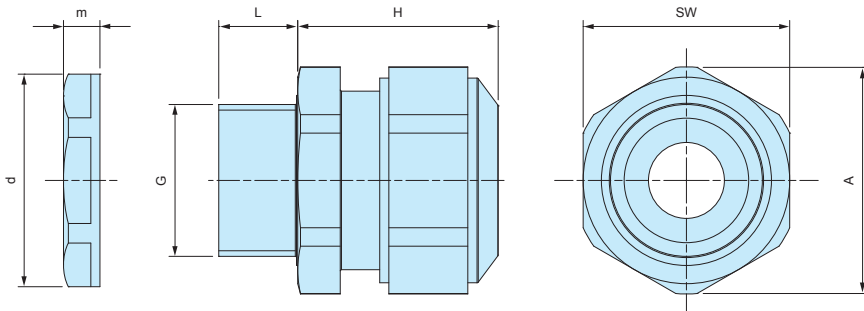
■ No optional sealing washer is required when installing on an even surface because of the built-in waterproof rib.

■ An optional sealing washer is required when installing on an uneven surface. (See page AGP-1 for more information on the optional sealing washer)



**AG dimensions**

■ DXF/DWG/PDF drawings available on our website.



■ Lock nut is not included for M8 and M10 sizes. Please drill a proper thread hole into the enclosure for installation.

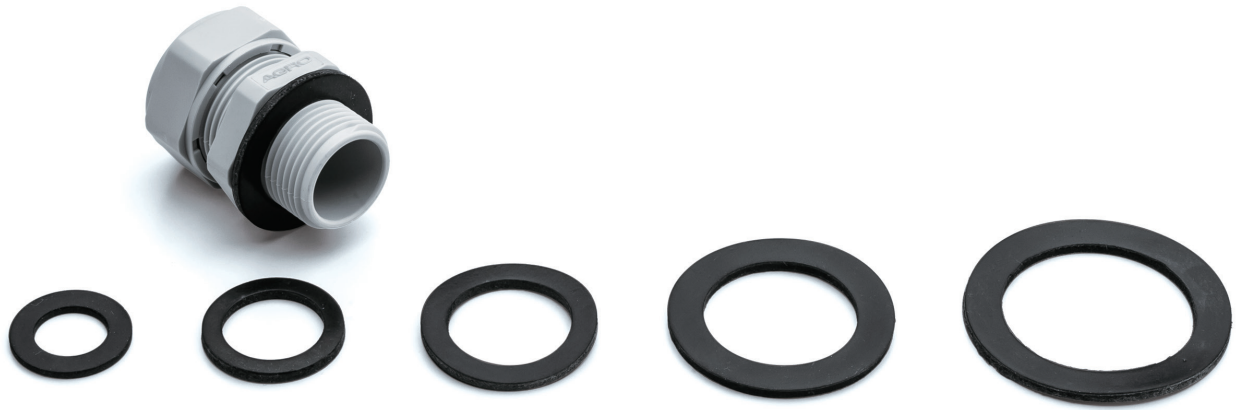
**Product no. / Dimensions**

Product no.		G		Cable range		L	H Max	SW	A	d	m	Pack of
● Black	● Light gray	Thread size	Mounting hole	Min	Max							
AG8-3.5B	AG8-3.5S	M8×1.0	—	2.5	3.5	10	17	12	13.2	—	—	1
AG8-5B	AG8-5S	M8×1.0	—	3.5	4.7	10	17	12	13.2	—	—	1
AG10-6B	AG10-6S	M10×1.0	—	4	6	10	19	15	16.5	—	—	1
AG12-5B	AG12-5S	M12×1.5	Φ12.2	3.5	4.7	12	23.5	17	18.7	18.8	5	1
AG12-6.5B	AG12-6.5S	M12×1.5	Φ12.2	5	6.5	12	23	17	18.7	18.8	5	1
AG12-8B	AG12-8S	M12×1.5	Φ12.2	6.5	7.8	12	23	17	18.7	18.8	5	1
AG16-10B	AG16-10S	M16×1.5	Φ16.2	8	10	12	26	21	23.1	24.3	5	1
AG20-15B	AG20-15S	M20×1.5	Φ20.2	11	15	13	27	27	29.7	29	6	1
AG25-16B	AG25-16S	M25×1.5	Φ25.2	12.5	16	13	34	34	37.4	36	6.7	1
AG25-20B	AG25-20S	M25×1.5	Φ25.2	16	20	13	34	34	37.4	36	6.7	1
AG32-25.5B	AG32-25.5S	M32×1.5	Φ32.3	21	25.5	15	36	41	45.6	46	8	1
AG40-28.5B	AG40-28.5S	M40×1.5	Φ40.3	24	28.5	15	41	50	55.4	53.5	9	1
AG40-33B	AG40-33S	M40×1.5	Φ40.3	28.5	33	15	41	50	55.4	53.5	9	1
AG50-37B	AG50-37S	M50×1.5	Φ50.4	33	37	16	45	60	65.5	66	9.6	1
AG50-42B	AG50-42S	M50×1.5	Φ50.4	37	42	16	45	60	65.5	66	9.6	1



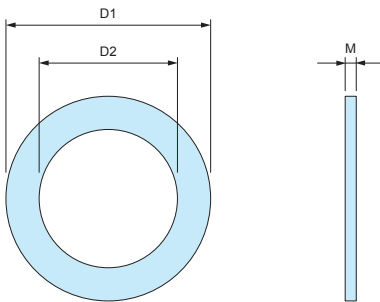
# AGP SERIES

# SEALING WASHER for AG • AGSP

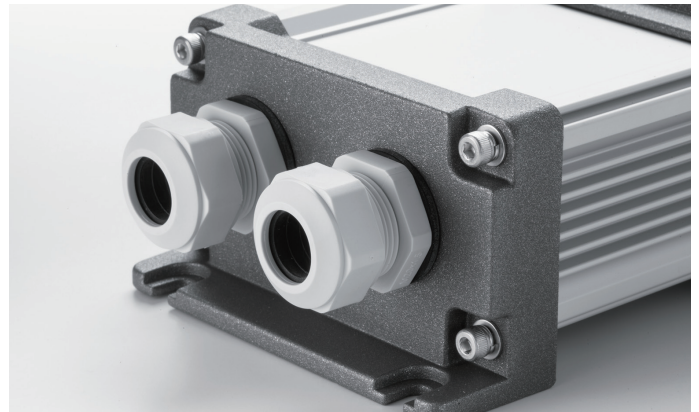


- Sealing washer for AG series.
- Made from oil resistant NBR material.
- Use in the case of installation on a rough or uneven surfaces.
- Selectable in 7 sizes (from M12 to M50)
- Sealing washer is not necessary for installation on flat surfaces.

## AGP Dimensions



- Material : NBR



### Product no. / Dimensions

Product no.	D1	D2	M	Suitable cable gland	Pack of
AGP-12	20	12	1.6	AG12	10
AGP-16	23.5	16.5	2.0	AG16	10
AGP-20	29	20	2.0	AG20	10
AGP-25	37	25	2.0	AG25	10
AGP-32	44	32	2.2	AG32	5
AGP-40	52	40	2.2	AG40	5
AGP-50	64	50	3.1	AG50	5

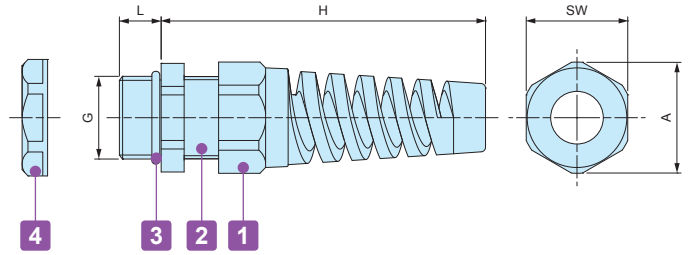
# RSP SERIES

# STRAIN RELIEF CABLE GLAND



■ DXF/DWG/PDF drawings available on our website.

## RSP dimensions



## Components

■ PA = Polyamide

No.	Part name	Material
1	Strain relief cap	PA66 (UL94V-2)
-	Sealing insert	NBR
2	Connector	PA66 (UL94V-2)
3	O-ring	NBR
4	Lock- nut	PA66 (UL94V-2)

Technical Data
Protection class : IP67
Temperature range -20°C ~ +80°C

## Product no. / Dimensions

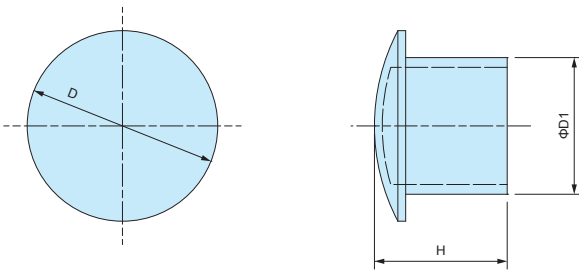
Product no.		G		Cable range		L	H Max	SW	A	Pack of
● Black	● Light gray	Thread size	Mounting hole	Min	Max					
RSP12-6B	RSP12-6S	M12×1.5	φ12.2	3.5	6	9	62	16	17	1
RSP16-8B	RSP16-8S	M16×1.5	φ16.2	4	8	9	69	19.5	21	1
RSP20-11B	RSP20-11S	M20×1.5	φ20.2	6	11	10	82	24	26	1
RSP25-16B	RSP25-16S	M25×1.5	φ25.2	11	16	12	102	33	36	1

**SP SERIES**

**SEALING PLUG**



**SP dimensions**



■ Material : Nylon

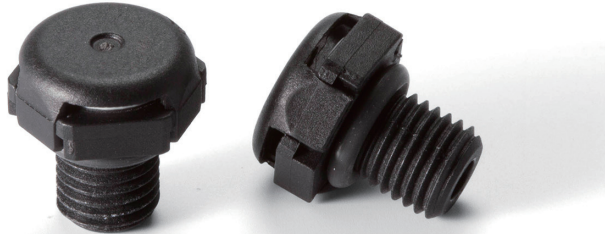
- Sealing plug for cable glands when not in use.
- Maintain a waterproof seal when plugged into the sealing insert on cable glands.

**Product no. / Dimensions**

Product no.	D	D1	H	Suitable cable glands	Pack of
SP-12	10.2	6	15.5	RMW12, RM12, RMW16, RM16, RPG7, RPG9	10
SP-16	15.6	9.5	15.5	RMW20, RM20, RPG11, RPG13.5	10
SP-20	19.6	13.5	16.5	RPG16	10
SP-25	24.4	17.5	17	RMW25, RM25, RMW32, RM32, RPG21	5
SP-40	32.5	24.5	17.5	RMW40, RM40, RPG29	5
SP-50	47.2	38.9	17.6	RMW50, RM50	5

# PMF-6B

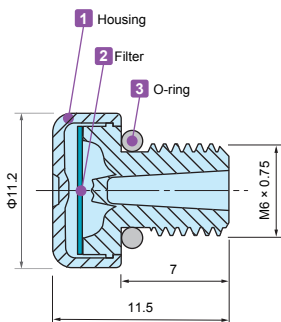
# SMALL PROTECTIVE VENT



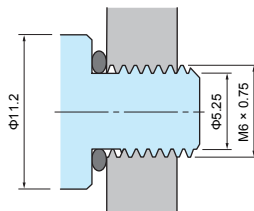
Application example

- Small and screw-in protective vent suitable for compact, and hand-held type devices.
- IP68 protection class (water depth 2 meters / 60 mins) and -40°C ~ +150°C operating temperature range allows it to be used in various environments.
- Suitable for enclosures with capacities of 2.0 litres or under.
- For outdoor use, installation on the side of the enclosure unit is recommended.

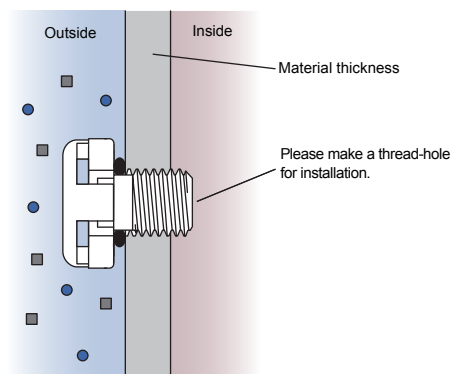
## PMF-6B dimensions



## Hole milling drawings



## Installation drawings



### Technical Data

Airflow	300ml / min (dp = 7 kPa)
Recommended Torque	0.2 ~ 0.4 N • m
Certifications	IEC60529 (Protection class test) : IP66 • IP67 • IP68 IEC60068-2-1, 2, 14 (Heat resistance test) : -40°C ~ +150°C IEC60068-2-78 (Humidity test) : 85°C • 85% humidity • 1000 hours IEC60068-2-64 (Vibration test) UL94V-0 (Flame-resistant) • UL746C f1

### Product no. / Dimensions

Product no.	Material			G	
● Black	1 Housing	2 Filter	3 O-ring	Thread size	Mount hole
PMF-6B	PA6 (Body) • PA66 (Cap)	PTFE	Silicone	M6 x 0.75	—

PMF SERIES

PROTECTIVE VENT

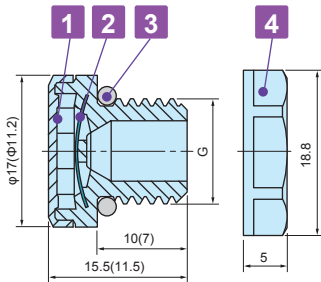


Application example

- Protective vents prevents the ingress of a variety of contaminants, such as water, dust and other particules while allowing water vapor molecules to diffuse through the microporous membrane.
- Equalize pressure and reduce condensation by allowing airflow into and out of sealed enclosures.
- With an IP68 protection class (water depth 2 meters / 60 mins) and -40°C ~ +125°C operating temperature range, it can be used in harsh environmental conditions.
- PMF-6B works up to 2 liters capacity enclosures. Whereas, PMF-12 models work for up to 5 liters and PMF-12HS models work for up to 50 liters.
- For outdoor use, more efficient to install on the side(s).
- Recommended to use for industrial, electric, electronics purpose only.

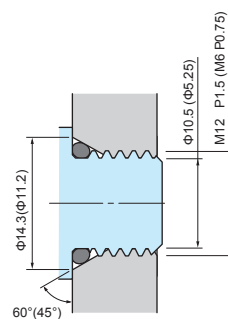
PMF dimensions

■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



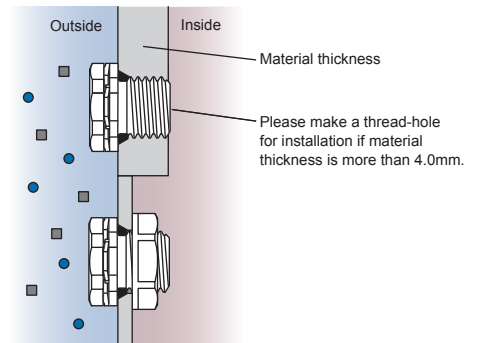
( ) values are for PMF-6B.  
Lock nut is not available for PMF-6B.

Hole milling drawings



■ While  $\Phi 12.2\text{mm}$  through-hole is sufficient for installation,  $60^\circ$  angle tapered hole is recommended to prevent deformation of the O-ring.

Installation drawings



■ If used with a lock nut, material thickness should not exceed 4.0mm, and  $\Phi 12.2\text{mm}$  through-hole is sufficient.

Technical Data

Product no.	PMF-6B	PMF-12	PMF-12HA
Airflow	300ml / min (dp = 7 kPa)	450ml / min (dp = 7 kPa)	4000ml / min (dp = 7 kPa)
Recommended Torque	0.2 ~ 0.4 N · m	0.6 ~ 0.8 N · m	0.6 ~ 0.8 N · m
Certifications	IEC60529 (Protection class test): IP66 • IP67 • IP68 • IP69K (Not for PMF-6B) IEC60068-2-1, 2, 14 (Heat resistance test): - 40°C ~ +125°C (~+150°C for PMF-6B) IEC60068-2-78 (Humidity test): 85°C • 85% humidity • 1000 hours IEC60068-2-64 (Vibration test) (PMF-6B only) UL94V-0 (Flame-resistant) • UL746C f1		

Product no. / Dimensions

Product no.		Material				G		Nut SW
● Light gray	● Black	1 Housing	2 Filter	3 O-ring	4 Lock nut	Thread size	Mount hole	
—	<b>NEW</b> PMF-6B	PA6 (Body) PA66 (Cap)	PTFE	Silicone	n/a	M6 x 0.75	—	—
PMF-12S	PMF-12B	PA6	PTFE	Silicone	PA6 (UL94V-2)	M12 x 1.5	$\Phi 12.2$	17
PMF-12HAS	PMF-12HAB	PA6	PTFE	Silicone	PA6 (UL94V-2)	M12 x 1.5	$\Phi 12.2$	17

PMF-32 SERIES

LARGE PROTECTIVE VENT



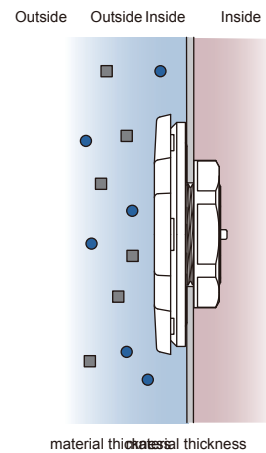
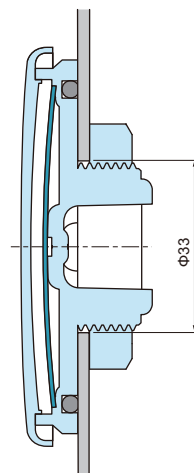
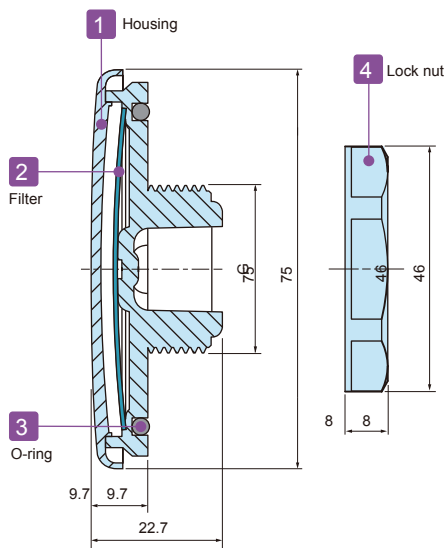
Application example

- Maintaining high airflow for large enclosures in an outdoor environment.
- Equalize pressure and reduce condensation by allowing airflow into and out of sealed enclosures.
- Simple and flat design allows it to be used on a wide variety of enclosure types.
- IP68 protection class rated with an operating temperature range of -40°C ~ +125°C allows it to be used in harsh environments.
- Compliant with Solar industry testing IEC62108 standards.
- For superior performance, installation on the side of the enclosure is recommended.

PMF-32 Dimensions

Hole milling drawings

Installation drawings



■ If used with a lock nut, material thickness should not exceed 5.0mm.

Technical Data

Airflow	16 ℓ / min (dp = 12 mbar)
Recommended torque	5 N · m
Certifications (without nut)	IEC529, 2nd (Protection class test): IP66 • IP67 • IP68 • IP69K IEC60068-2-1, 2, 14 (Heat resistance test): - 40°C ~ +125°C IEC60068-2-78 (Humidity test): 85°C • 85% humidity • 1000 hours IEC62108.10.8 • 9 (Solar industry test): Freezing - high temperature test • Hail impact test UL94V-0 (Flame-resistant) • UL746C

Product no. / Dimensions

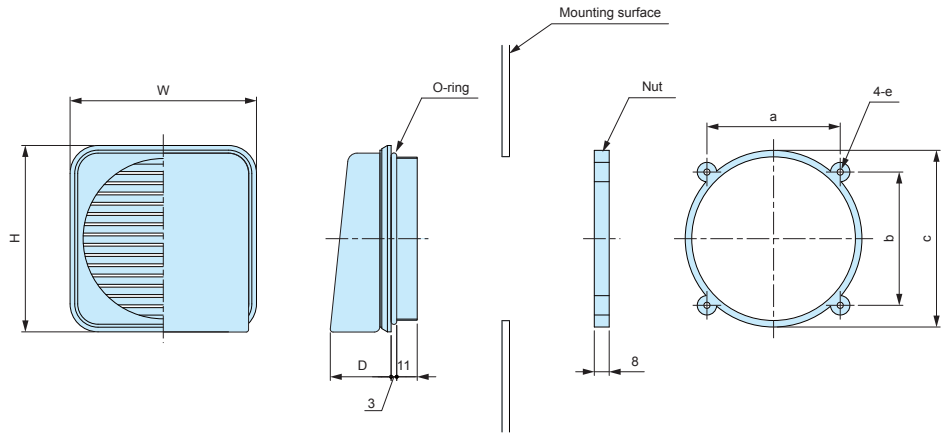
Product no.	Material				G		Nut SW
	1 Housing	2 Filter	3 O-ring	4 Lock nut	Thread size	Mount hole	
PMF-32S	PC	PTFE	Silicone	PA6	M32×1.5	Φ33	41.5

V SERIES

VENTILATION LOUVER



- Recommended for condensation prevention and heat dissipation.
- 2 models available: ABS V60, V80 for BCAP and BCAR series, and PC V60S, V80S for BCPC, BCPK and BCAR series.
- Suitable to be used on a variety of enclosure types, series and models.



Product no. / Dimensions

Product no.	Material	Color	Installation hole	W	H	D	a	b	c	e
V60	ABS	White gray	Φ63	74.5	74.5	30.8	50.5	50.5	70	Φ3.8
V80	ABS	White gray	Φ88	100	100	36	71.5	71.5	94.8	Φ3.3
V60S	Polycarbonate	Light gray	Φ63	74.5	74.5	30.8	50.5	50.5	70	Φ3.8
V80S	Polycarbonate	Light gray	Φ88	100	100	36	71.5	71.5	94.8	Φ3.3

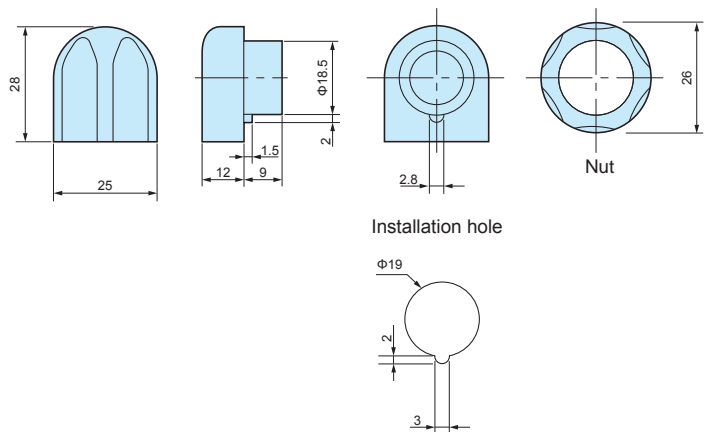
■ O-ring material: NBR Black

VF SERIES

VENTILATION PARTS



VF-1

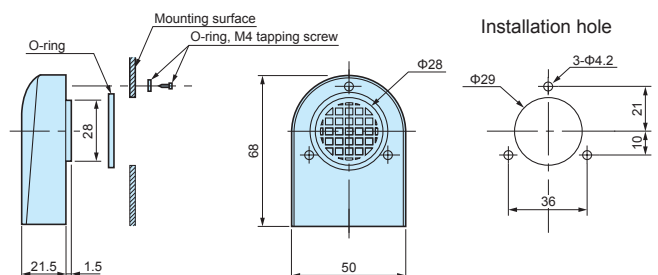


Technical Data	
Protection class:	VF-1 IP33 VF-2 IP24

Product no.

Product no.	Material / Color
VF-1	Polyamide / White gray
VF-2	Polyamide / White gray

VF-2



SSK SERIES

POLE MOUNTING BRACKET

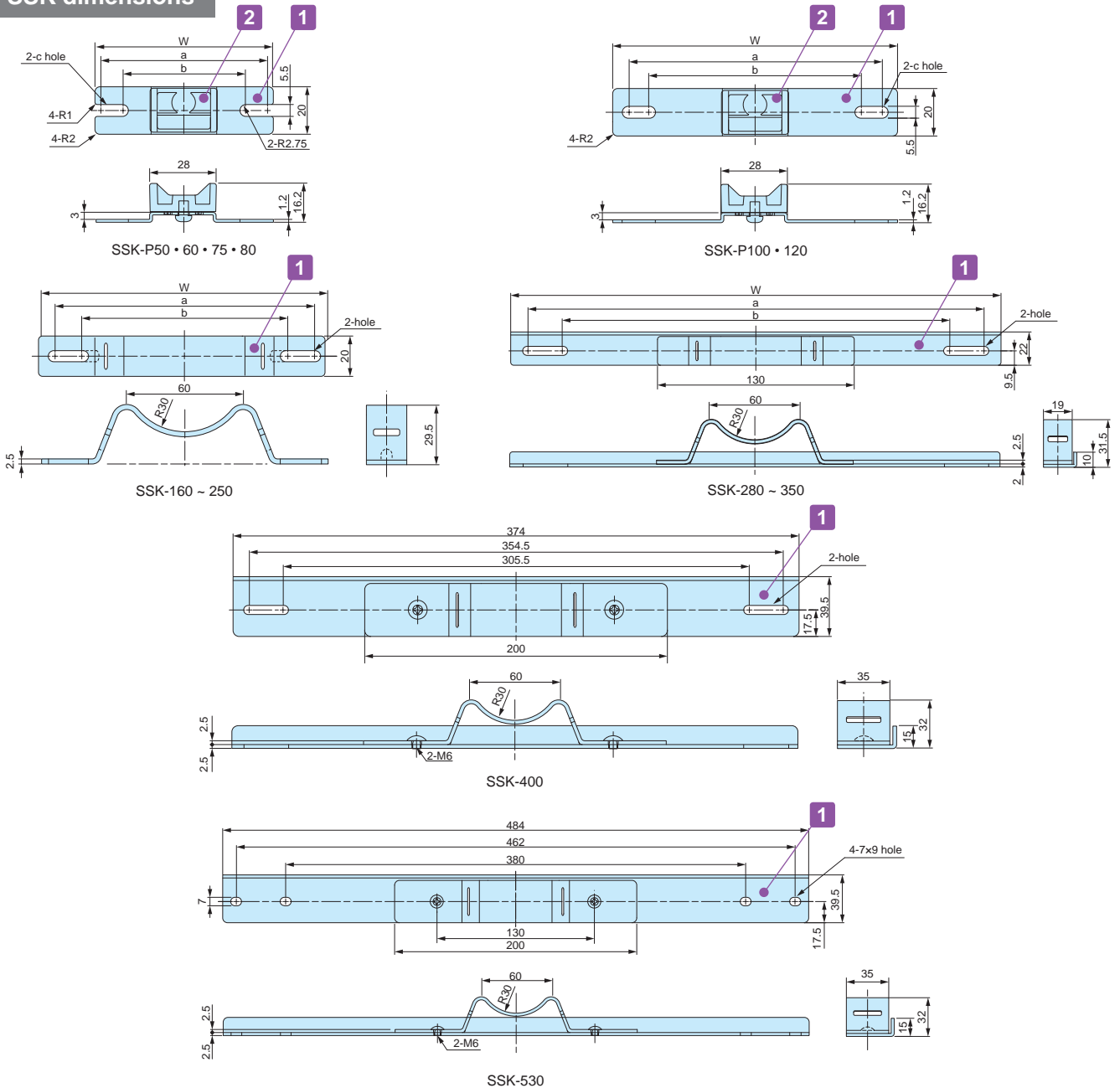


- Stainless steel pole mounting bracket for SPCM • SPCP and BCAL • BCAS series.
- Easy pole mount with the use of SSK-B mounting screw and PKB mounting belt.
- DXF/DWG/PDF drawings available on our website.
- SSK-P models includes plastic mounting brackets.



PKB series

SSK dimensions



SSK-1



Components

No.	Part name	Pcs	Material	Color / Finish
1	Bracket	2	Stainless steel SUS304	Barrel finish
2	Plastic bracket (SSK-P models only)	2	ASA UL94HB	White gray

■ Screws included with SSK brackets are for BCAP • BCAR • BCPK • BCPR series use only. For other series, please utilize SSK-B screw set.

Product no. / Dimensions

Product no.	W	a	b	c	Suitable mounting belt	Pack of
SSK-P50	50	44.5	37.5	5.5x 9	PKB-10PM, 10P PKB-10S	2
SSK-P60	60	54.5	47.5	5.5x 9	PKB-10PM, 10P PKB-10S	2
SSK-P75	75	69.5	55.5	5.5x12.5	PKB-10PM, 10P PKB-10S	2
SSK-P80	80	74.5	64.5	5.5x10.5	PKB-10PM, 10P PKB-10S	2
SSK-P100	100	88.1	76.5	5.5x11.3	PKB-10PM, 10P PKB-10S	2
SSK-P120	120	106.5	88.5	5.5x14.5	PKB-10PM, 10P PKB-10S	2
SSK-160	142	129.5	106.5	-	PKB-10PM, 10P PKB-10S	2
SSK-170	152	142.3	101	-	PKB-10PM, 10P PKB-10S	2
SSK-200	174	161.5	112.5	-	PKB-10PM, 10P PKB-10S	2
SSK-210	192	180.5	131.5	-	PKB-10PM, 10P PKB-10S	2
SSK-250	230	215.5	166.5	-	PKB-10PM, 10P PKB-10S	2
SSK-280	260	244.5	195.5	-	PKB-10PM, 10P PKB-10S	2
SSK-300	280	264.5	215.5	-	PKB-10PM, 10P PKB-10S	2
SSK-350	324	302.5	253.5	-	PKB-10PM, 10P PKB-10S	2
SSK-400	374	354.5	305.5	-	PKB-20S	2
SSK-530	484	462	380	7x9	PKB-20S	2

SSK-B SERIES

MOUNTING SCREW SET for SSK



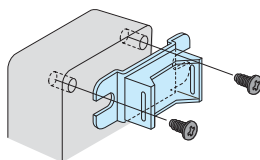
- Mounting screw set for use with SSK pole mounting bracket.
- See chart on page SSK-3 for appropriate bracket/screw/box combination.
- Material / Finish : Stainless steel / Unfinished.

Product no. / Dimensions

Product no.	Included screws	Suitable box	Pcs
SSK-B4-15N	M4-15 Pan head with nut	BCAS060905 ~ 212310	4
SSK-B4-25N	M4-25 Pan head with nut	SPCP • SPCM series	4
SSK-B5-10	M5-10 Pan head	BCAL series	4

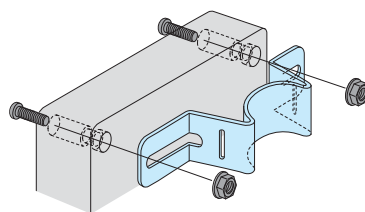
■ Installation Example

BCAS050604, 050605



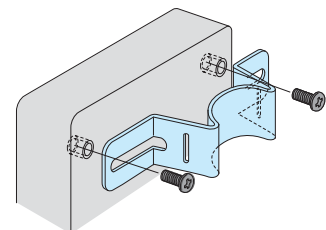
Use screws included with SSK-P

M4 / M5 Pan head with nut fastening



SSK-B4-15N      SSK-B4-25N

Pan head screw into insert nut



SSK-B5-10

POLE MOUNTING BRACKET / SCREW SET MATCHING CHART

SPCM • SPCP series

	Box Product no.	SSK Product no.		Screw set Product no.
		Vertical mount	Horizontal mount	
SPCP SPCM	081304, 081305 081306, 081308 081310, 081313	SSK-P75	SSK-160	SSK-B4-25N
	101004, 101006	SSK-P100	SSK-P100	SSK-B4-25N
	131304, 131305 131306, 131308 131310, 131313	SSK-160	SSK-160	SSK-B4-25N
	131804, 131805 131806, 131808 131810, 131813, 131815	SSK-160	SSK-200	SSK-B4-25N
	181808, 181810 181813, 181815	SSK-200	SSK-200	SSK-B4-25N
	182508, 182510, 182515	SSK-200	SSK-280	SSK-B4-25N

BCAL series

	Box Product no.	SSK Product no.		Screw set Product no.
		Vertical mount	Horizontal mount	
BCAL	191913 ※	SSK-P120	SSK-200	SSK-B5-10
	192813, 192818	SSK-200	SSK-250	SSK-B5-10
	193813, 193818	SSK-200	SSK-350	SSK-B5-10
	282813	SSK-250	SSK-280	SSK-B5-10
	283413	SSK-280	SSK-280	SSK-B5-10
	283813, 283818	SSK-280	SSK-350	SSK-B5-10
	285613	SSK-280	SSK-530	SSK-B5-10
	385618	SSK-400	SSK-530	SSK-B5-10

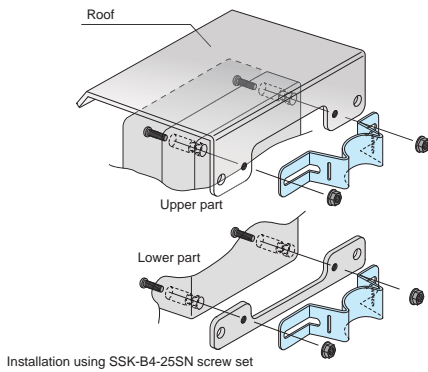
※Use screws included with SSK bracket for vertical mount

BCAS series

	Box Product no.	SSK Product no.		Screw set Product no.
		Vertical mount	Horizontal mount	
BCAS	050604, 050605	SSK-P50	SSK-P60	Use screws included with SSK bracket
	060905	SSK-P60	SSK-P100	SSK-B4-15N
	071005 ※	SSK-P75	SSK-P100	SSK-B4-15N
	080806	SSK-P75	SSK-P75	SSK-B4-15N
	081104, 081107 081108, 081110	SSK-P75	SSK-P120	SSK-B4-15N
	081307, 081308	SSK-P75	SSK-160	SSK-B4-15N
	081807, 081808	SSK-P75	SSK-210	SSK-B4-15N
	082507, 082508	SSK-P75	SSK-280	SSK-B4-15N
	101007, 101010	SSK-P100	SSK-P100	SSK-B4-15N
	101807	SSK-P100	SSK-210	SSK-B4-15N
	102007	SSK-P100	SSK-250	SSK-B4-15N
	102307	SSK-P100	SSK-250	SSK-B4-15N
	121207, 121210	SSK-P120	SSK-200	SSK-B4-15N
	141709	SSK-160	SSK-200	SSK-B4-15N
	142309	SSK-160	SSK-250	SSK-B4-15N
	151507, 151510	SSK-170	SSK-170	SSK-B4-15N
	152004, 152007 152020, 152013, 152016	SSK-170	SSK-250	SSK-B4-15N
	152510, 152513	SSK-170	SSK-280	SSK-B4-15N
	161607	SSK-170	SSK-170	SSK-B4-15N
	202010, 202013 202016, 202019	SSK-250	SSK-250	SSK-B4-15N
	212310	SSK-250	SSK-250	SSK-B4-15N

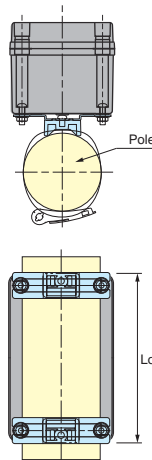
※Use screws included with SSK bracket for vertical mount

- For installation of SR series outdoor roof on SPCM • SPCP series SR series (For SPCM • SPCP - see page SPCM • SPCM-ACC-2)

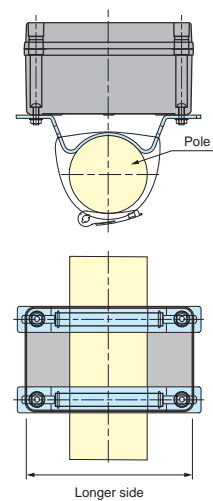


- Select SSK bracket depending on mounting type (Vertical or Horizontal).

**Vertical mount**  
(Longer vertical side)



**Horizontal mount**  
(Longer horizontal side)



WPMB-M4-3 SERIES

POLE MOUNTING BRACKET



- Pole mount bracket made from weather resistant ASA material.
- Suitable for both for vertical and horizontal mounting.
- Hole milling is required for bracket installation.
- IPX7 protection can be maintained through the use of sealing washers.
- Pole mount is possible with the use of PKB series mounting belt.

Components

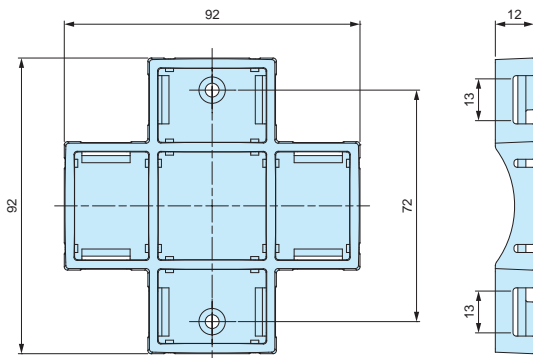
No.	Part name	Pcs	Material	Color / Finish
1	Bracket	1	ASA UL94HB	White gray • Dark gray
2	Sealing washer	2	NBR, SPCC	Black
3	Screw (M4-10 Pan head)	2	Stainless steel	Unfinished
4	Hexagonal nut (M4 x 3 types)	2	Stainless steel	Unfinished

Product no. / Dimensions

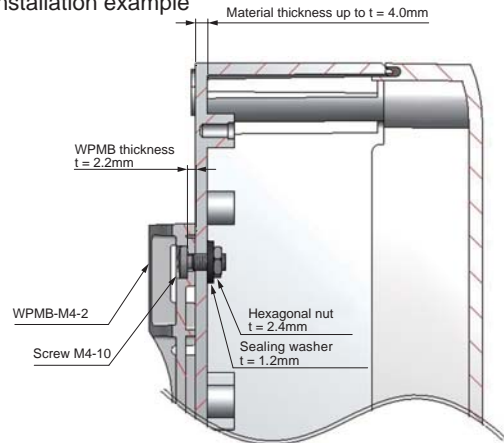
Product no.		Material thickness	Tightening torque	Tensile strength	Weight (g)
• White gray	• Dark gray				
WPMB-M4-3G	WPMB-M4-3D	Up to t = 4.0mm	0.45N • m	5 kg	26.5

■ Listed tightening torque values are for reference only. Actual required torque may differ.

■ DXF/DWG/PDF drawings available on our website.



Installation example



PKB SERIES

POLE MOUNTING BELT



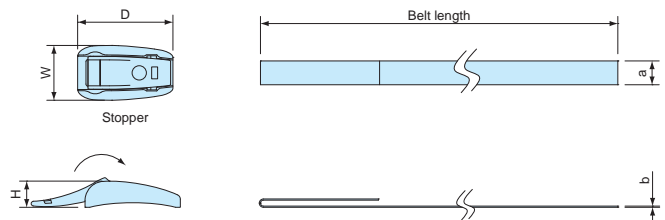
PKB-10PM, 10P



PKB-10S, 20S

- New shorter belt type PKB-10PM is available for  $\Phi 25$  to  $\Phi 60$ mm poles. Other belt types are for  $\Phi 60$  to  $\Phi 400$ mm poles.
- Designed for one time use only (not reusable).
- Strong stainless steel clamping type and easy installation plastic type are available.
- Use SSK • WPMB mounting bracket for installation onto a pole.

■ Drawings below are reference examples only. DXF/DWG/PDF drawings available on our website.



Components

Part name	Pcs	Material	Color / Finish
Stopper	2	POM • Stainless steel SUS304	Black • Barrel finish
Belt	2	PET • Stainless steel SUS430	Gray • Bright Annealed finish

Product no. / Dimensions

Product no.	W	D	H	a	b	Belt material	Belt length	Tensile strength (horizontal)	Weight (g)	Pack of
<b>NEW</b> PKB-10PM	24	23	11	10	0.5	PET	500mm	0.8kN	14	2
PKB-10P	23	40	11	10	0.5	PET	1,500mm	1.3kN	31.8	2
PKB-10S	(16.5)	(49.5)	12	10	0.3	Stainless steel	1,500mm	1.4kN	101.6	2
PKB-20S	(27.4)	(49.5)	12	20	0.3	Stainless steel	1,500mm	2.9kN	182.2	2



PKB-10PM, 10P

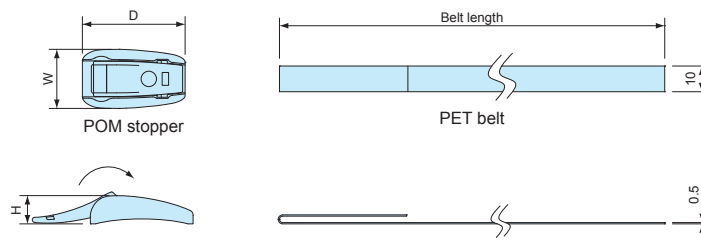


PKB-10S, 20S

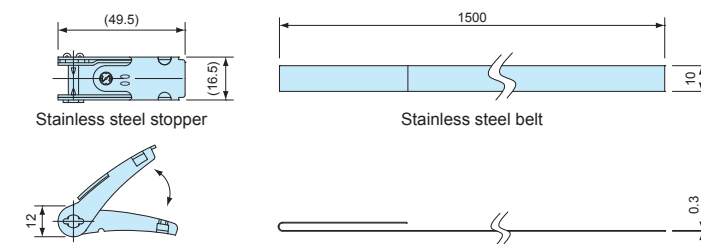
- New shorter belt type PKB-10PM is available for  $\phi 25$  to  $\phi 60$ mm poles. Other belt types are for  $\phi 60$  to  $\phi 400$ mm poles.
- Designed for one time use only (not reusable).
- Strong stainless steel clamping type and easy installation plastic type are available.
- Use SSK mounting bracket for installation onto a pole.
- Drawings below are reference examples only. DXF/DWG/PDF drawings available on our website.

**PKB dimensions**

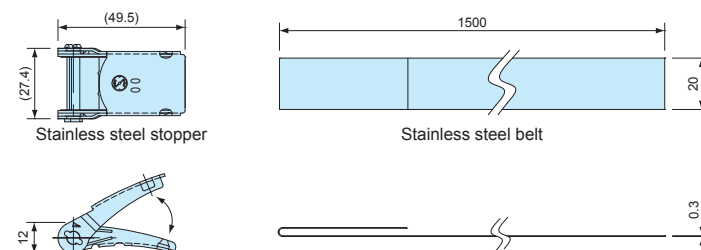
**PKB-10PM, 10P**



**PKB-10S**



**PKB-20S**



**Components**

Part name	Pcs	Material	Color / Finish
Stopper	2	POM • Stainless steel SUS304	Black • Barrel finish
Belt	2	PET • Stainless steel SUS430	Gray • Bright Annealed finish

**Product no. / Dimensions**

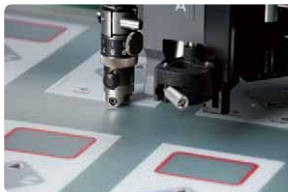
Product no.	W	D	H	Belt material	Belt length	Tensile strength (horizontal)	Weight (g)	Pack of
<b>NEW</b> PKB-10PM	24	23	11	PET	500mm	0.8kN	14	2
PKB-10P	23	40	11	PET	1,500mm	1.3kN	31.8	2
PKB-10S	—	—	—	Stainless steel	1,500mm	1.4kN	101.6	2
PKB-20S	—	—	—	Stainless steel	1,500mm	2.9kN	182.2	2

# DIGITAL PRINTED OVERLAY



## 3 reasons for low initial costs

Reason 1



**Cutting process**



Avoiding the cost for cutting die manufacturing via our in-house cutting plotter.

Reason 2

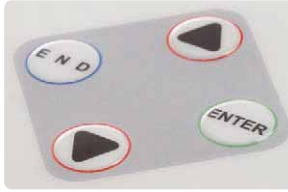


**Printing process**



Saving the cost for print plates via utilization of our in-house digital inkjet printer.

Reason 3



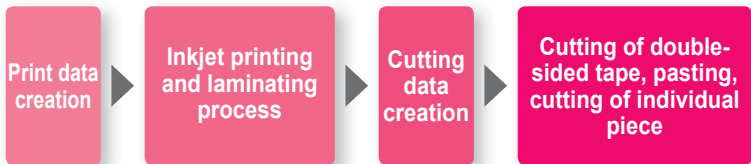
**Embossing process**



Reducing the cost for the embossing die via our new die manufacturing process.

## Comparison of current and previous manufacturing methods

Current



Previous



# PRODUCTION PROCESS



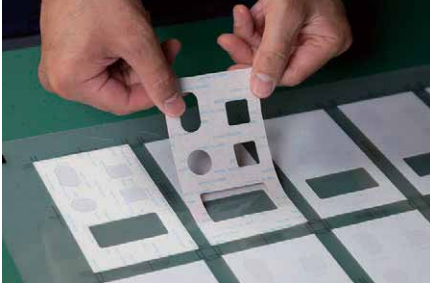
1. Inkjet printing on film



2. Laminating



3. Cutting double-sided tape



4. Sticking double-sided tape on printed film



5. Cutting the sheet to size



6. Embossing



7. Machining on enclosure



8. Sticking overlay sheet onto enclosure



9. Complete

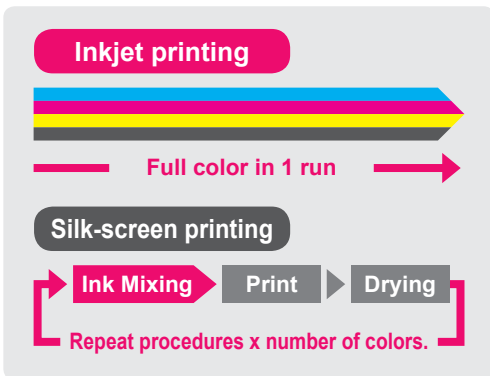
# CUSTOMIZATION EXAMPLE



# INKJET PRINTING



Full color digitally designed image can be printed in 1 run.  
No cost difference regardless of the number of colors used.



**Low printing cost**  
Full color print possible in small quantities

**Inkjet printing** 1 run only for full color print

**Printing cost Full color**

**Silk-screen printing** Printing cost x number of colors

Printing cost Color 1	Printing cost Color 2	Printing cost Color 3	Printing cost Color 4
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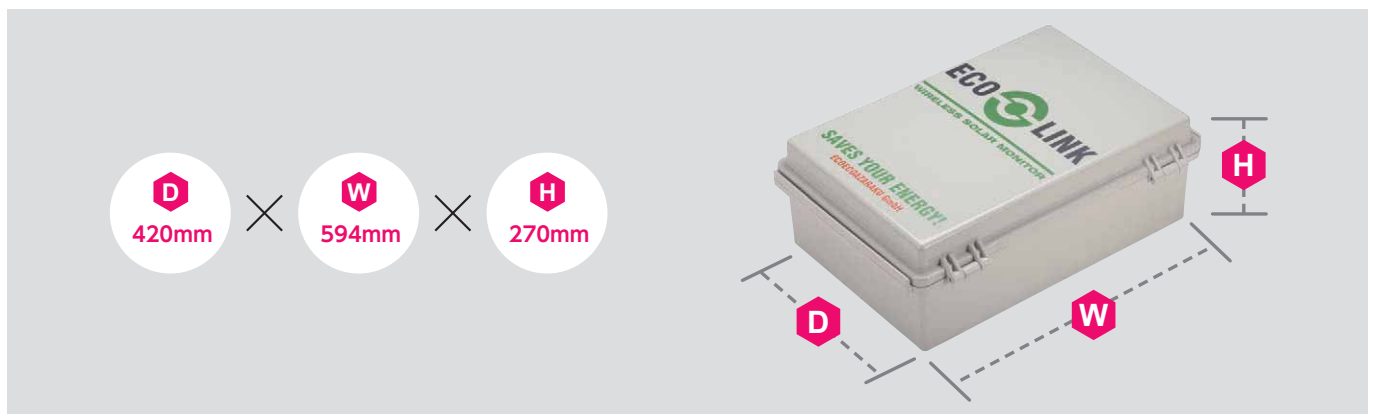
# High quality printing of photo image and color gradation.

Print photo images in maximum 1,800 x 1,800 dpi quality.

Pictures, logos and unique designs with color gradation can be recreated in a high quality print.



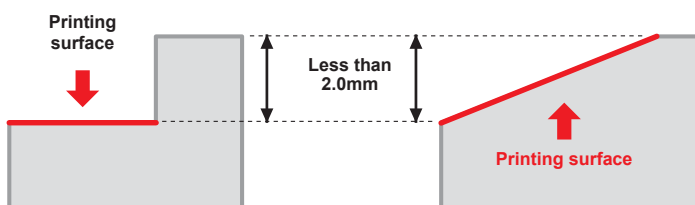
## Maximum printable enclosure size



## Printable on surfaces with height differential

Printing is possible on recessed, sloped and rounded sections.

Gap difference is less than 2.0mm.



\*Not suitable if height difference is more than 2.0mm.



Printed example





# CNC MACHINING

CNC milling is a form of computer controlled machining. Similar in operation to drilling and cutting, it is able to create various hole styles and shapes by using a rotating cutting tool to bore into the object.



- Mainly used for plastic, aluminium die-cast, and aluminium extrusion material types.
- Able to perform milling for various shapes and sizes.
- Recommended for small quantity customization.

