

PROTECTION CLASS (IP RATING)

IP67
is

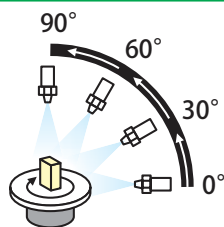
● IEC60529 standard is a system for classifying the degrees of protection provided by the enclosures of electrical equipment, such as against dust and water.

IP

First digit : Solid particle protection

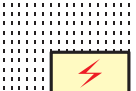
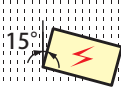
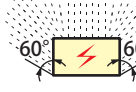
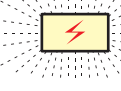
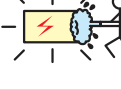
No.	Protection against ingress of solid foreign objects	Protection against access to hazardous parts
0	No Protection	No Protection
1	 Protected against solid objects over 50mm.	 Protected against accidental touch by a large surface of the body, such as by hands. (Tested with a 50mm diameter steel ball.)
2	 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)
3	 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)
4	 Protected against solid objects over 1.0mm.	 Protected against accidental touch by most wires and screws. (Tested with a 1.0mm diameter, 100mm long wire)
5	 Protected against dust; limited ingress, no harmful deposits.	
6	 Complete protection against dust.	

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

Second digit: Liquid ingress protection

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

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.

IP68

HIGH PERFORMANCE

Outdoor Waterproof Box

for 5G Technology!

WG series



IP68 High performance at 24-hours/1m-depth immersion



*Do not use underwater/underground.



With a silicone waterproof gasket, and supported by multiple enclosing screws from the rear side, it allows the enclosure to maintain a stable high waterproofing capability.

Weather-resistant ASA material



ASA material is resistant to deterioration and discoloration due to ultraviolet rays. Perfect for outdoor communication or network devices.

Captive screws for easy maintenance



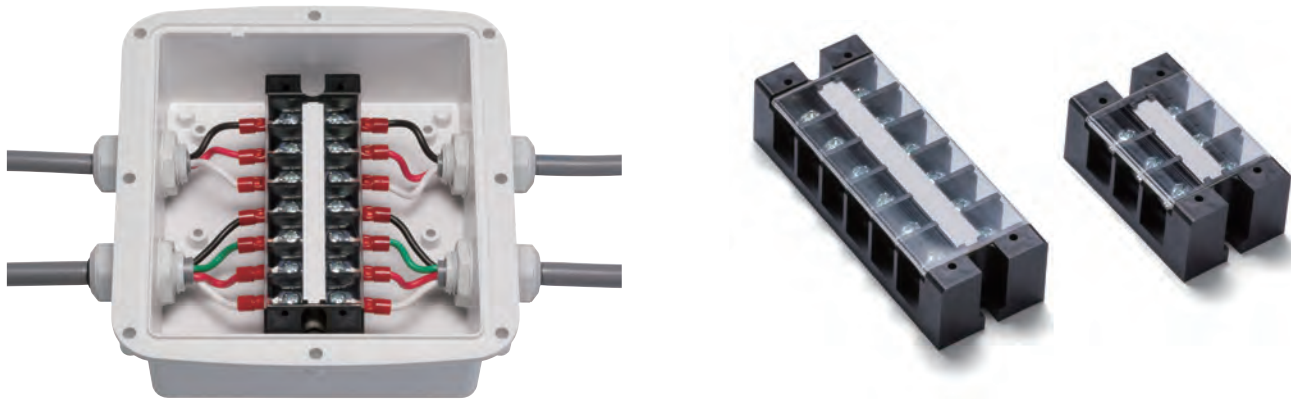
There is no risk of screws dropping out and lost during maintenance. Captive screw is able to lock into a pre-drilled hole to provide a secure hold.

Easy installation on walls & poles



By using the optional mounting accessories, it can be installed on walls and poles with ease.

Optional terminal blocks compatible



Optional terminal blocks, WTB series can be installed onto the existing bosses inside the WG series box without additional processing or customization, hence can also function as a terminal junction box. (See page 8 for WTB terminal blocks.)

WGV series - Pressure equalization models with ventilation plug



Ventilation plug protects the enclosure from deformation by equalizing pressure in environments where there are differences between strong daytime and low nighttime temperatures, as well as venting the gas generated within. See page 5 ~ 6 for WGV series equipped with built-in ventilation plug.

Ventilation plugs are also available separately. See page 325 ~ 326 for ventilation plugs.





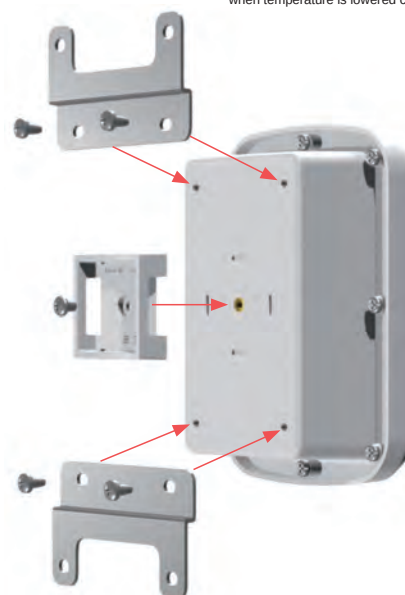
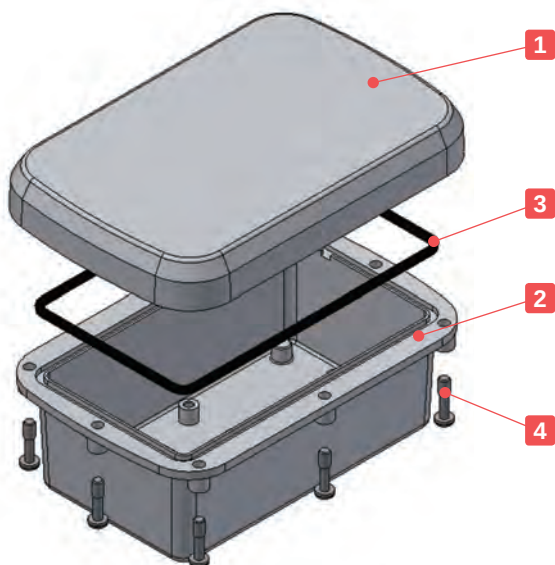
- IP68 high performance plastic box protected from immersion as long as 24 hours at 1m depth.
- ASA material is resistant to deterioration and discoloration from ultraviolet rays.
Perfect for use as outdoor communication or network devices.
- Self-tapping captive screws which are able to lock into a pre-drilled hole and provide a secure hold for fastening the cover. Please drive the self-tapping captive screws for cutting a thread into the holes at first so that securing the cover and body together properly.



Technical Data

Protection class :
IP68 (24-hours/1m-depth)
Operating temperature :
-30°C ~ +60°C
Recommended torque :
0.5 ~ 0.6N · m

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



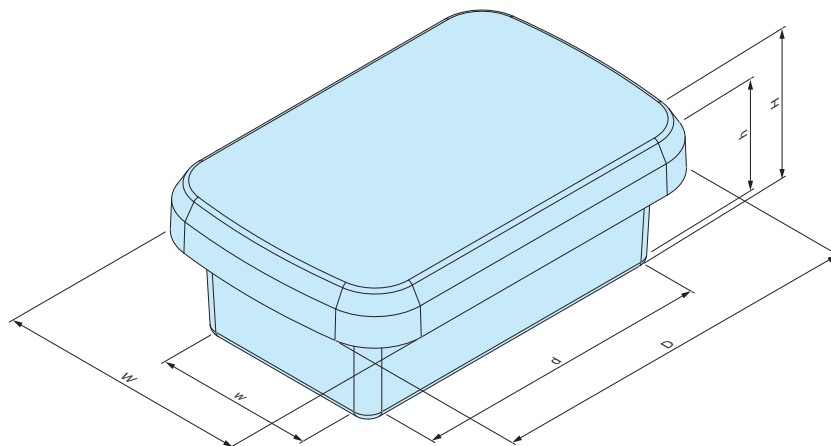
There are 5 holes on the backside of the body (4 at each corner, 1 in center).
4 corner holes are for wall mounting bracket, and 1 center hole is for pole
mounting bracket.

Components

No.	Part name	Pcs	Material / Color
1	Cover	1	ASA UL94HB / Off-white
2	Body	1	ASA UL94HB / Off-white
3	Gasket	1	Silicone / Black
4	Self-tapping captive screw	8 ~ 10	Stainless steel / Unfinished

WG dimensions

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



Product no. / Dimensions

Product no.	External dimensions			Internal dimensions			Screw	Weight (g)
	W	D	H	w	d	h		
WG10-15-6W	100	150	55	63	115	43	M4 × 8 pcs	169.5
WG10-15-8W	100	150	75	62	114	63	M4 × 8 pcs	192
WG15-16-6W	145	155	55	107	120	43	M4 × 8 pcs	232
WG15-16-8W	145	155	80	105	118	68	M4 × 8 pcs	266.5
WG15-21-6W	145	210	60	107	174	48	M4 × 10 pcs	314
WG15-21-9W	145	210	90	105	172	78	M4 × 10 pcs	367

Accessories (Optional parts)



Wall mounting bracket WGF series
See page 9



Pole mount bracket WGMB • WPMB series
See page 9 ~ 10



Pole mounting belt SNB • PKB series
See page 323 ~ 324



PCB mounting screw MT4-8T
See page 7



Tapping standoff TPS series
See page 122



Protective vent PMF series
See page 325 ~ 326



Cable gland
See page 333 ~ 340



Mounting plate WGP series
See page 7



DIN rail FDR series
See website



Terminal block WTB series
See page 8



- IP68 high performance plastic box protected from immersion as long as 24 hours at 1m depth where external (surroundings) and internal (inside box) pressure are different.
- ASA material is resistant to deterioration and discoloration from ultraviolet rays. Perfect for use as outdoor communication or network devices.
- Self-tapping captive screws which are able to lock into a pre-drilled hole and provide a secure hold for fastening the cover. Please drive the self-tapping captive screws for cutting a thread into the holes at first so that securing the cover and body together properly.

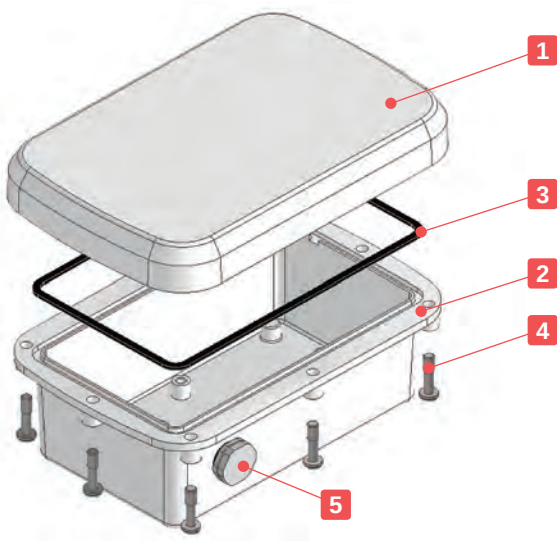


Technical Data

Protection class :	IP68 (24-hours/1m-depth)
Operating temperature :	-30°C ~ +60°C
Recommended torque :	0.5 ~ 0.6N • m
Ventilation plug recommended torque :	0.6 ~ 0.8N • m

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

Ventilation plug protects the enclosure from deformation by equalizing pressure in environments where there are differences between strong daytime and low nighttime temperatures, as well as venting the gas generated within.

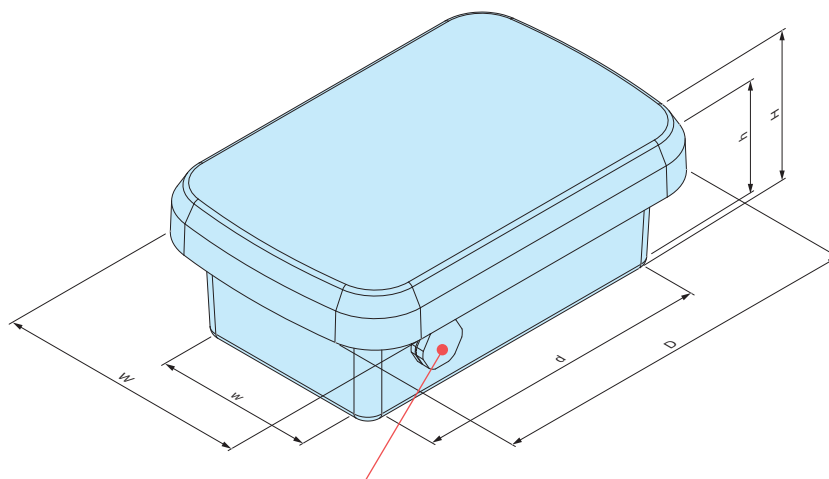


Components

No.	Part name	Pcs	Material / Color
1	Cover	1	ASA UL94HB / Off-white
2	Body	1	ASA UL94HB / Off-white
3	Gasket	1	Silicone / Black
4	Self-tapping captive screw	8 ~ 10	Stainless steel / Unfinished
5	Ventilation plug	1	PA66 + PA6 • PTFE / Light gray

WGV dimensions

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



The location of the ventilation plug is pre-fixed.
*Customization for location change possible.

Product no. / Dimensions

Product no.	External dimensions			Internal dimensions			Screw	Weight (g)
	W	D	H	w	d	h		
WGV10-15-6W	100	150	55	58	115	43	M4 × 8 pcs	171
WGV10-15-8W	100	150	75	57	114	63	M4 × 8 pcs	193.5
WGV15-16-6W	145	155	55	102	120	43	M4 × 8 pcs	233.5
WGV15-16-8W	145	155	80	100	118	68	M4 × 8 pcs	268
WGV15-21-6W	145	210	60	102	174	48	M4 × 10 pcs	315.5
WGV15-21-9W	145	210	90	100	172	78	M4 × 10 pcs	368.5

Accessories (Optional parts)



Wall mounting bracket WGF series
See page 9



Pole mount bracket WGMB • WPMB series
See page 9 ~ 10



Pole mounting belt SNB • PKB series
See page 323 ~ 324



PCB mounting screw MT4-8T
See page 7



Tapping standoff TPS series
See page 122



Cable gland
See page 333 ~ 340



Terminal block WTB series
See page 8



Mounting plate WGP series
See page 7



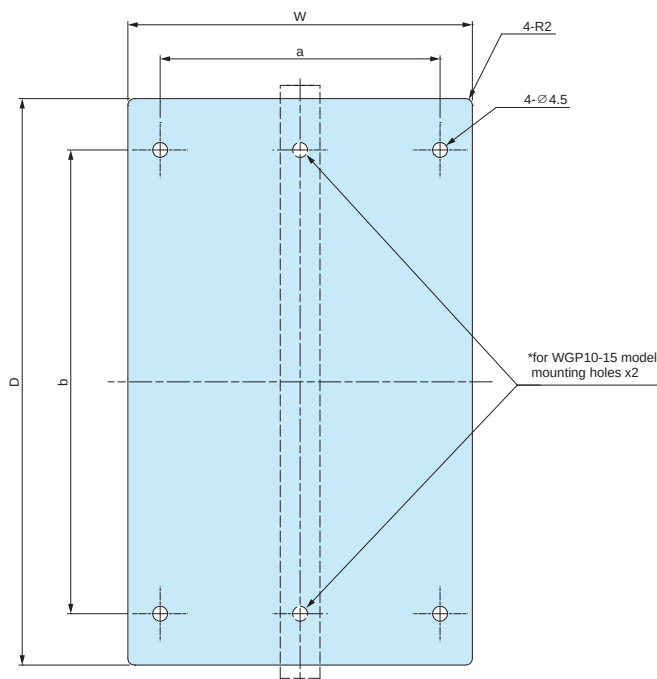
DIN rail FDR series
See website

WGP series

MOUNTING PLATE for WG • WGV

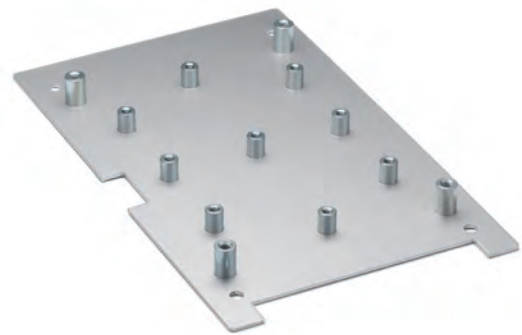


WGP dimensions



■ Material / Finish : A1100P (t=1.5mm) / Silver anodized

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



■ Hole milling, clinching spacer customizations are available.
See page Custom-7 ~ Custom-10 and our website for more details.

Product no. / Dimensions

■ Mounting screws included.

Product no.	W	D	a	b	Suitable models	Weight (g)
WGP10-15	60	112	—	97	WG • WGV10-15-6, WG • WGV10-15-8	30
WGP15-16	105	117	84.5	90	WG • WGV15-16-6, WG • WGV15-16-8	54
WGP15-21	104	171	84.5	140	WG • WGV15-21-6, WG • WGV15-21-9	76

MT4-8T

PCB MOUNTING SCREW

■ Self-tapping screws for board mounting on bosses inside WG and WGV series enclosures.



Product no. / Dimensions

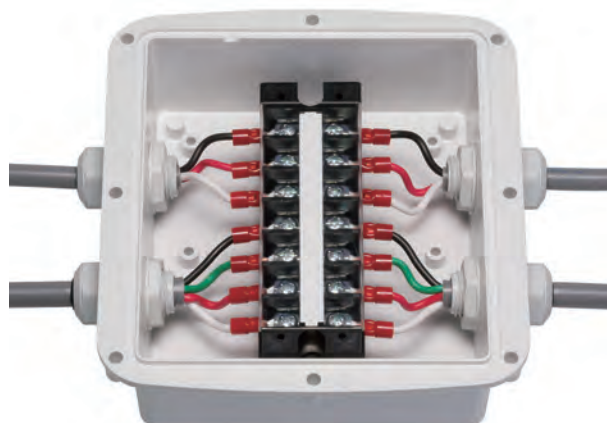
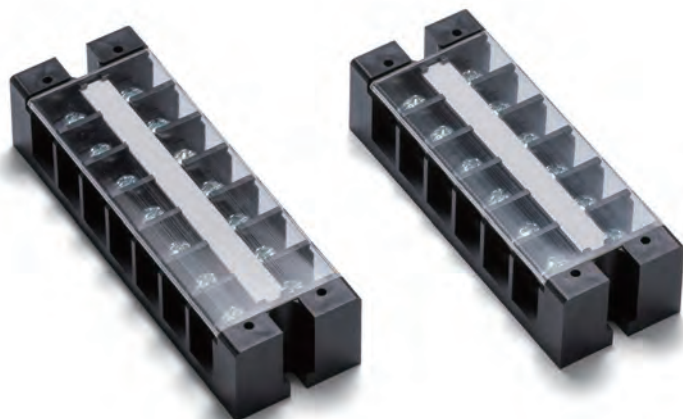
Product no.	Material	Finish	Pack of
MT4-8T (Bind tapping M4-8)	Steel	Trivalent chromate	20

WTB series

TERMINAL BLOCK for WG • WGV



(FW2)



■ Compatible terminal blocks for WG • WGV series.

Components

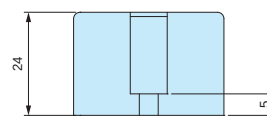
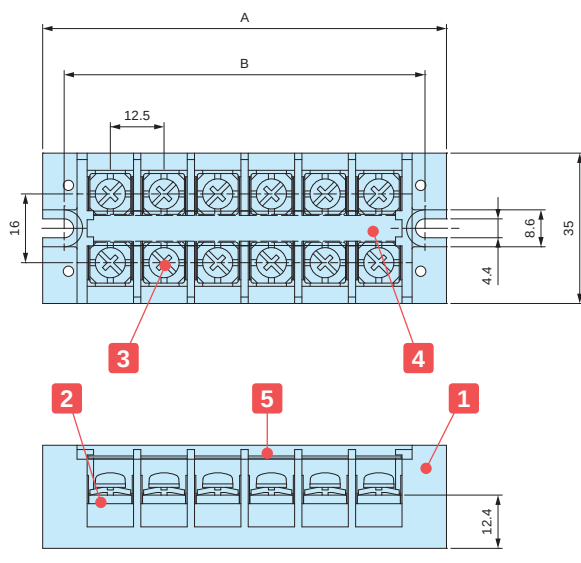
No.	Part name	Pcs	Material	Color or Finish
1	Base	1	PBT UL94V-0	Black
2	Conductive plate	1	Brass	Nickel plated
3	Terminal screw (M4-10)	2 x P	Steel	Trivalent chromate
4	Symbol board	1	PET	White
5	Cover	1	Polycarbonate UL94V-0	Transparent
—	Screw (Bind tapping M4-10)	2	Steel	Trivalent chromate

Specification

1. Electrical Rating 600V • 35A
2. Insulation Resistance DC500V 1000MΩ ~
3. Withstand Voltage AC2500V (Tested for 1 min.)
4. Rising Temp. 30°C or less
5. Operating Temp. Range -40°C ~ +90°C
6. Storage Temp. Range -40°C ~ +90°C

WTB dimensions

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



Product no. / Dimensions

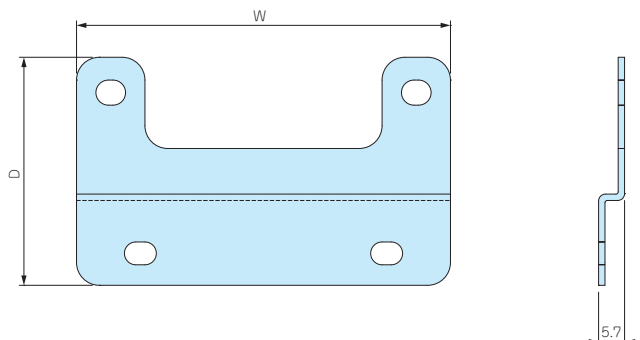
Product no.	P (Number of poles)	A	B	Suitable models
WTB-240- 3P-FB	3	56.5	46.5	WG • WGV10-15-□ (W direction)
WTB-240- 6P-FB	6	94.0	84.0	WG • WGV15-16-□, WG • WGV15-21-□ (W direction)
WTB-240- 7P-FB	7	106.5	96.5	WG • WGV10-15-□, WG • WGV15-16-□ (D direction)
WTB-240-10P-FB	10	144.0	134.0	WG • WGV15-21-□ (D direction)

WGF series

WALL MOUNTING BRACKET for WG • WGV



WGF dimensions



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

Product no. / Dimensions

■ Stainless steel mounting screws included.

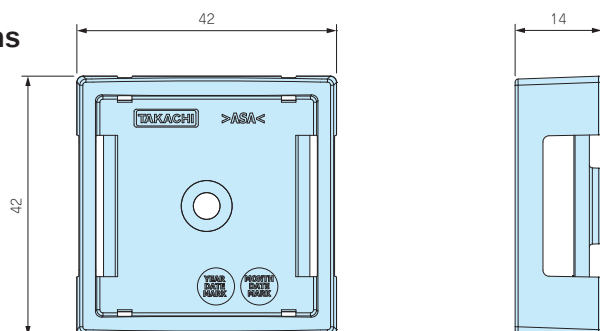
Product no.	W	D	Suitable models	Material / Finish	Pack of
WGF-10	82	50	WG • WGV10-15-□ (W direction)	Stainless steel t=1.5mm / Barrel finish	2
WGF-15	132	50	WG • WGV10-15-□ (D direction) WG • WGV15-21-□ (W direction) WG • WGV15-16-□ (W • D direction)		2

WGMB series

POLE MOUNTING BRACKET for WG • WGV



WGMB dimensions



■ Pole mount bracket made from weather resistant ASA material.

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

■ Hole milling is not required when installing the mount bracket, thus allowing the enclosure to maintain its IP rating.

■ WG • WGV10-15-□ and 15-16-□ can be installed in both the W or D direction.

■ Pole mount is possible with the use of SNB or PKB series mounting belt. (See page 323 ~ 324)

Product no. / Dimensions

Product no.	Suitable models	Material / Color	Weight (g)	Pack of
WGMB-1W	WG • WGV10-15-□ WG • WGV15-16-□ (1 pc required) WG • WGV15-21-□ (2 pcs required)	ASA UL94-HB / Off-white	9	1

Installation example

Installation (1 pc)

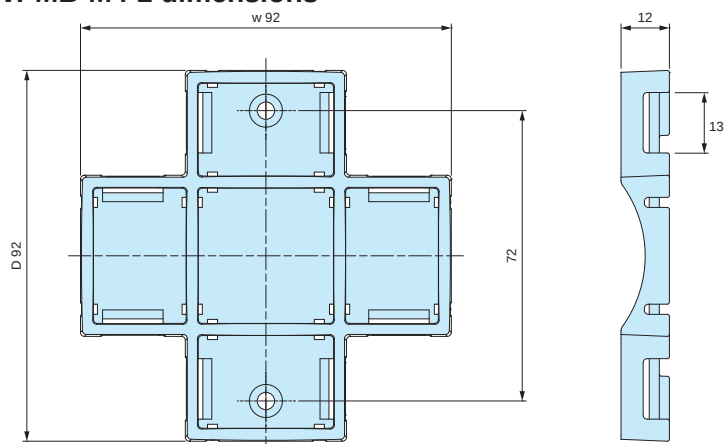
Installation (2 pcs)



WPMB-M4-2

POLE MOUNTING BRACKET

WPMB-M4-2 dimensions



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

- Pole mount bracket made from weather resistant ASA material.
 - Pole mounting belt can be installed either W or D direction.
 - Pole mount is possible with the use of PKB series mounting belt. (See page 324)
 - Hole milling is not required when installing the mount bracket, thus allowing the enclosure to maintain its protection class.
- *Stainless steel screw belt SNB series is not usable on WPMB-M4-2 series.

Color
White gray

Product no. / Dimensions

Product no.	Suitable models	Recommended torque (N · m)	Weight (g)	Pack of
WPMB-M4-2G	WG • WGV15-21-6, WG • WGV15-21-9	0.45 ~ 0.5	24	1

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

Installation example



Vertical mounting



Horizontal mounting



ECONOMICAL OUTDOOR NETWORK BOX

Unique construction rainproof box

OB series

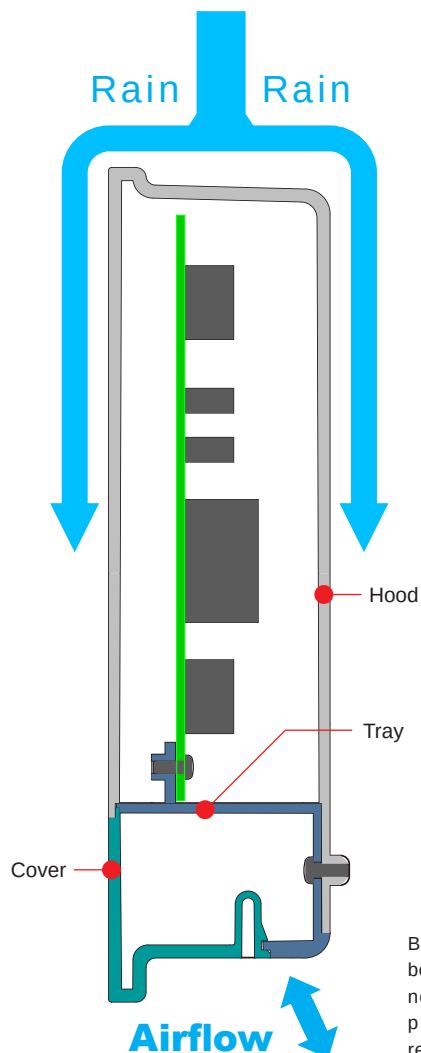
REASONS for ECONOMICAL

1. No Gasket required by the unique construction
2. Wall/Pole bracket integrated



Unique seamless construction

No rain entry by the seamless construction without gasket nor joint.



By having a slight gap between the cover and tray, no ventilation plug for the pressure equalization is required.

Wall • Pole mounting bracket integrated

The slit of the integrated bracket in the backside can hold the pole mounting belts. And the hanging holes can be utilize for wall mounting.



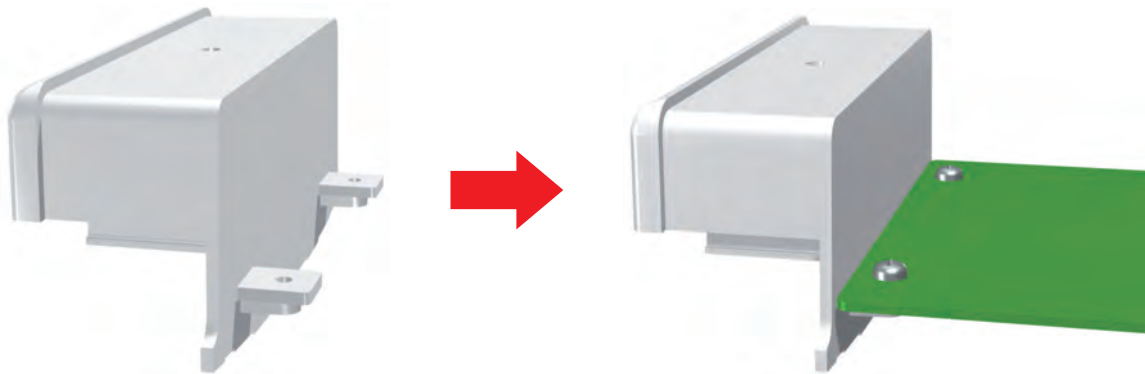
Weather-resistant ASA material

ASA material is resistant to deterioration and discoloration from ultraviolet rays. Perfect for use as outdoor communication or network devices.

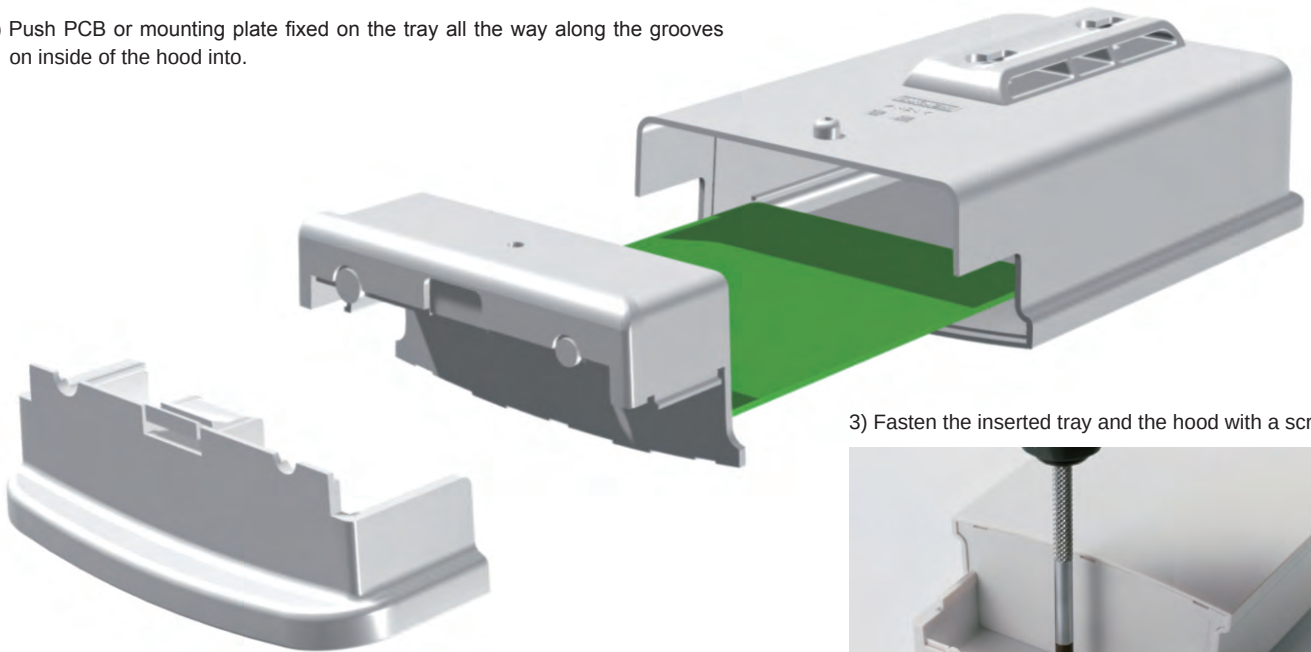


How to install PCB • Mounting plate

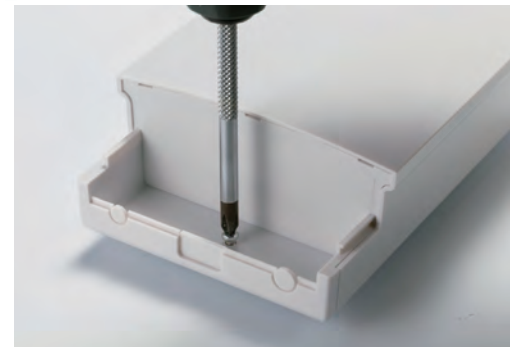
1) Fix PCB or mounting plate on the tray with screws.



2) Push PCB or mounting plate fixed on the tray all the way along the grooves on inside of the hood into.



3) Fasten the inserted tray and the hood with a screw.



Easy knock-out hole punching & cover replacement

Tray comes with knock-out holes for wiring. Knock-out holes can easily be punched out through with a plier or a nipper. The cover can be easily removed with one touch, hence it is a excellent structure for performing maintenance. For wiring, please machine cutout/hole on the side-wall of the tray as shown in the installation example below.



Connector installation example



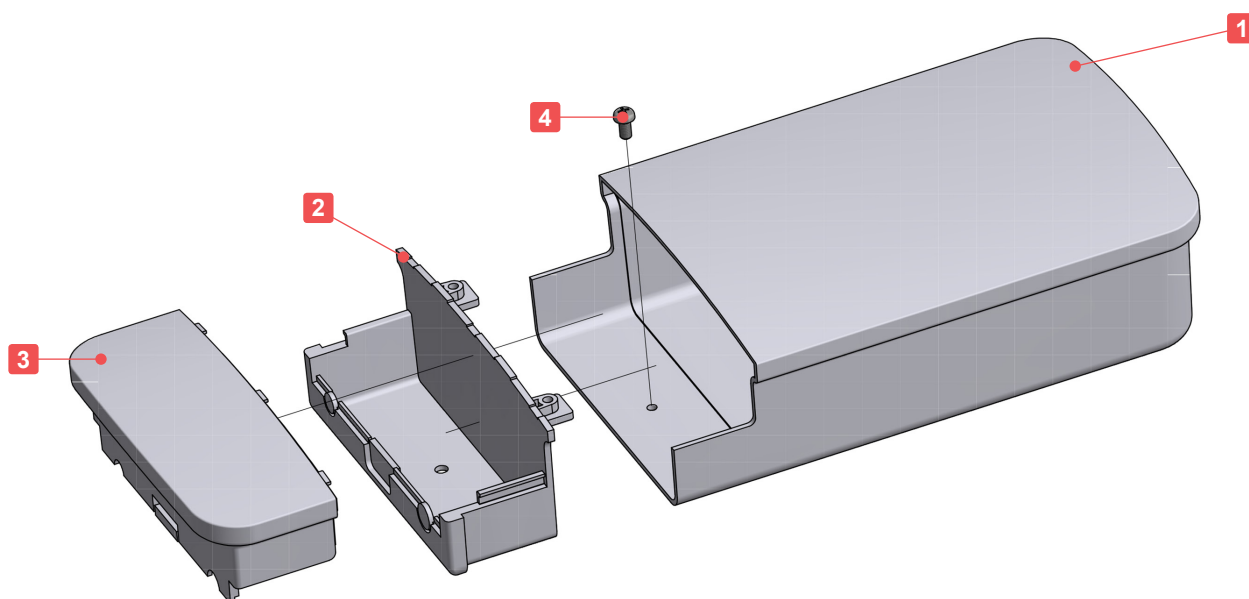


- Unique seamless construction and rainproof outdoor network box. Although it is IP44, it can completely protect the internal components against rain when installed vertically.
- ASA material is resistant to deterioration and discoloration from ultraviolet rays. Perfect for use as outdoor communication devices.
- Bracket integrated in the backside equipped with the slits allows for pole mounting belt to be passed through the slit for pole mounting, while the hanging holes enable it to be secured onto wall hooks or brackets.
- Tray comes with knock-out holes for wiring. Knock-out holes can easily be punched out through with a plier or a nipper.

**Technical Data**

Protection class : IP44
Operating temperature :
-30°C ~ +60°C

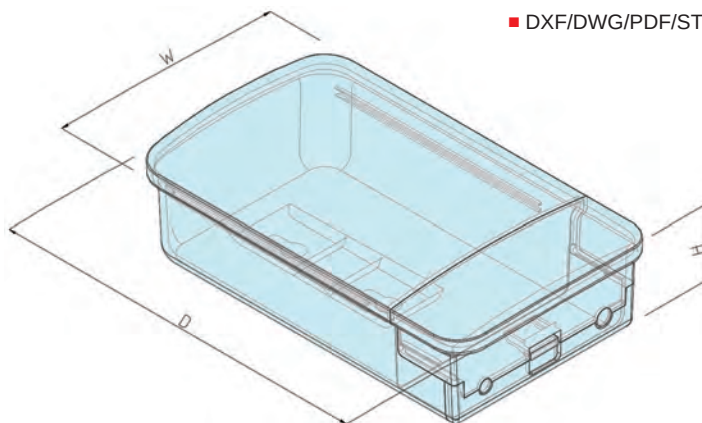
*May become brittle and break under impact when temperature is lowered close to -30°C.

**Components**

No.	Part name	Pcs	Material / Color
1	Hood	1	ASA UL94HB / Off-white
2	Tray	1	ASA UL94HB / Off-white
3	Cover	1	ASA UL94HB / Off-white
4	Screw (Tray/PCB installation)	3	Stainless steel / Unfinished

OB dimensions

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



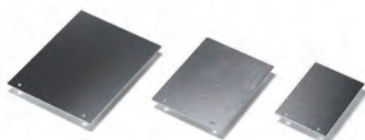
Product no. / Dimensions

Product no.	External dimensions			Knock-out holes
	W	D	H	
OB 8-14-4W	75	140	35	5.6Φ x1 • 7.2Φ x1
OB10-17-5W	100	170	45	5.6Φ x1 • 7.2Φ x1
OB13-21-6W	125	210	55	7Φ x1 • 10Φ x1

Accessories (Optional parts)



Pole mounting belt SNB • PKB series
See page 323 ~ 324

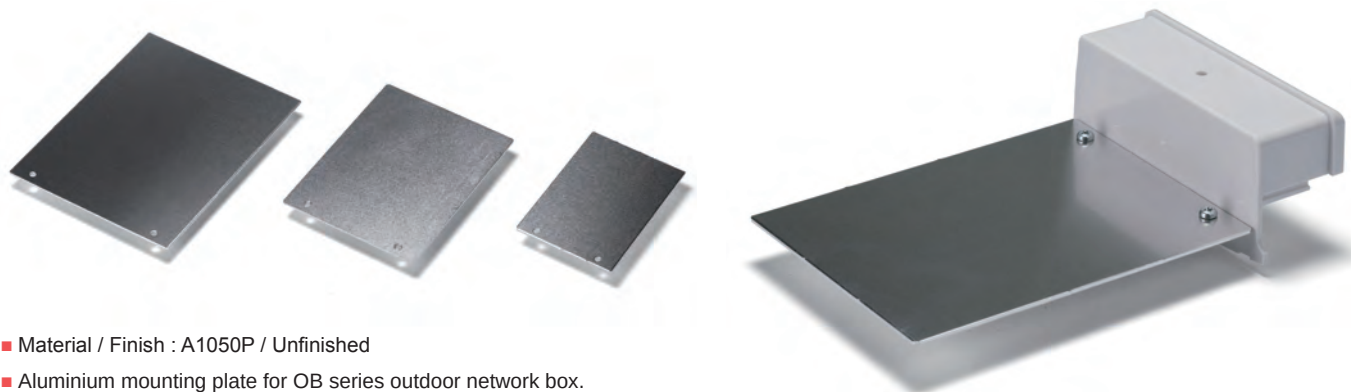


Mounting plate OBP series
See page 14

Accessories (Optional parts)

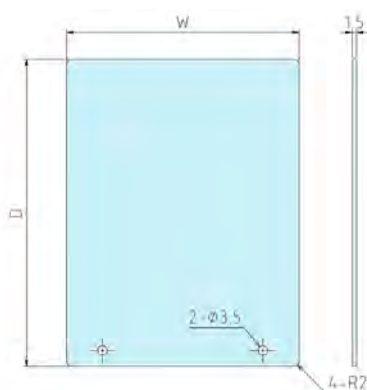
OBP series

MOUNTING PLATE for OB



- Material / Finish : A1050P / Unfinished
- Aluminium mounting plate for OB series outdoor network box.
- Recommended to be used for installing network module, sensor, terminal block, etc.

OBP dimensions



Product no. / Dimensions

Product no.	W	D	Suitable models	Weight (g)
OBP8-14	61.2	92	OB 8-14-4W	22.5
OBP10-17	87.1	115	OB10-17-5W	40
OBP13-21	110	137	OB13-21-6W	61

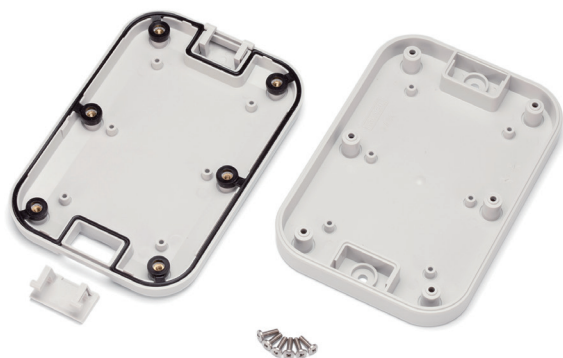
■ DXF/DWG/PDF drawings available on our website.

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 outdoor usage as a communication device type equipment.



Outdoor use example
Agriculture weather station

Easy installation on walls

Easy mounting onto walls 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.



Information on waterproofing after hole milling for switches

The waterproof performance will be lost once hole or cutout is milling on IP rated enclosure.
To ensure it remains waterproof after hole/cutout milling, IP rated membrane pad or overlay is required.



Product by Arrow7 (Japan)

WP series APPLICATION EXAMPLE

Outdoor Lighting Remote Controller

Product by GrowFlux (USA)



Leak Guard - Home Water Leak Detector

Product by Veimart (Finland)



Clay Pigeon Shooting Controller

Product by Viktor Gajadacs (Hungary)

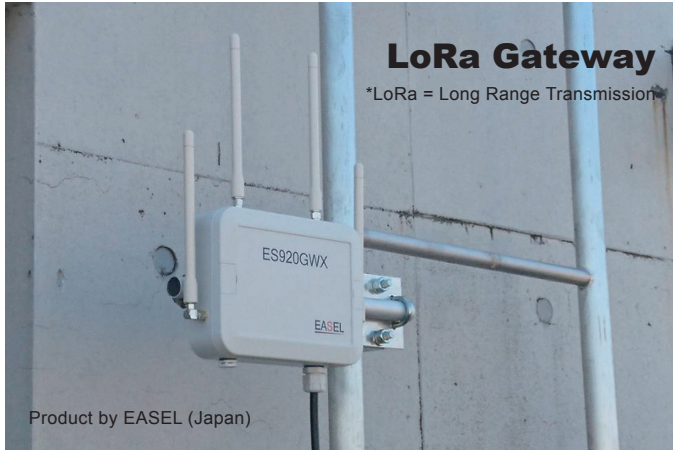


Wireless Temperature / Humidity Transmitter

Product by Masibus (India)



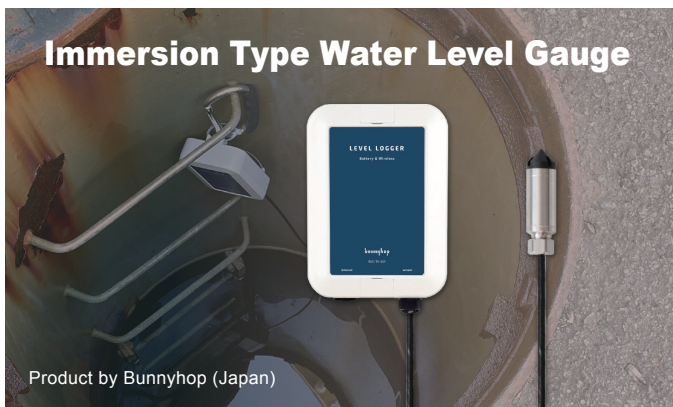
WP series APPLICATION EXAMPLE



LoRaWAN Gateway



Product by Miromico AG (Switzerland)



Outdoor Cloud Data Logger



Wireless Indoor Air Monitoring System

Product by Pietiko (Finland)



LoRa WAN Pressure Transmitter

Product by ellenex (Australia)



Sigfox Multi Sensor

Product by OMICRON (Columbia)



Network Sensor for Agriculture

Product by Demand Side Instruments (France)



Argonomic Parameter Surveillance Unit



Product by
Argotec (Spain)

Crop Growing Remote Monitoring Device

Product by Wondernica (Malaysia)



Bird/Beast Damage Control Sensor

Product by Kyowa Techno (Japan)





- IP68 (IP67 for WP20-28-○) high performance plastic box protected from immersion as long as 24 hours at 1m depth.
- 24 different sizes available in white gray UV-resistant ASA and charcoal gray flame-resistant ABS. Recommended for use as outdoor communication or network devices.
- Mount on walls or brackets by simply opening the blind lids.
- Pole mounting is possible via an optional pole mounting bracket accessory.

IP67 IP68

Technical Data

Protection class :

IP68 (24-hours/1m-depth)
 WP20-28-5□ } IP67
 WP20-28-7□ }

Operating temperature :

Models = 5-7-□ ~ 20-20-□:
 ASA¹-20 ~ +60°C
 ABS -10 ~ +50°C

Models = 20-28-□² :
 ASA¹-20 ~ +55°C
 ABS -10 ~ +45°C

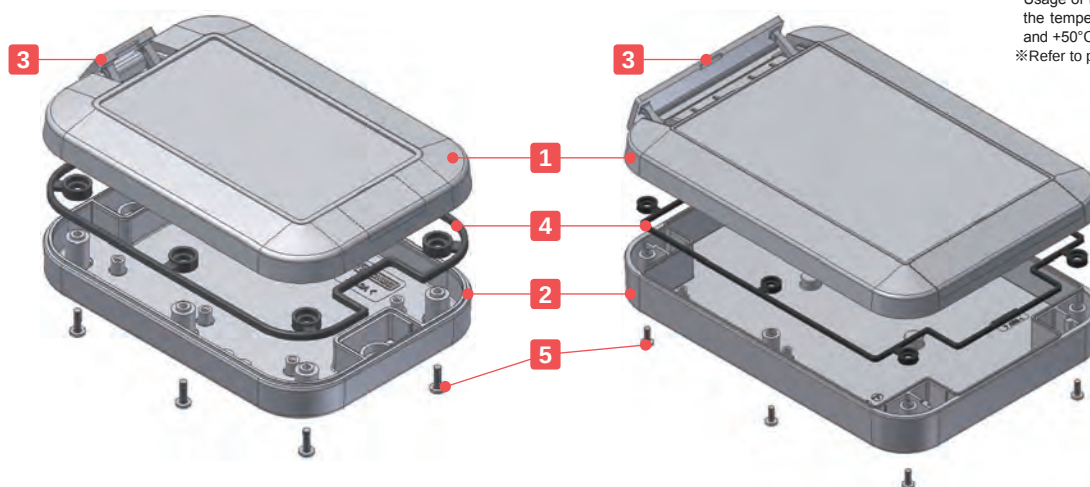
¹ May become brittle and break under impact when temperature is lowered close to -20°C.

² Usage of the PMF series protective vent will raise the temperature limit for ASA and ABS to +60°C and +50°C respectively.

※Refer to page 23 for more information.

WP5-7-2 ~ WP13-18-5

WP15-15-4 ~ WP20-28-7

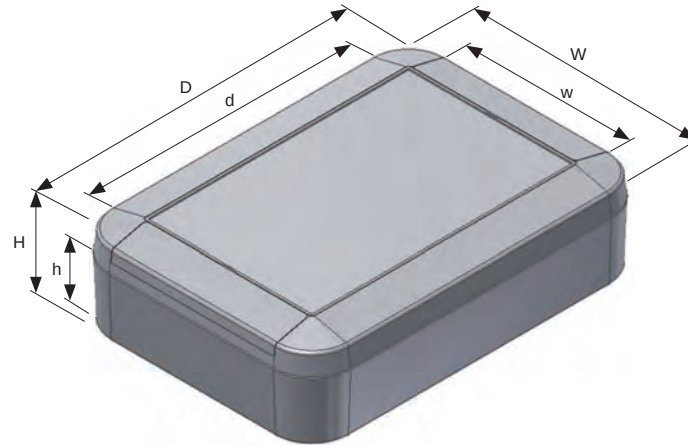


Components

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

WP dimensions

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



Product no. / Dimensions

Product no.		IP Code	External dimensions			Internal dimensions			Screw	Recommended torque (N · m)	Weight (g)
● White gray (ASA)	● Charcoal gray (ABS)		W	D	H	w	d	h			
WP 5- 7-2G	WP 5- 7-2C	IP68	52	65	18	46	37	13	M2-8 × 4pcs	0.2 ~ 0.25	31.5
WP 5- 7-3G	WP 5- 7-3C	IP68	52	65	27	45	36.5	22	M2-8 × 4pcs	0.2 ~ 0.25	39.5
WP 6- 8-2G	WP 6- 8-2C	IP68	60	80	20	53.5	52	14.7	M2-8 × 4pcs	0.25 ~ 0.3	41.5
WP 6- 8-3G	WP 6- 8-3C	IP68	60	80	30	53	51	24.7	M2-8 × 4pcs	0.25 ~ 0.3	49
WP 8- 8-2G	WP 8- 8-2C	IP68	75	75	22	67	42	16.4	M2.5-8 × 4pcs	0.25 ~ 0.35	57.5
WP 8- 8-4G	WP 8- 8-4C	IP68	75	75	35	66	42	29.4	M2.5-16 × 4pcs	0.25 ~ 0.35	88.5
WP 8-10-2G	WP 8-10-2C	IP68	75	100	22	67	67	16	M2.5-8 × 4pcs	0.25 ~ 0.35	74
WP 8-10-4G	WP 8-10-4C	IP68	75	100	35	66	67	29	M2.5-16 × 4pcs	0.25 ~ 0.35	95
WP 9-13-3G	WP 9-13-3C	IP68	90	130	25	81	91	18	M2.5-8 × 6pcs	0.25 ~ 0.35	113
WP 9-13-4G	WP 9-13-4C	IP68	90	130	40	81	91	33	M2.5-16 × 6pcs	0.25 ~ 0.35	141
WP10-10-3G	WP10-10-3C	IP68	100	100	25	90	61	18	M2.5-8 × 4pcs	0.25 ~ 0.35	96
WP10-10-4G	WP10-10-4C	IP68	100	100	40	90	61	33	M2.5-16 × 4pcs	0.25 ~ 0.35	121
WP11-15-3G	WP11-15-3C	IP68	110	150	27	100	110	20	M2.5-8 × 6pcs	0.25 ~ 0.35	153
WP11-15-4G	WP11-15-4C	IP68	110	150	40	100	110	33	M2.5-16 × 6pcs	0.25 ~ 0.35	181
WP13-18-3G	WP13-18-3C	IP68	130	175	30	120	135	23	M2.5-8 × 6pcs	0.25 ~ 0.35	225
WP13-18-5G	WP13-18-5C	IP68	130	175	45	120	135	38	M2.5-16 × 6pcs	0.25 ~ 0.35	266
WP15-15-4G	WP15-15-4C	IP68	150	150	40	141	100	33.5	M3-8 × 4pcs	0.35 ~ 0.45	239
WP15-15-6G	WP15-15-6C	IP68	150	150	55	140	100	48.5	M3-8 × 4pcs	0.35 ~ 0.45	282.5
WP15-21-4G	WP15-21-4C	IP68	150	210	40	141	160	33.5	M3-8 × 6pcs	0.35 ~ 0.45	323
WP15-21-6G	WP15-21-6C	IP68	150	210	55	140	160	48.5	M3-8 × 6pcs	0.35 ~ 0.45	367.5
WP20-20-5G	WP20-20-5C	IP68	200	200	45	190	150	38.5	M3-8 × 8pcs	0.45 ~ 0.55	446
WP20-20-7G	WP20-20-7C	IP68	200	200	65	189	149	58.5	M3-8 × 8pcs	0.45 ~ 0.55	524.5
WP20-28-5G	WP20-28-5C	IP67	200	280	45	190	230	38.5	M3-8 × 8pcs	0.45 ~ 0.55	557.5
WP20-28-7G	WP20-28-7C	IP67	200	280	65	189	229	58.5	M3-8 × 8pcs	0.45 ~ 0.55	646

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

Accessories (Optional parts)

Pole mount bracket WPMB series
See page 21Rubber feet PFRF series
See page 22TORX screw MR series
See page 22PCB mounting screw EM series
See page 123Protective vent PMF series
See page 325 ~ 326Cable gland
See page 333 ~ 340Pole mounting belt PKB-10 series
See page 324Tapping standoff TPS series
See page 122

WPMB series

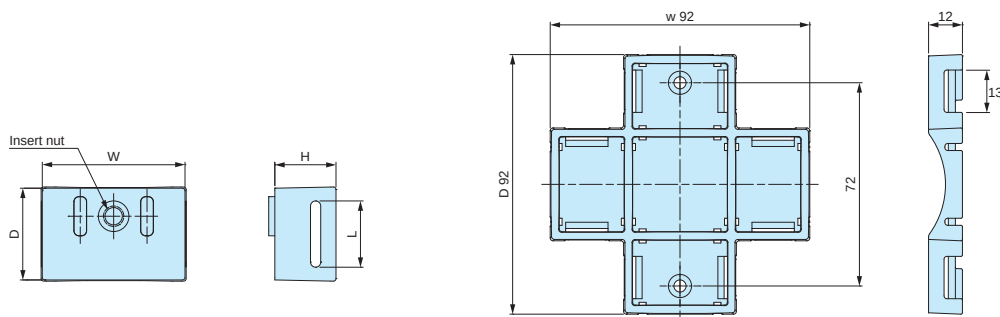
POLE MOUNTING BRACKET for WP



- 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 for both vertical and horizontal installation.
- Together with WPMB series, the PKB series mounting belt allows the unit to be mounted onto a pole.

WPMB dimensions

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



WPMB-M3 • WPMB-M4

WPMB-M4-2

Color Type

Code	Color
G	White gray
D	Dark gray

Product no. / Dimensions

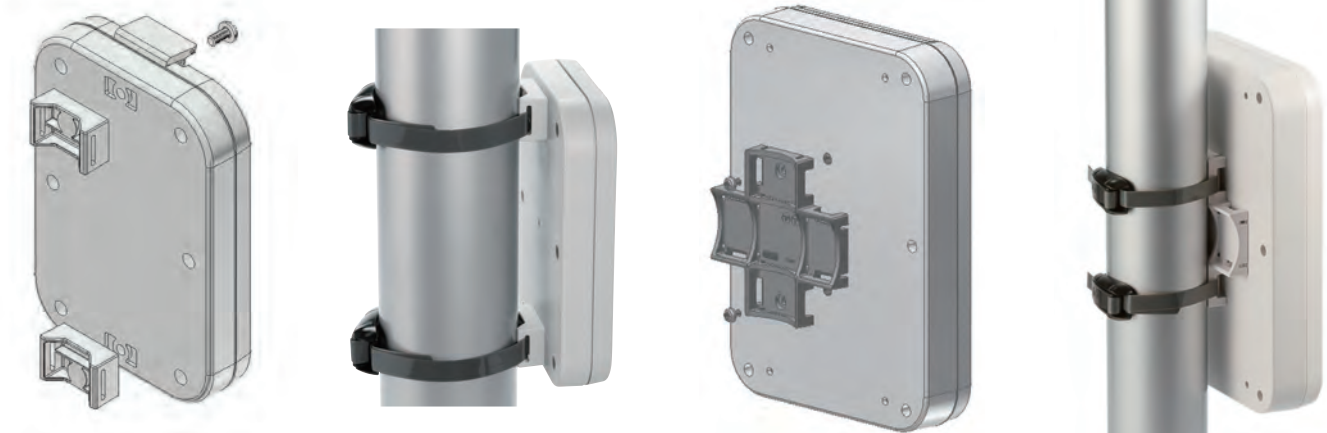
■ Please suffix color code at the end of the product number.

Product no.	Dimensions				Screw	Suitable models	Recommended torque (N • m)	Weight (g)	Pack of
	W	D	H	L					
WPMB-M3□	18	14	9.5	11	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
WPMB-M4□	28	18	12	13	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
WPMB-M4-2□	92	92	12	13	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

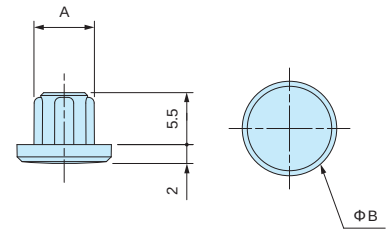


PFRF series

RUBBER FEET



PFRF dimensions



■ STP drawings available on our website.

- Recommended to be used with WP series as a desktop-type unit.
- No additional hole milling is 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

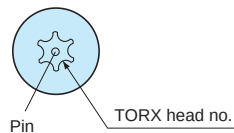
Product no.	Dimensions		Material	Color	Suitable models	Pack of
	A	B				
PFRF-M2.5D	6.4	10	Elastomer UL94HB	Dark gray	WP8-8-2 • 8-8-4 • 8-10-2 • 8-10-4 • 9-13-3 • 9-13-4 • 10-10-3 • 10-10-4 • 11-15-3 • 11-15-4 • 13-18-3 • 13-18-5	4
PFRF-M3D	7.2	11	Elastomer UL94HB	Dark gray	WP15-15-4 • 15-15-6 • 15-21-4 • 15-21-6 • 20-20-5 • 20-20-7 • 20-28-5 • 20-28-7	4

MR series

TORX SCREW



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 models	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
MR3-8ST	3	8	T 10 (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

Effect of PMF protective vent on WP series box

WP series enclosure comes with a silicone gasket, which allows the enclosure to be airtight when assembled.

When used in environments where there are large temperature fluctuations or differences, the internal and external pressure will become uneven. If this pressure within is unable to be properly vented, it may cause the enclosure to deform and warp.

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 pcs / 2. WP20-28-7G with PMF-12HAS - 2 pcs

Test Conditions

Device : Constant temperature/humidity test chamber - LH43-W14P

Make : NAGANO SCIENCE CO., LTD.

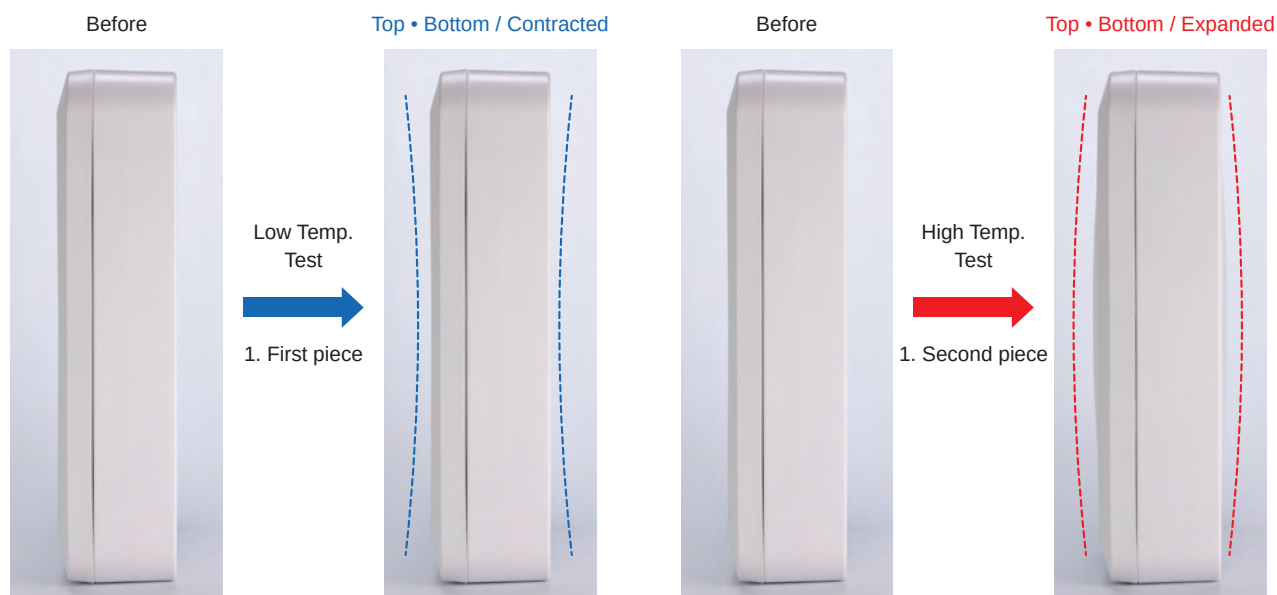
Testing in -20°C ~ +60°C (Operating temperature for WP series)

Low Temperature : -20°C / 96 hours • High Temperature : +60°C / 96 hours

Test Result

1. WP20-28-7G - 2 pcs

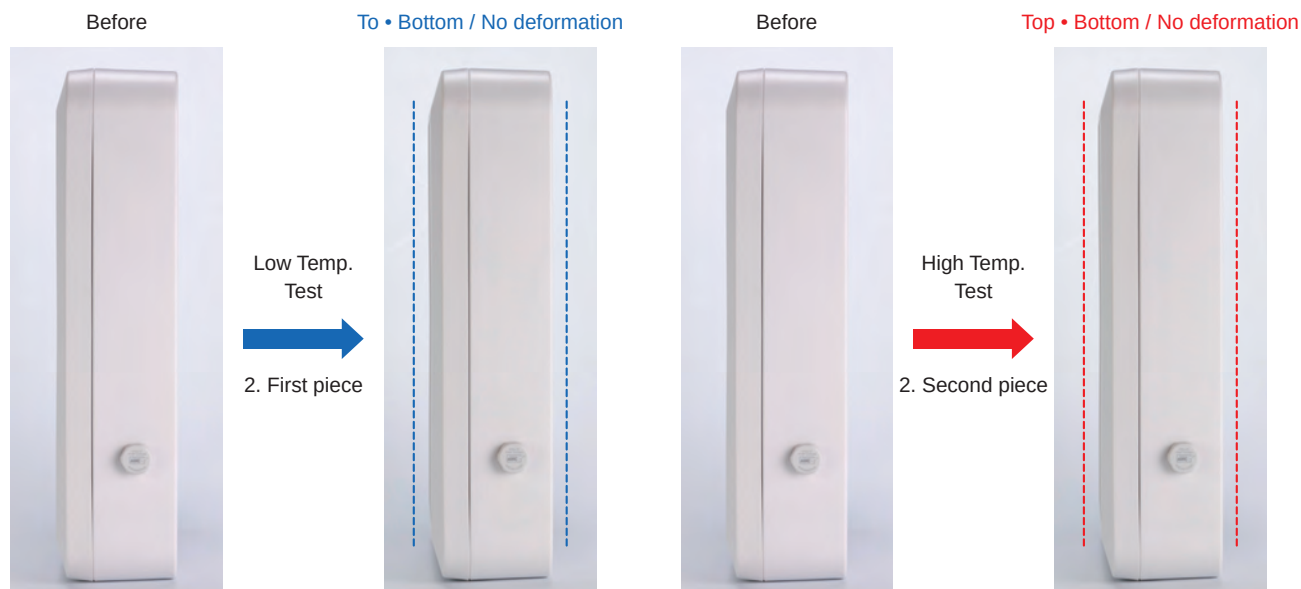
Uneven internal and external pressure causes deformation of the enclosure.



Test Result

2. WP20-28-7G with PMF-12HAS - 2 pcs

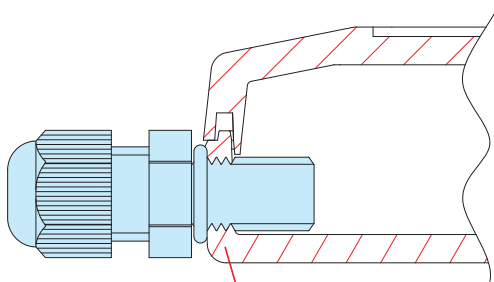
Equalized pressure from the usage of a protective vent prevents deformation of the enclosure.



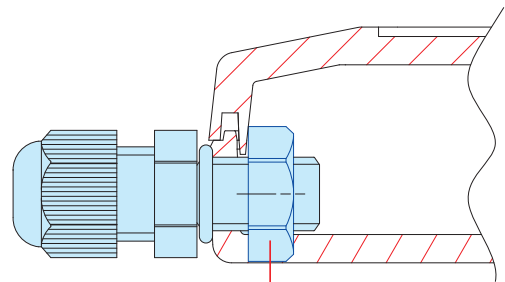
Information on installation of cable glands



- When affixing on cable glands to areas without sufficient space, the nut may not be able to be properly secured on.
For such instances, a thread-hole should be made for the cable gland to be directly screwed into without utilizing the nut.

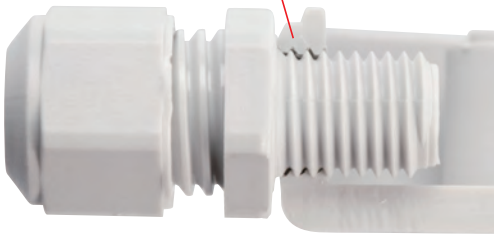


Cross-section



Obstruction

- Thread-hole sizes from M6~M32, and PG7~PG21 are possible with our customization services



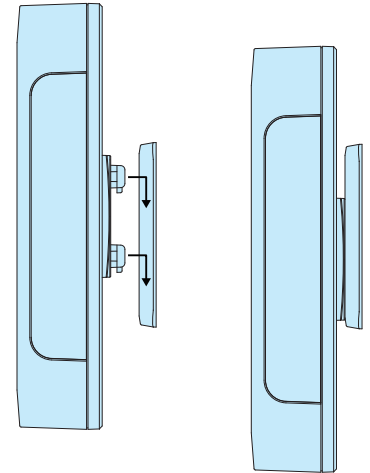
- Please utilize a cable gland from our available range of cable gland accessories.
Refer to page 333 ~ 340 for more information.



WM series

SUSPENSION BRACKET

How to install



- Plastic wall mounting bracket. Easy attachment and removal.
- Large and small bracket types are available.
- Applicable to be used on plastic or metallic enclosures with a panel thickness of 0.8 ~ 3.5mm.
- To attach the suspension hook onto the enclosure, hole milling is required.
- Please be aware of the insertion direction of the suspension hook against the mounting base when attaching.

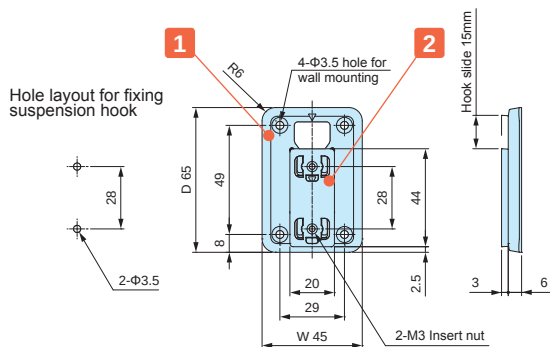
Technical Data

Max load : 2 kg - WM-1
5 kg - WM-2

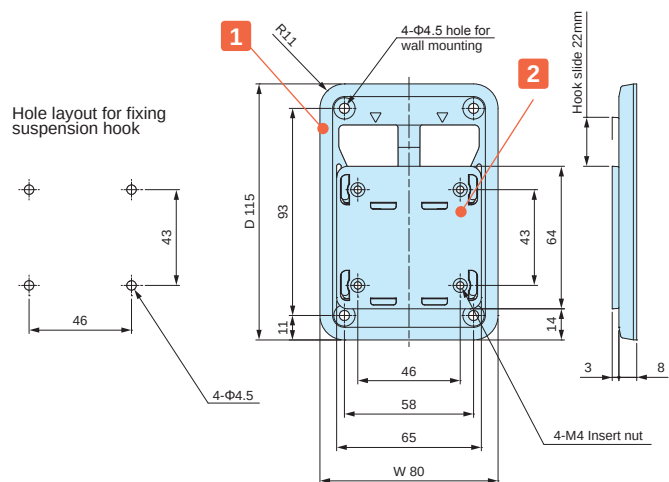
*The max load values listed are static load values only. Use caution when handling.

WM dimensions

WM-1



WM-2



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

Components

No.	Part name	Pcs	Material	Color / Finish
1	Mounting base	1	PC + ABS UL94HB	Off-white • Dark gray
2	Suspension hook	1	PC + ABS UL94HB	Off-white • Dark gray
-	Screw	2 (WM-1) 4 (WM-2)	Steel	Nickel plated

Included Screw WM-1□ : Bind M3-8
WM-2□ : Bind M4-8

Product no. / Dimensions

Product no.		W	D	Mountable thickness	Weight (g)
● Off-white	● Dark gray				
WM-1W	WM-1D	45	65	t0.8 ~ t3.5	11.5
WM-2W	WM-2D	80	115	t0.8 ~ t3.5	48

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



Transmitter • Network Equipment



RFID Card Reader



RFID Reader for ICT Entry/Exit System "KIDSNA connect" for Daycare/Preschool



Product by nextbeat (Japan)

Information on waterproofing after hole milling for switches

The waterproof performance will be lost once hole or cutout is machined on an IP rated enclosure. To ensure it remains waterproof after hole/cutout machining, IP rated membrane pad or overlay is required.



Information on affixing of cables into waterproof enclosures

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 equipment.

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 M2.5-8	Unfinished
5	Rubber feet	4	Polyurethane	Transparent

Accessories (Optional parts)



PCB mounting screw EM series
See page 123



Adhesive standoff AST series
See page 121



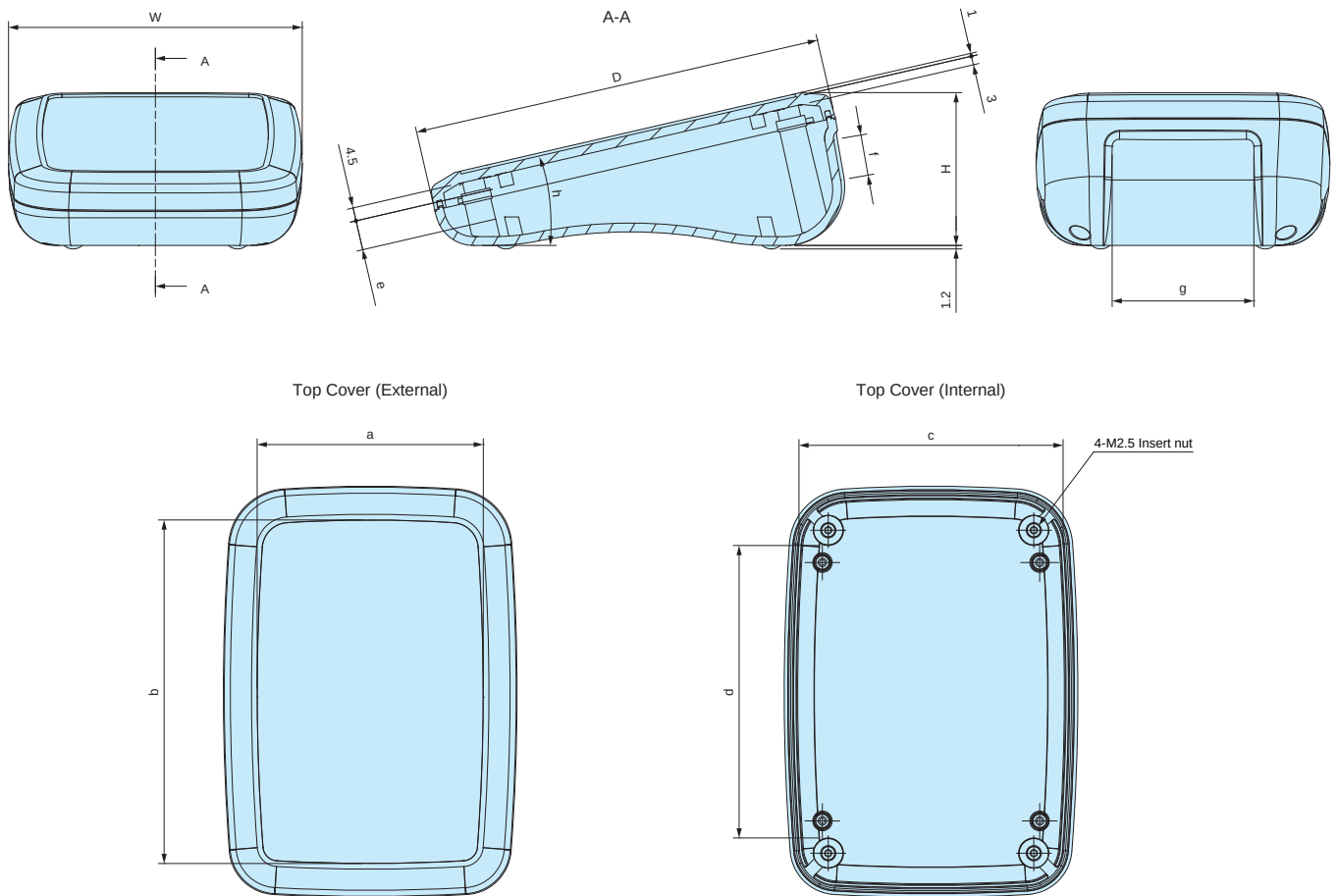
TORX screw MR series
See page 123



Cable gland
See page 333 ~ 340

WSC dimensions

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



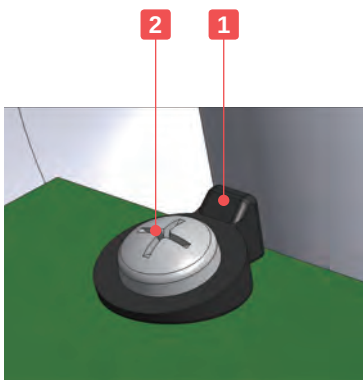
Product no. / Dimensions

Product no.		Dimensions										Face angle	Weight (g)
● Off-white	● Black	W	D	H	a	b	c	d	e	f	g	h	
WSC10-14-5W	WSC10-14-5B	100	140	52	77	117	87	100	10	13.9	48.2	13°	145
WSC10-14-7W	WSC10-14-7B	100	140	72	77	117	87	100	22	27.4	48.2	18°	168
WSC14-14-5W	WSC14-14-5B	140	140	52	117	117	128	100	10	13.8	80.5	13°	190
WSC14-14-7W	WSC14-14-7B	140	140	72	117	117	128	100	22	27.4	80.5	18°	218
WSC18-14-5W	WSC18-14-5B	175	140	52	152	117	163	95	11.3	13.8	103.5	13°	234
WSC18-14-7W	WSC18-14-7B	175	140	72	152	117	163	95	23.7	27.4	103.5	18°	262

Accessories (Optional parts)

WSP-M2.3

INCLINED SPACER for WSC



- 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 123)



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

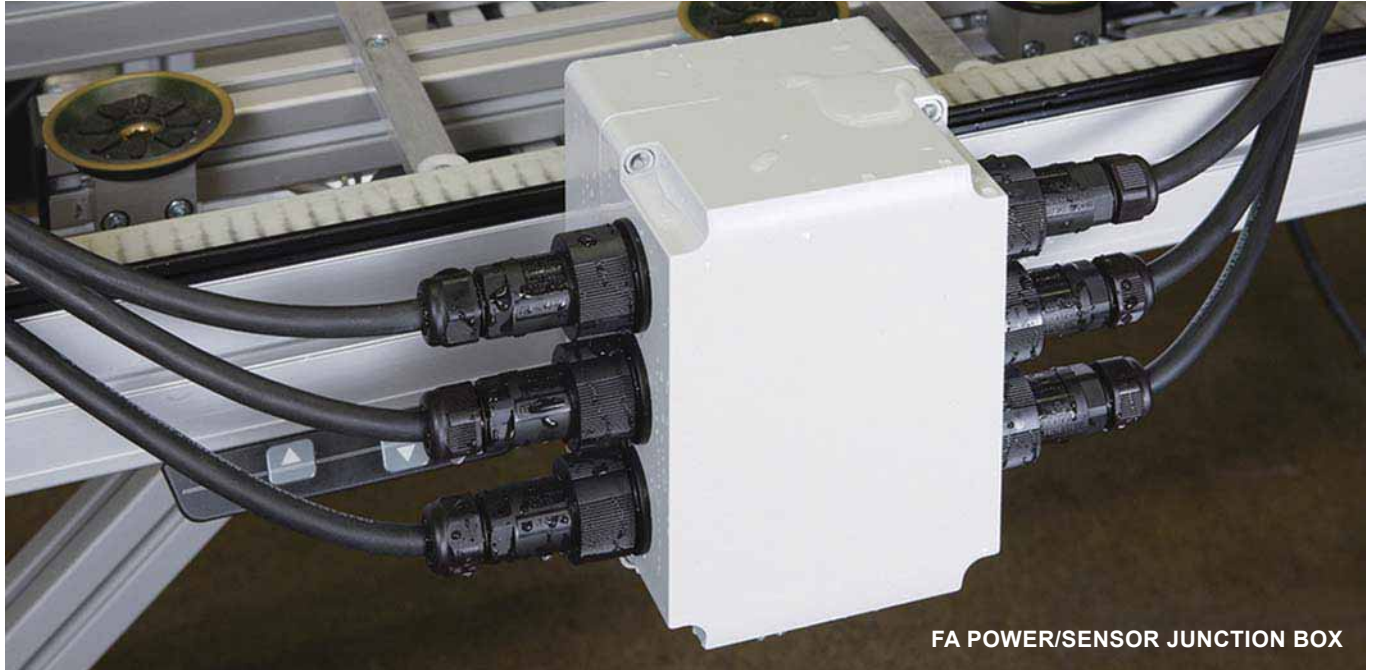
Product no.	Suitable models	Pack of
WSP-M2.3	WSC (for bottom base PCB boss)	4

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

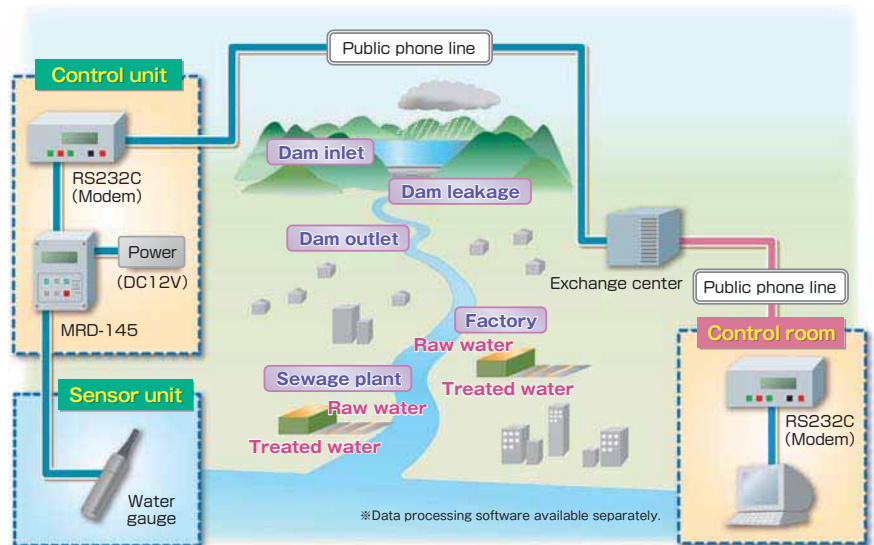


METEOROLOGICAL MONITOR



WATER LEVEL METER

Product by HOKUTO RIKEN (Japan)



DIGITAL ANEMOMETER

Product by North One (Japan)



SENSOR NETWORK MONITOR

Product by KYOSAI TECHNOLOGIES (Japan)



FIELD DATA LOGGER

Product by M.C.S (Japan)



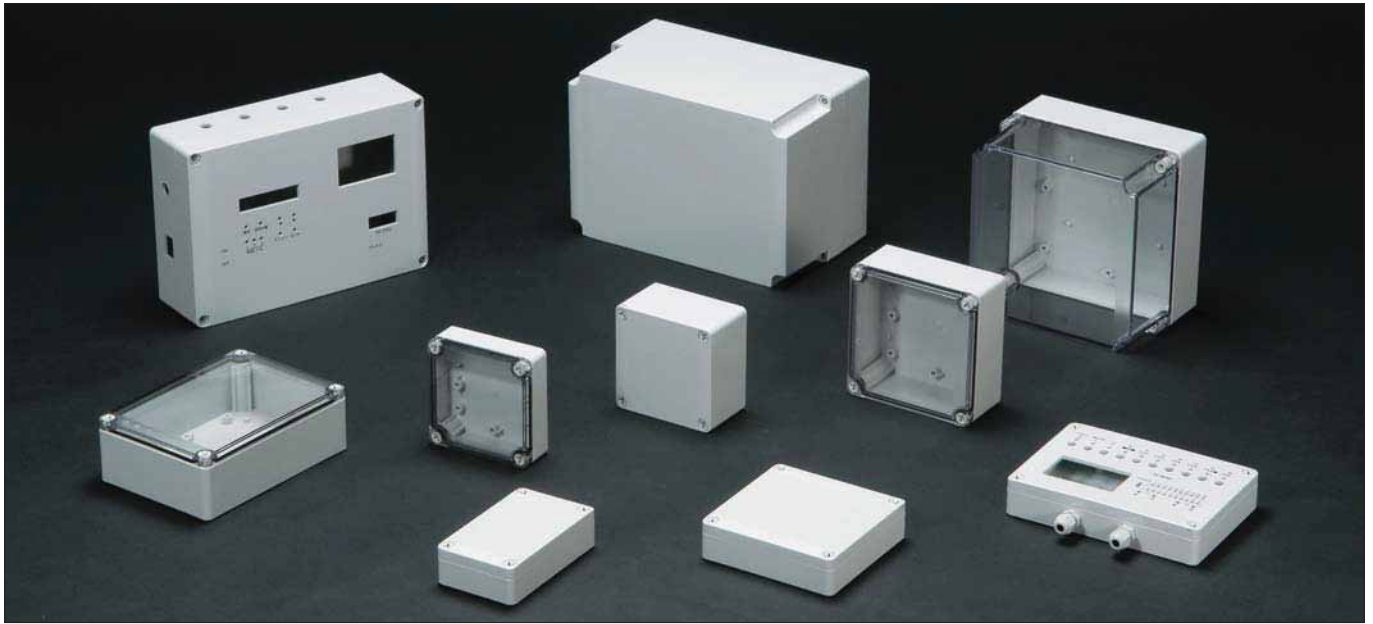
MONITORING CAMERA

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



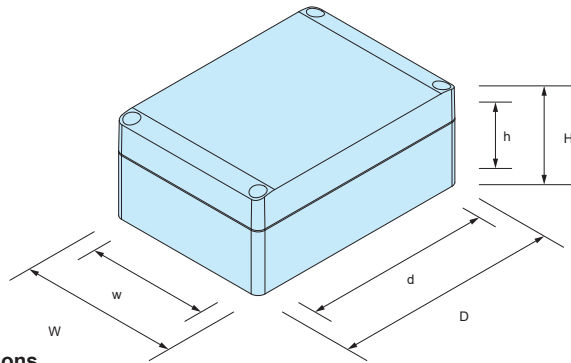
- Tough polycarbonate material for superior impact resistance.
- Available in 28 different sizes, with 2 different cover types (white gray and transparent).
- Suitable to be used as terminal junction box, control box, communication unit and so on.
- Mountable on walls by using the cover holes for fastening.

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

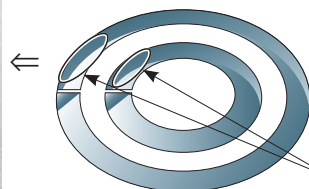


Technical Data

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.

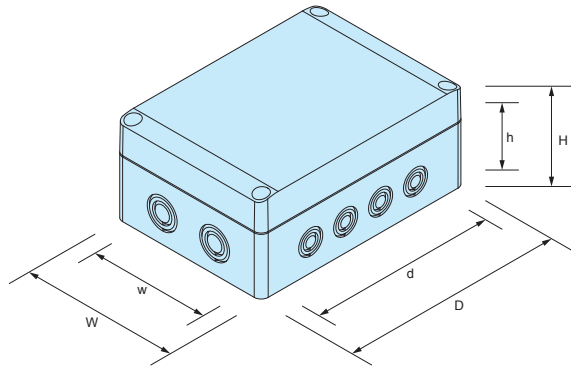
"A" point

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

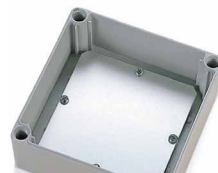
Accessories (Optional parts)



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



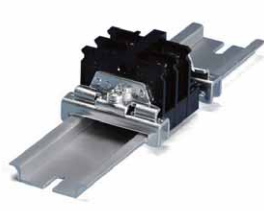
Cable gland
See cable gland pages



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

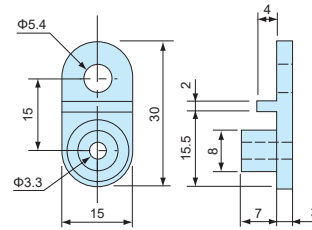


Pole mounting bracket & belt SSK, PKB series
See page SSK-1 ~ SSK-4



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



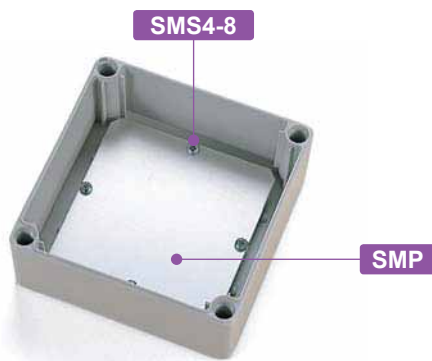
- Mounting screws for PCB mounting on SPCP • SPCM series.
※ 1 set included with each SPCP • SPCM enclosure.

Product no. / Feature

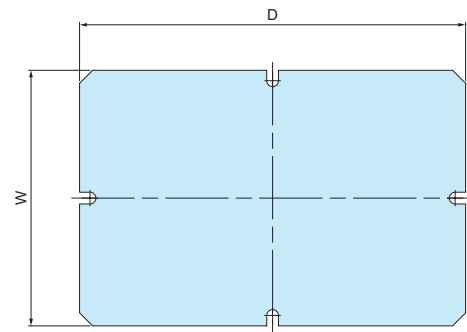
Product no.	Material	Screw	Pcs
SMS4-8 (M4-8 Pan head tapping)	Steel	Trivalent chromate	4

SMP SERIES ALUMINIUM MOUNTING PLATE

SMP dimensions



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



Product no. / Dimensions

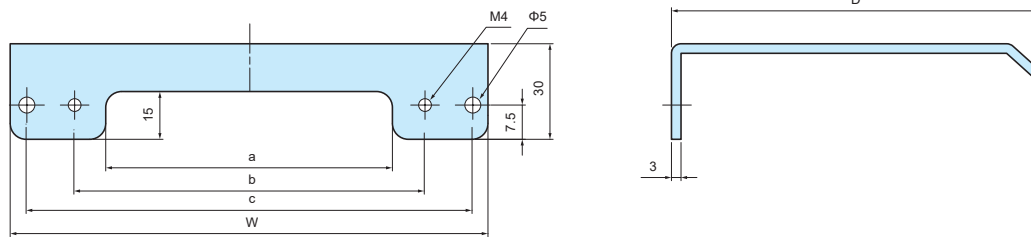
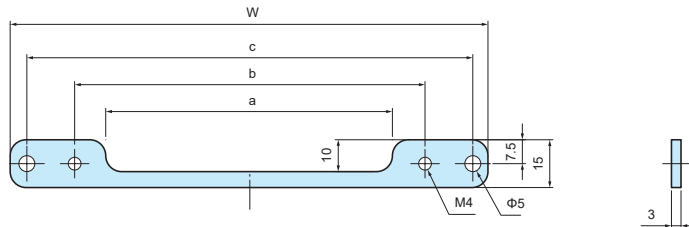
Product no.	Suitable box	W	D	Weight (g)
SMP0813	SPCM • SPCP0813	48	98	18
SMP1010	SPCM • SPCP1010	78	78	24
SMP1313	SPCM • SPCP1313	98	98	40.5
SMP1318	SPCM • SPCP1318	98	148	61
SMP1818	SPCM • SPCP1818	148	148	93
SMP1825	SPCM • SPCP1825	148	223	140.5

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



SR SERIES**OUTDOOR ROOF for SPCM • SPCP**

- 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

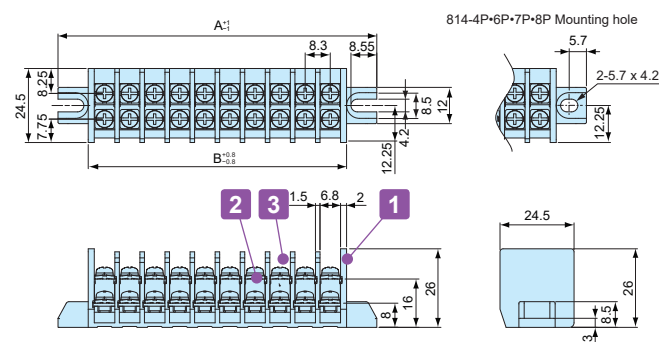
 (FW2)


■ 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

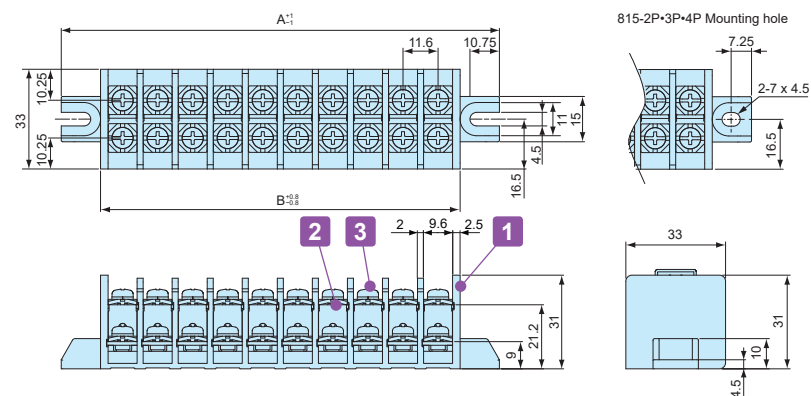
STB-814



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

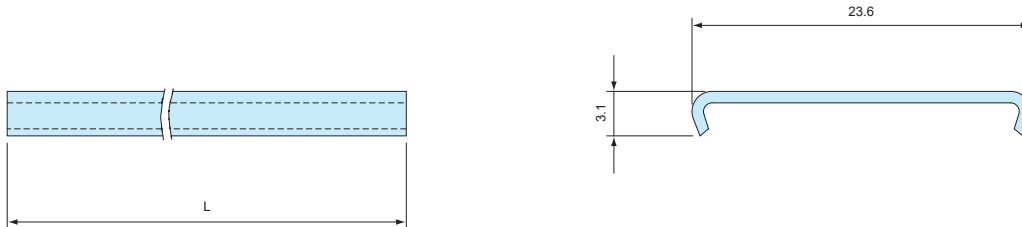
STC SERIES

TERMINAL COVER

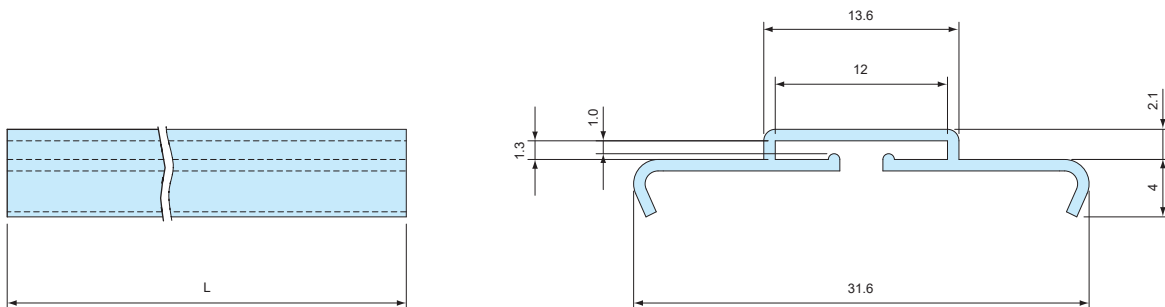


- Terminal cover for STB terminal block.
- Use for protecting terminals.

STC814



STC815



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

Product no. / Dimensions

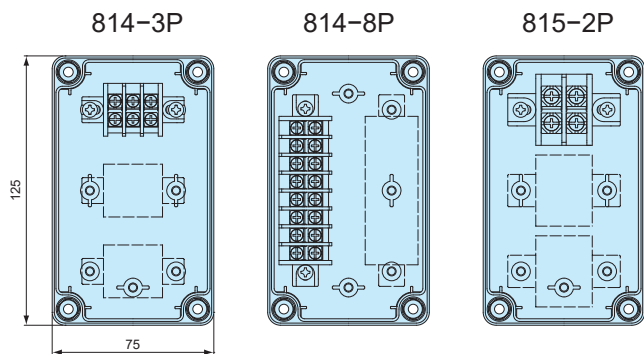
Product no.	P (Number of poles)	L	Compatible terminal
STC814- 3P	3	22.4	STB814- 3P
STC814- 4P	4	30.7	STB814- 4P
STC814- 6P	6	47.3	STB814- 6P
STC814- 7P	7	55.6	STB814- 7P
STC814- 8P	8	63.9	STB814- 8P
STC814- 9P	9	72.2	STB814- 9P
STC814-10P	10	80.5	STB814-10P
STC815- 2P	2	20.2	STB815- 2P
STC815- 3P	3	31.8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

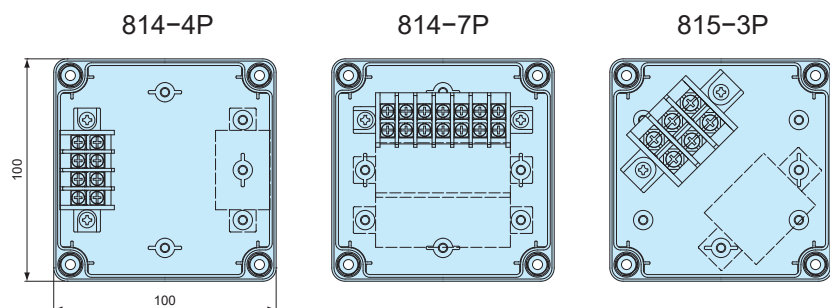
■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

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

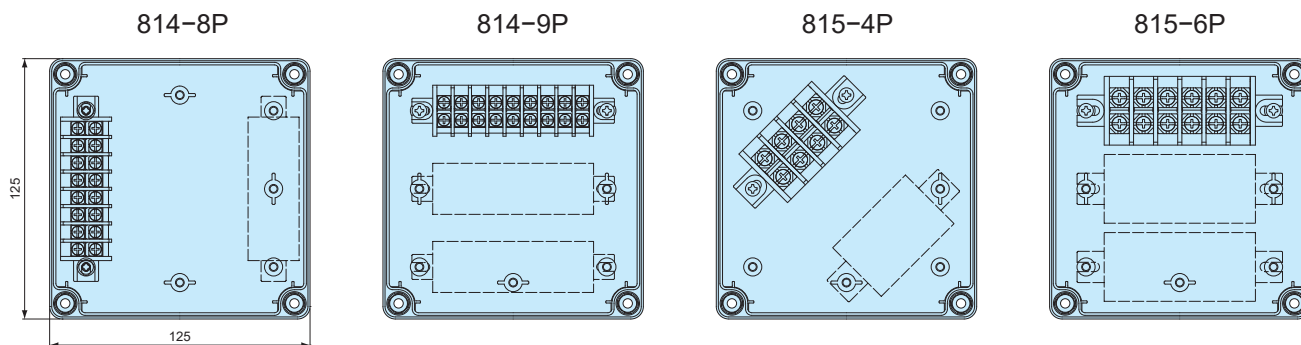
Suitable box SPCM/SPCP 081305 • 081306 • 081308 • 081310 • 081313



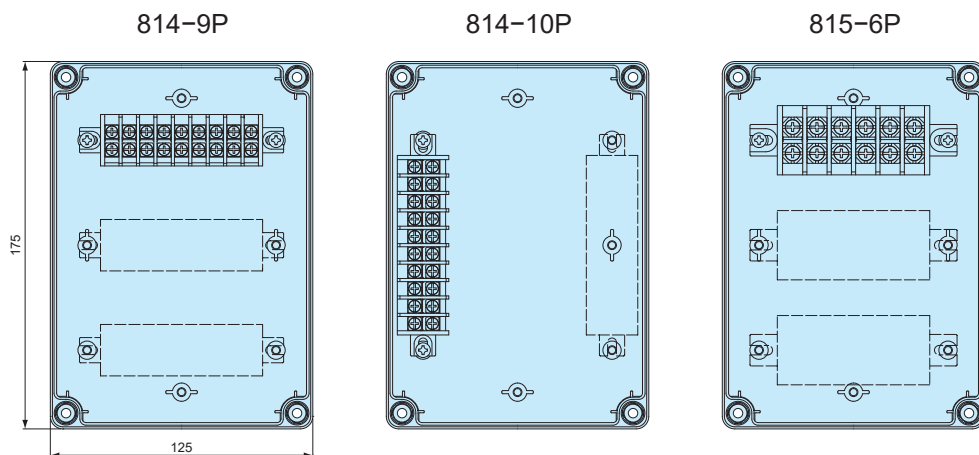
Suitable box SPCM/SPCP 101006



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



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



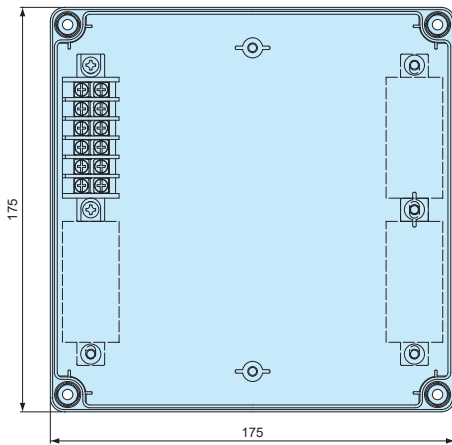
STB TERMINAL BLOCK MOUNTING POSITION

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

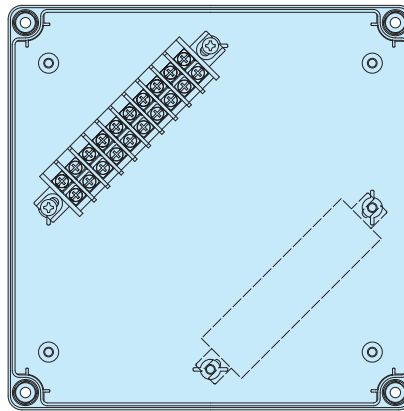
■ Terminals can be installed in the area with dotted lines.

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

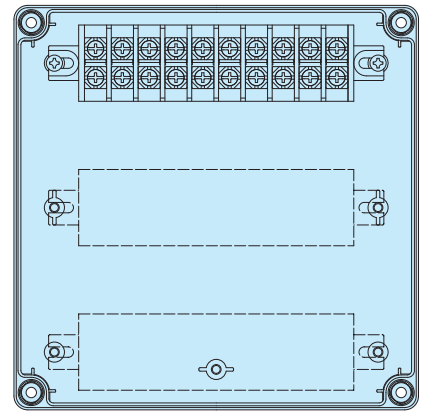
814-6P



814-10P

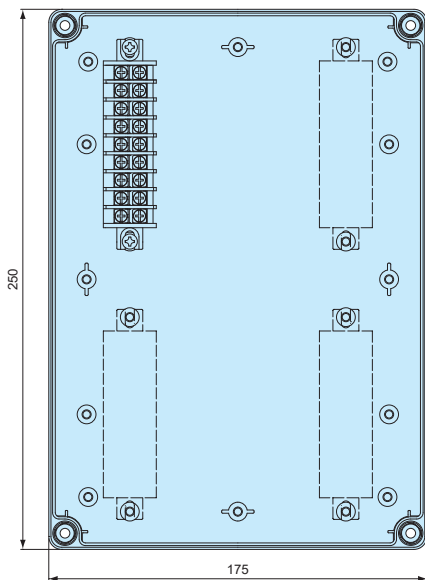


815-10P

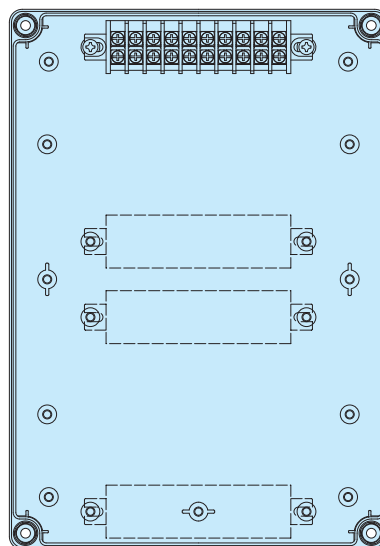


Suitable box SPCM/SPCP 182508 • 182510 • 182515

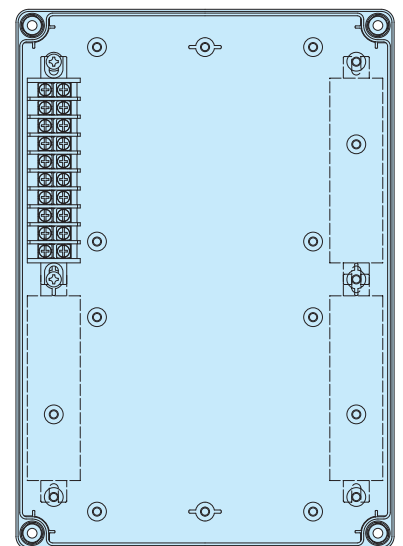
814-9P



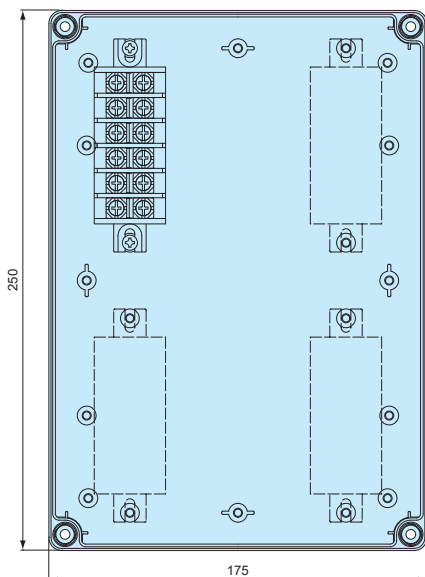
814-10P



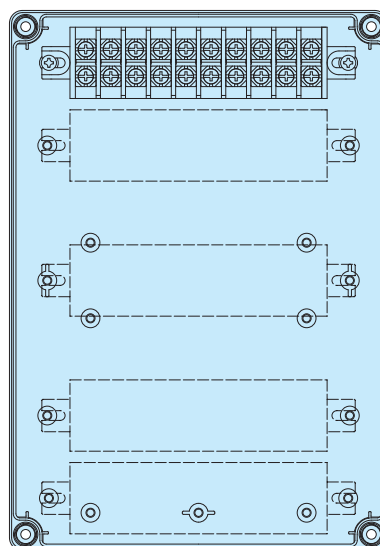
814-10P



815-6P

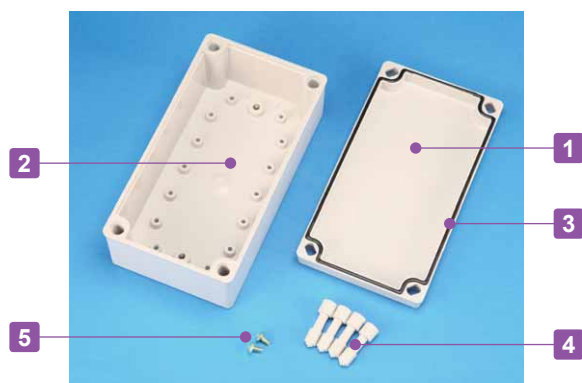


815-10P



BCAS SERIES

IP65 PLASTIC PULL BOX



IP65

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

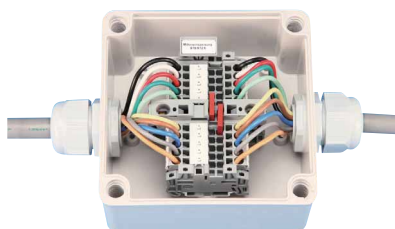
No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94HB	White gray
2	Body	1	ABS UL94HB	White gray
3	Gasket	1	Polyurethane	Black
4	Cover screw	4	Nylon • Stainless steel (BCAS050604G and BCAS050605G only)	White gray • Unfinished
5	Tapping screw (for mounting plate)	2 ~ 4	Steel	Trivalent chromate

APPLICATION EXAMPLE

SWITCH BOX



TERMINAL JUNCTION BOX



AIR PIPE CONTROLLER



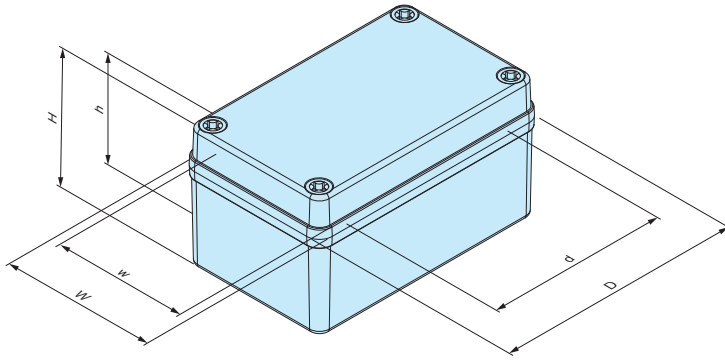
METEOROLOGICAL MONITOR TRANSMITTER



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



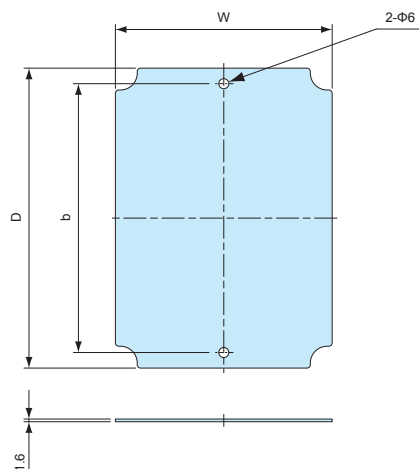
Cable gland
See cable gland pages

BMP-Z SERIES**STEEL MOUNTING PLATE**

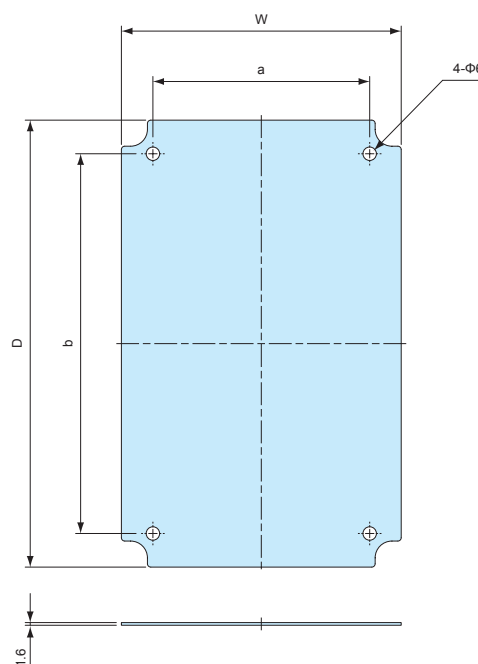
■ Strong but easily customizable.

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

BMP0506Z ~ 1525Z



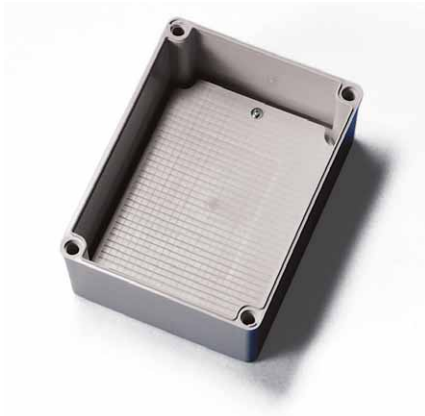
BMP2020Z, 2123Z

**Components**

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

Product no. / Dimensions

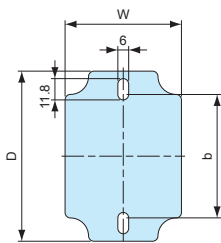
Product no.	W	D	a	b	Suitable box	Weight (g)
BMP0506Z	41	56	-	40	BCAS050604, 050605	23
BMP0609Z	52	82	-	65	BCAS060905	41
BMP0710Z	62	92	-	75	BCAS071005	63
BMP0808Z	67	67	-	50	BCAS080806	47
BMP0811Z	68	98	-	80	BCAS081104, 081107, 081108, 081110	72
BMP0813Z	68	118	-	99	BCAS081307, 081308	87
BMP0818Z	69	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**

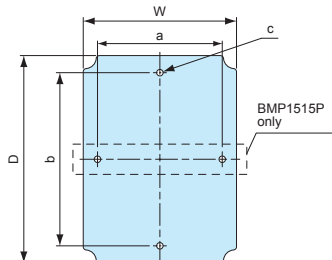
- Lightweight ABS plastic mounting plate.
- Not available for BCAS050604, 050605, 060905, 071005, 080806, 101807, 102307, and 212310 models.

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

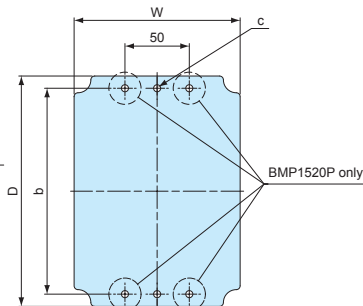
BMP0811P



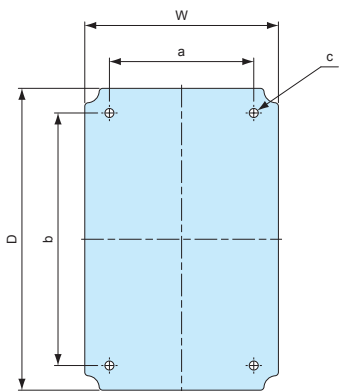
BMP0813P ~ 1616P



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

IP65

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

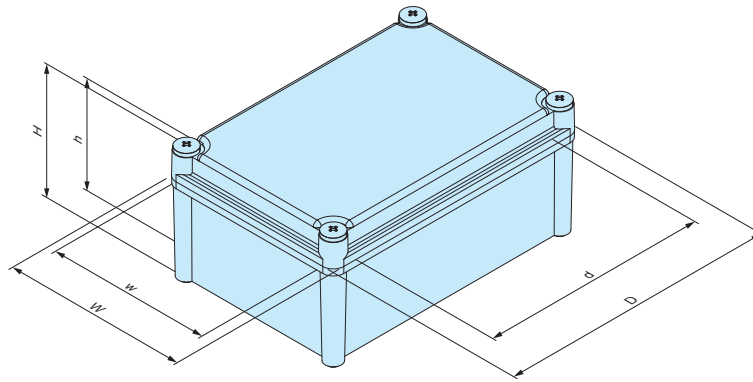


Components

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.				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

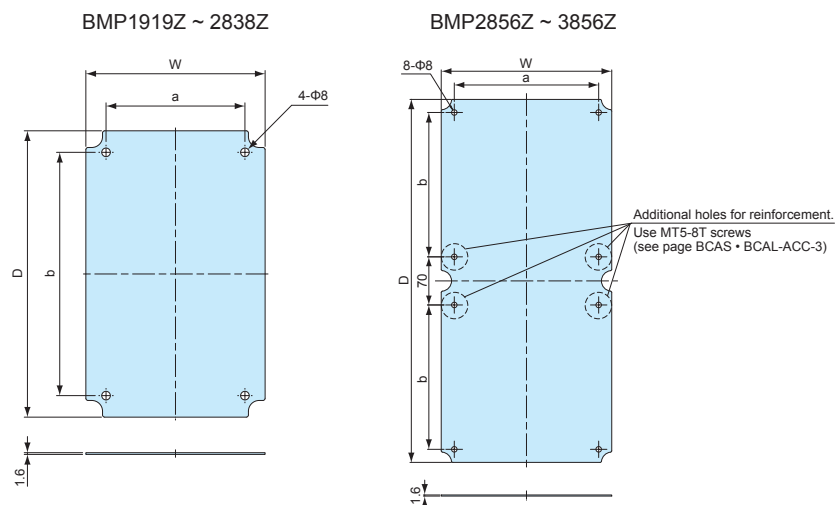


INCLINOMETER for Bridge Construction Product by Akasakatec Inc. (Japan)



BMP-Z SERIES**STEEL MOUNTING PLATE**

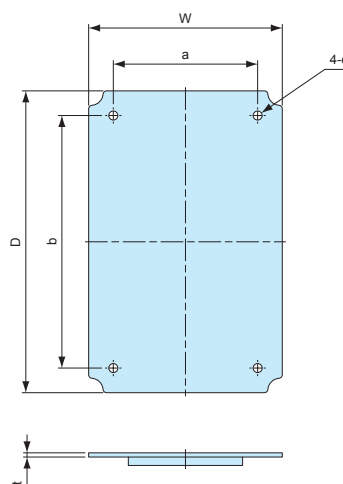
■ DXF/DWG/PDF drawings available on our website.



- 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**

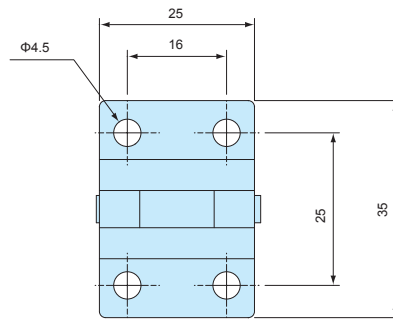
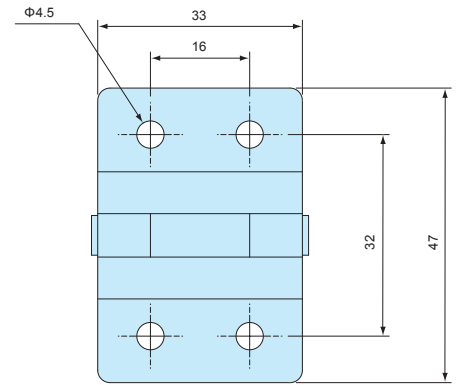
- Not available for BCAL283413, 285613, and 385618 models.
- Material/Color : ABS / White gray

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**

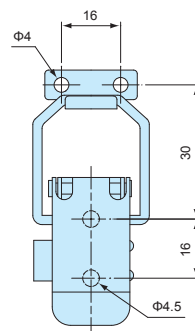
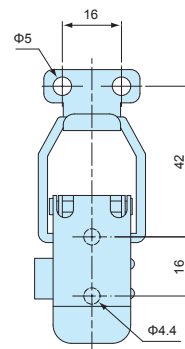
Part name	Pcs	Material	Color / Finish
Hinge	1	Stainless steel SUS304	Unfinished
Bracket	2	Stainless steel SUS304	Unfinished
Gasket	2	EPDM	Black

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

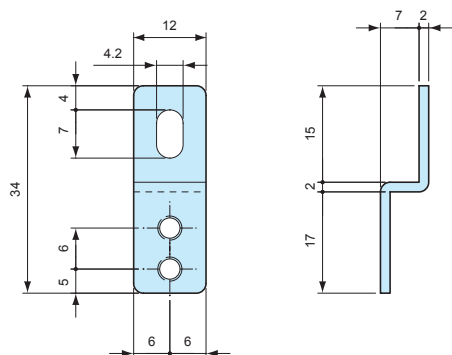


CK-34Z

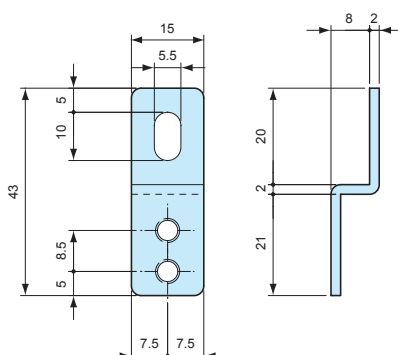


CK-26P

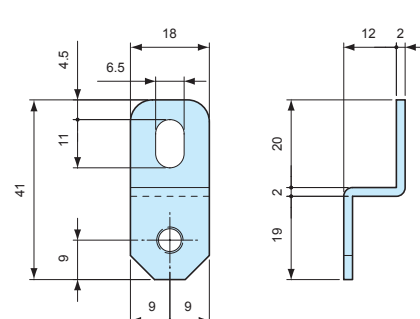
CK-34Z dimensions



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

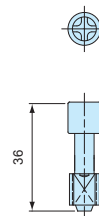
Product no.	Suitable box	Tightening torque
MT4-8T	BCAS071005, 081104, 081107, 081108, 081110, 081307, 081308, 081807, 081808, 082507, 082508, 101007, 101010, 101807, 102007, 102307, 121207, 121210, 141709, 142309, 151507, 151510, 152004, 152007, 152010, 152013, 152016, 152510, 152513, 161607, 202010,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

CB SERIES**SPARE COVER SCREW for BCAS**

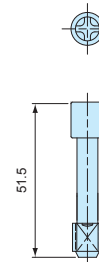
CB20

CB35

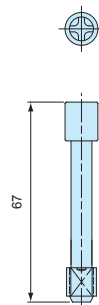
CB50



CB20



CB35

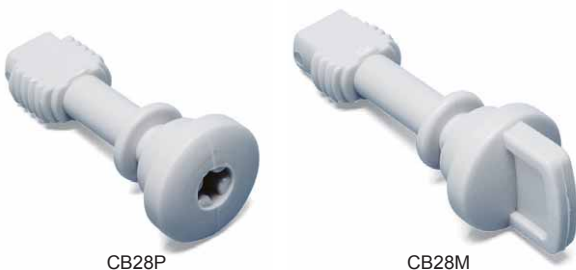


CB50

Product no. / Feature / Suitable box

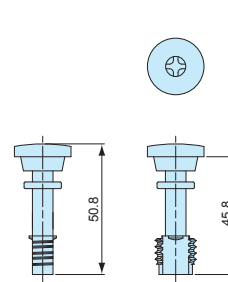
Product no.	Material	Color	Pack of
CB20	Fiberglass • Nylon	White gray	1
CB35	Fiberglass • Nylon	White gray	1
CB50	Fiberglass • Nylon	White gray	1

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

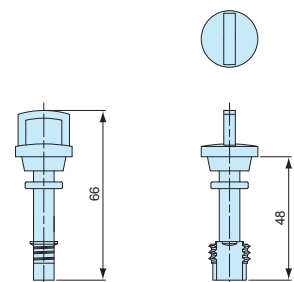
CB SERIES**SPARE COVER SCREW for BCAL**

CB28P

CB28M



CB28P



CB28M

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

SSK SERIES

POLE MOUNTING BRACKET

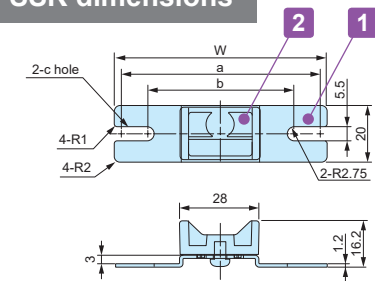


- Stainless steel pole mounting bracket for SPCM • SPCP and BCAL • BCAS series.
- Easy pole mount with the use of SSK-B mounting screw and PKB mounting belt.
- DXF/DWG/PDF drawings available on our website.
- SSK-P models includes plastic mounting brackets.

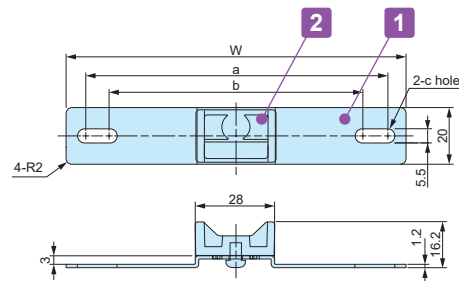


PKB series

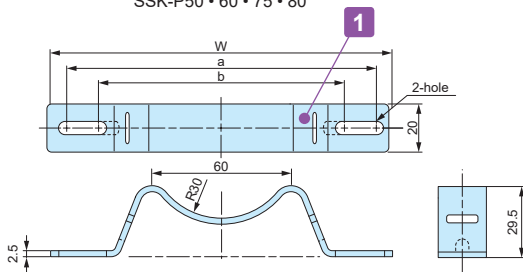
SSK dimensions



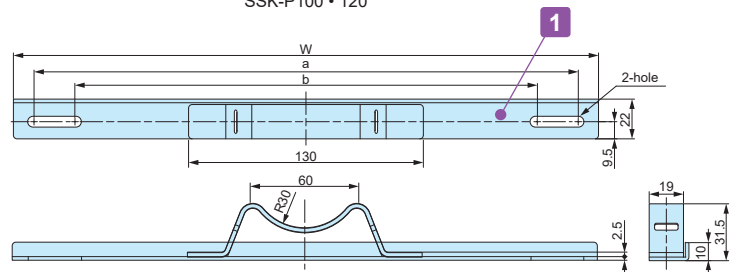
SSK-P50 • 60 • 75 • 80



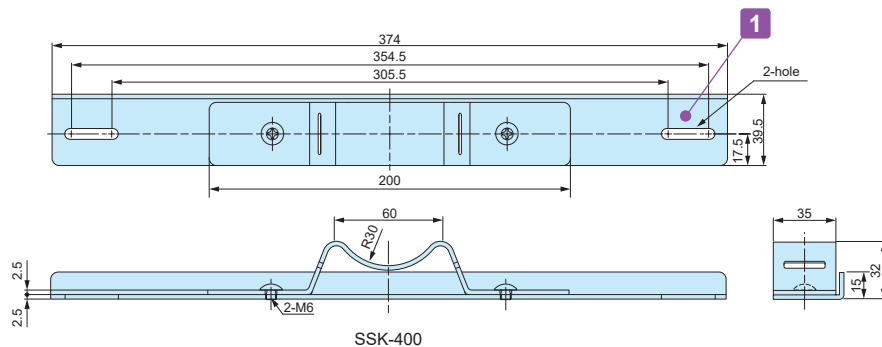
SSK-P100 • 120



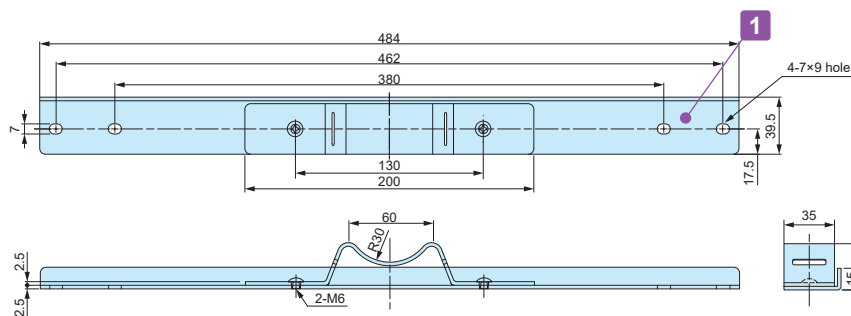
SSK-160 ~ 250



SSK-280 ~ 350



SSK-400



SSK-530

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	5.5× 9	PKB-10PM, 10P PKB-10S	2
SSK-P60	60	54.5	47.5	5.5× 9	PKB-10PM, 10P PKB-10S	2
SSK-P75	75	69.5	55.5	5.5×12.5	PKB-10PM, 10P PKB-10S	2
SSK-P80	80	74.5	64.5	5.5×10.5	PKB-10PM, 10P PKB-10S	2
SSK-P100	100	88.1	76.5	5.5×11.3	PKB-10PM, 10P PKB-10S	2
SSK-P120	120	106.5	88.5	5.5×14.5	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	7×9	PKB-20S	2

SSK-B SERIES

MOUNTING SCREW SET for SSK



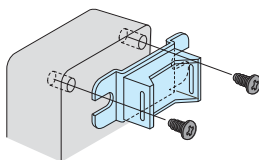
- Mounting screw set for use with SSK pole mounting bracket.
- See chart on page SSK-3 for appropriate bracket/screw/box combination.
- Material / Finish : Stainless steel / Unfinished.

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

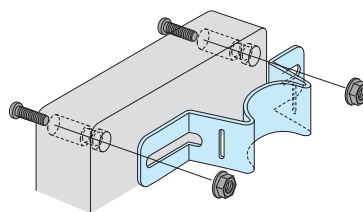
■ Installation Example

BCAS050604, 050605



Use screws included with SSK-P

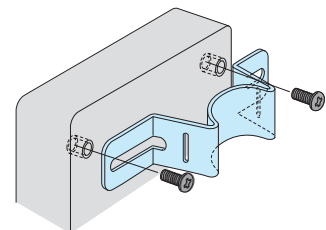
M4 / M5 Pan head with nut fastening



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

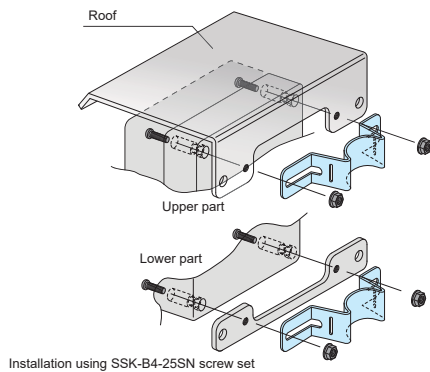
※Use screws included with SSK bracket for vertical mount

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

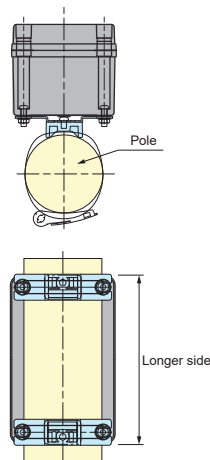
- For installation of SR series outdoor roof on SPCM • SPCP series
SR series (For SPCM • SPCP - see page SPCP • SPCM-ACC-2)



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

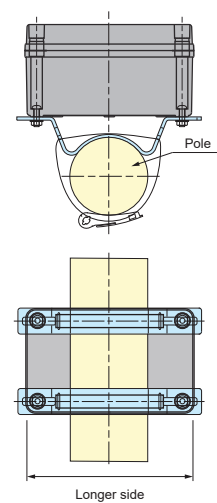
Vertical mount

(Longer vertical side)



Horizontal mount

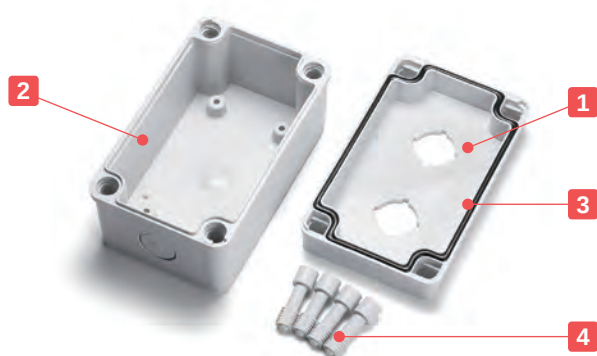
(Longer horizontal side)





Technical Data

Protection class : IP65 {Waterproof switch
Exclusive cable gland} required
Operating Temperature : -20°C ~ +75°C
Recommended torque : 1N · m ~ 1.5N · m



- IP65 switch box with 1 ~ 4 $\Phi 22$ hole(s) on the top cover.
- Made from flame retardant UL94V-0 high heat resistant polycarbonate material.
- $\Phi 22$ knock-outs on 2 opposite ends for easy wiring access if required.
- Exclusive cable gland, B131210G for $\Phi 22$ knock-outs is available as optional parts.
- IP65 protection class is maintained with waterproof switches and the exclusive cable glands installed.
- Yellow/Black color types available as BTO (built-to-order) at a MOQ of 500 pcs.
For custom color order, the material would be changed to ABS UL94HB, with an operating temperature of -10°C ~ +60°C.

Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	Polycarbonate UL94V-0	Light gray
2	Base	1	Glass fiber filled polycarbonate UL94V-0	Light gray
3	Gasket	1	Polyurethane	Black
4	Cover screw	4	Glass fiber filled nylon	White gray

Accessories (Optional parts)



Exclusive cable gland B131210G
See page 330



Stainless steel mounting bracket CK-34Z
See website



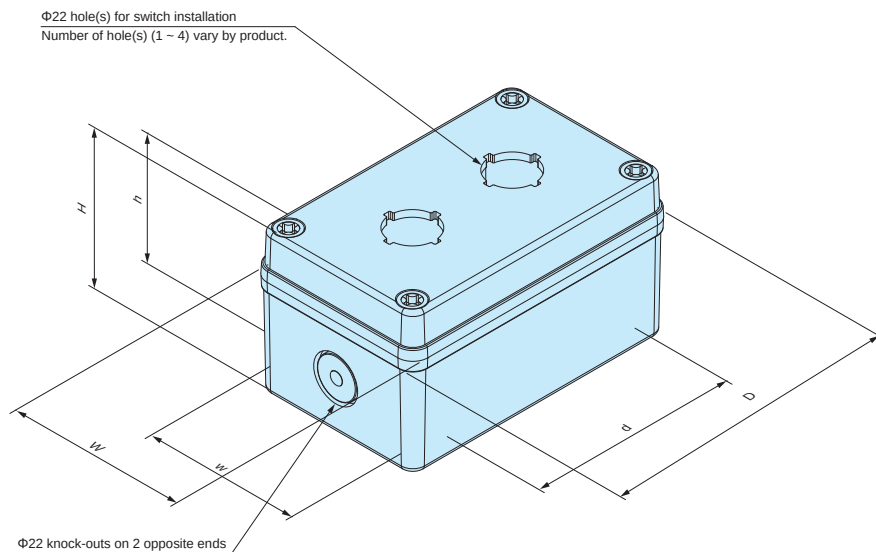
Spare cover screw CB20
See website



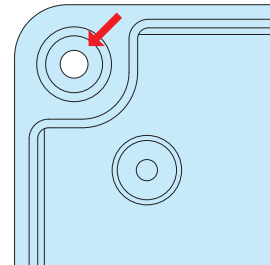
PCB mounting screw MT4-8T
See page 320

BCSB dimensions

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



■ Wall mounting without an optional wall mounting bracket is possible through inserting the wall mount screw directly into the cover screw hole on the base part.



Product no. / Dimensions

Product no.	External dimensions			Internal dimensions			Switch hole(s)	Knock-outs	Weight (g)
	W	D	H	w	d	h			
BCSB081107-2201G	80	110.5	70.3	67	67	55.8	Φ22 x 1	Φ22 x 2	204
BCSB081307-2202G	80.5	130.5	70	67	87	55.6	Φ22 x 2	Φ22 x 2	222
BCSB081807-2203G	80	180	70.5	67	137	56.3	Φ22 x 3	Φ22 x 2	278
BCSB082507-2204G	80	250	71	67	207	56.3	Φ22 x 4	Φ22 x 2	364

Accessories (Optional parts)

B131210G

EXCLUSIVE CABLE GLAND for BCSB



■ Exclusive cable gland for Φ22 knock-outs on BCSB series switch box.

■ The PG13.5 thread (Φ20.5) is a little smaller than Φ22 hole but is compatible for the Φ22 knock-out hole.

■ Install B131210G into the very center of the Φ22 knock-out hole.

■ Cap and connector are made from PA66 material, light gray color type. Sealing insert and O-ring are made from NBR material, black color type.

Technical Data

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

Product no. / Dimensions

Product no.	Cable range		Suitable models	Weight (g)
	Min	Max		
B131210G	7	11	BCSB series	12.7

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



TMB SERIES

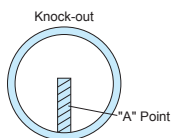
TERMINAL JUNCTION BOX



- 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.

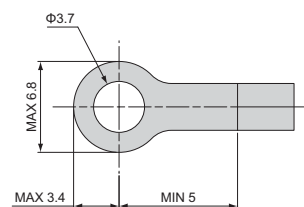
Technical Data

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	1.5mm^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

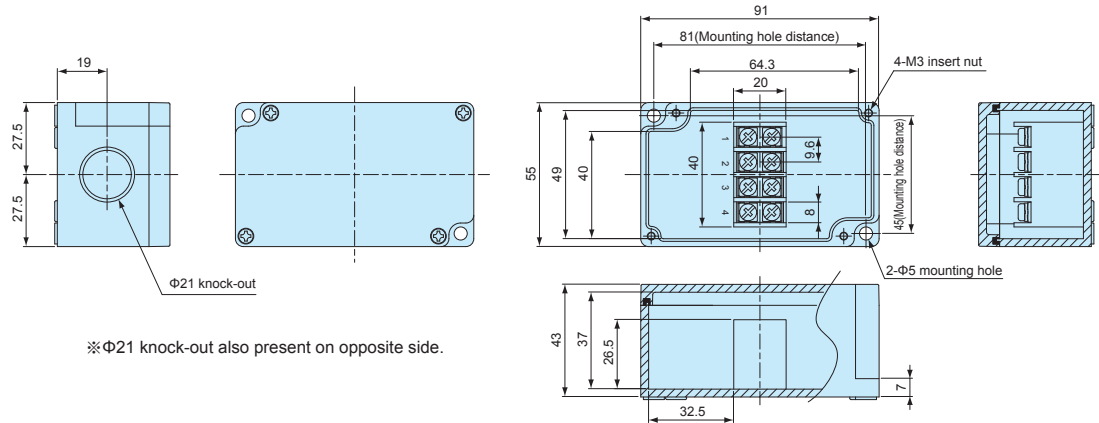
Product no. / Dimensions

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

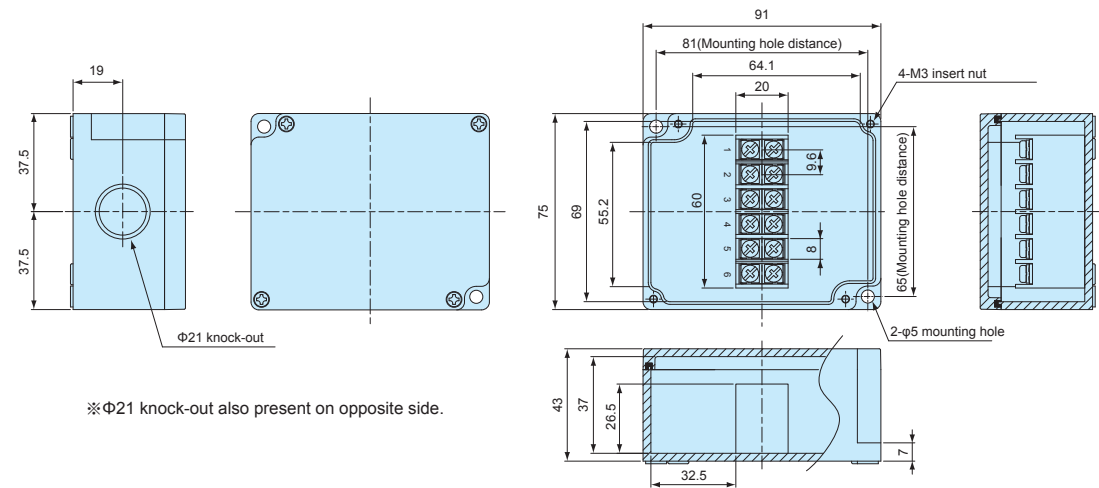
TMB dimensions

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

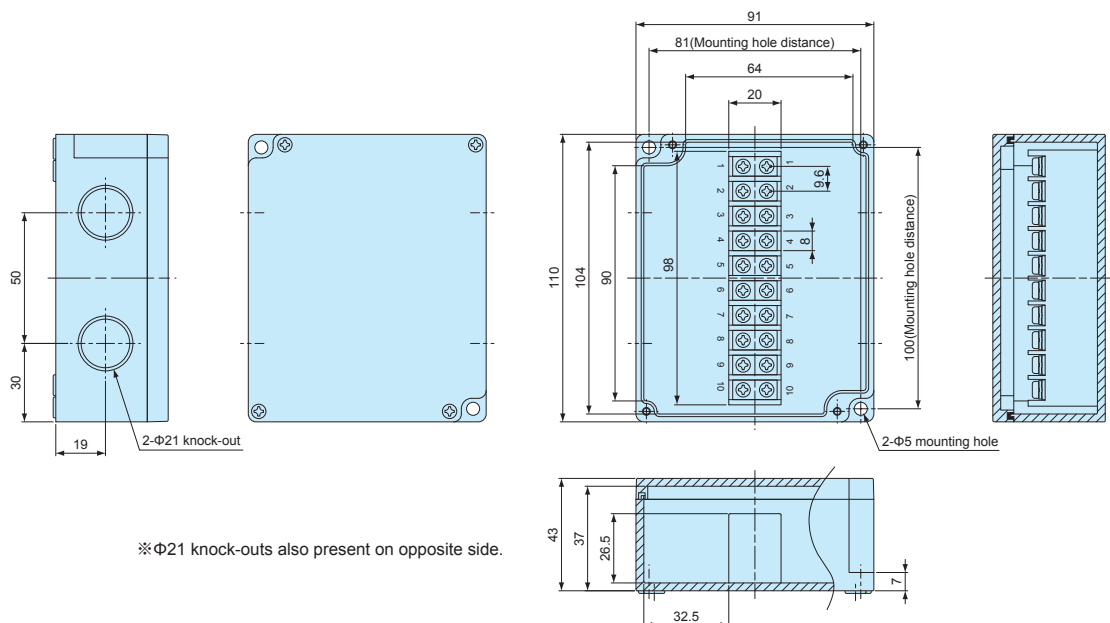
TMB-4P



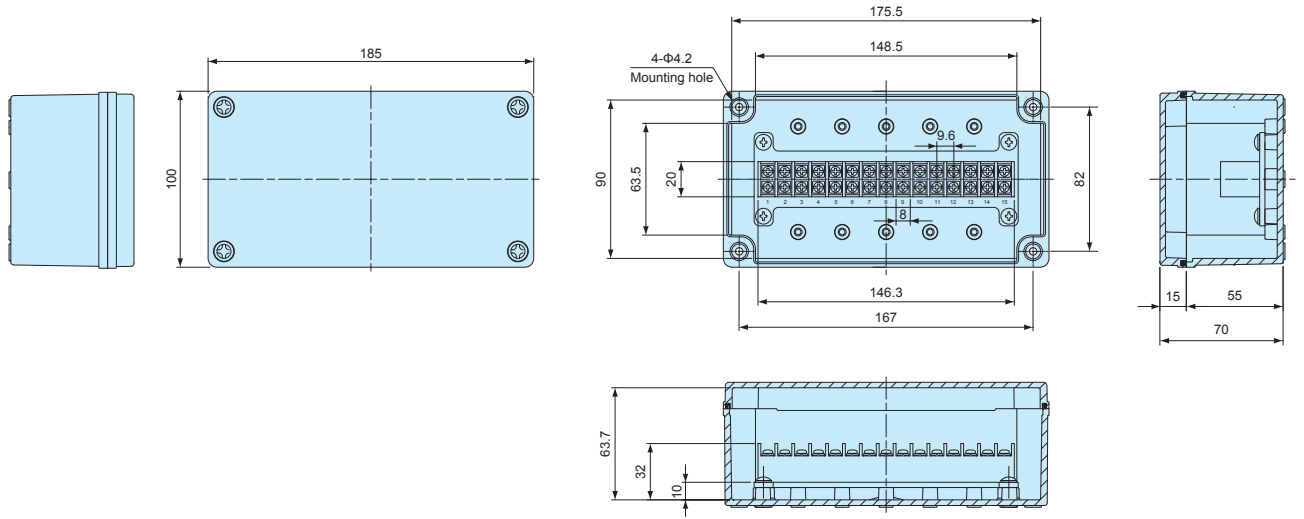
TMB-6P



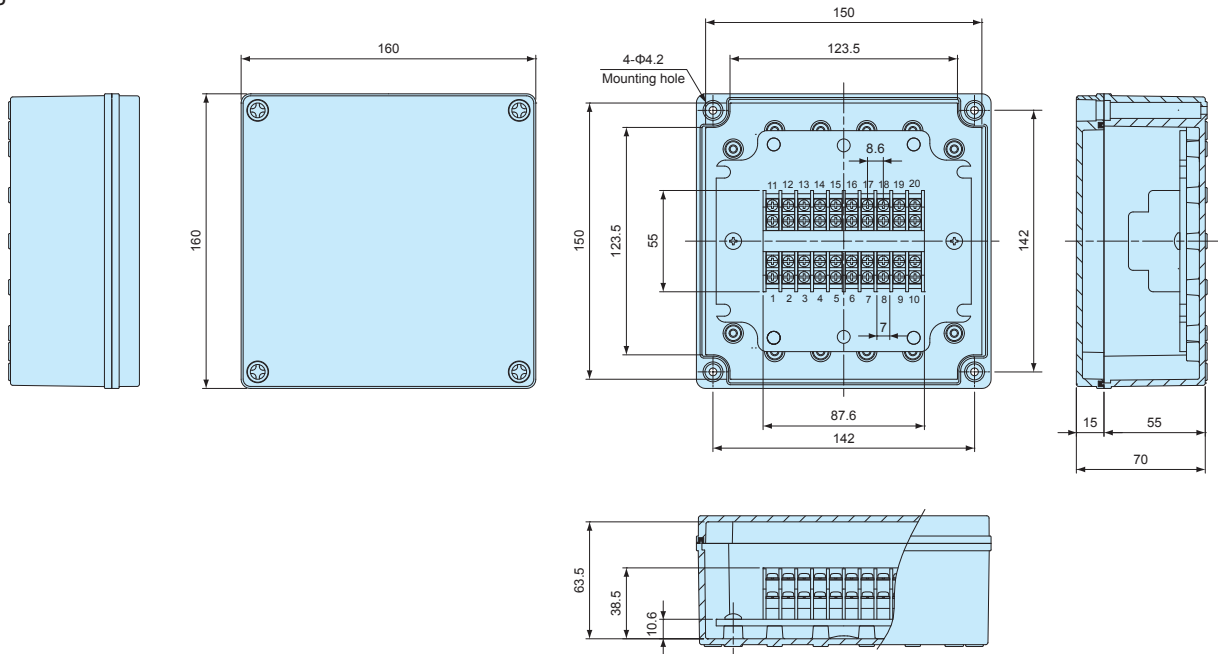
TMB-10P



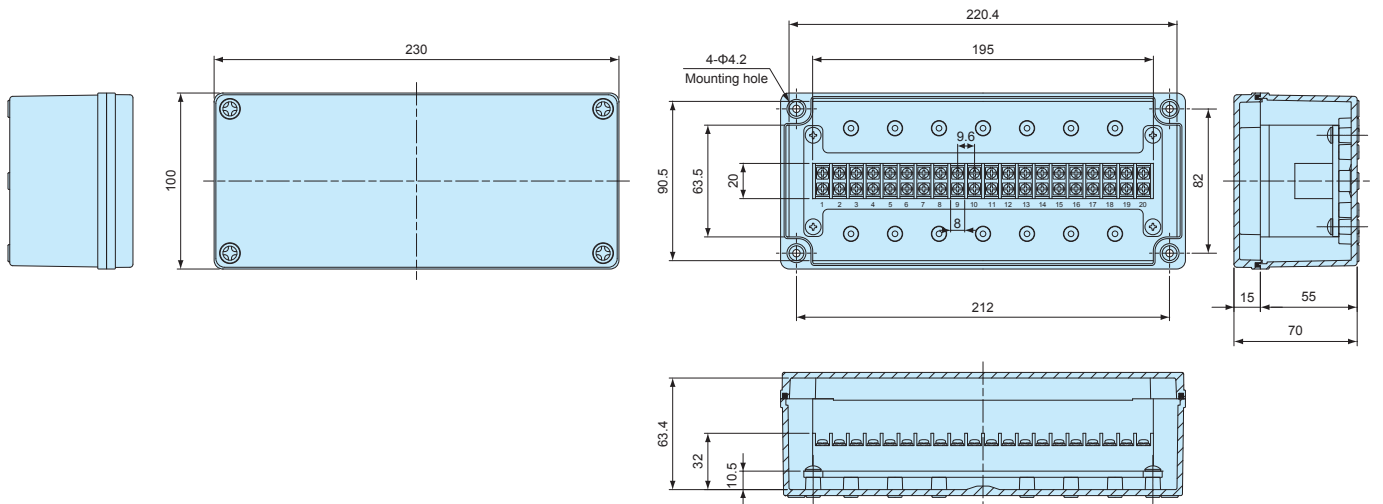
TMB-15PS



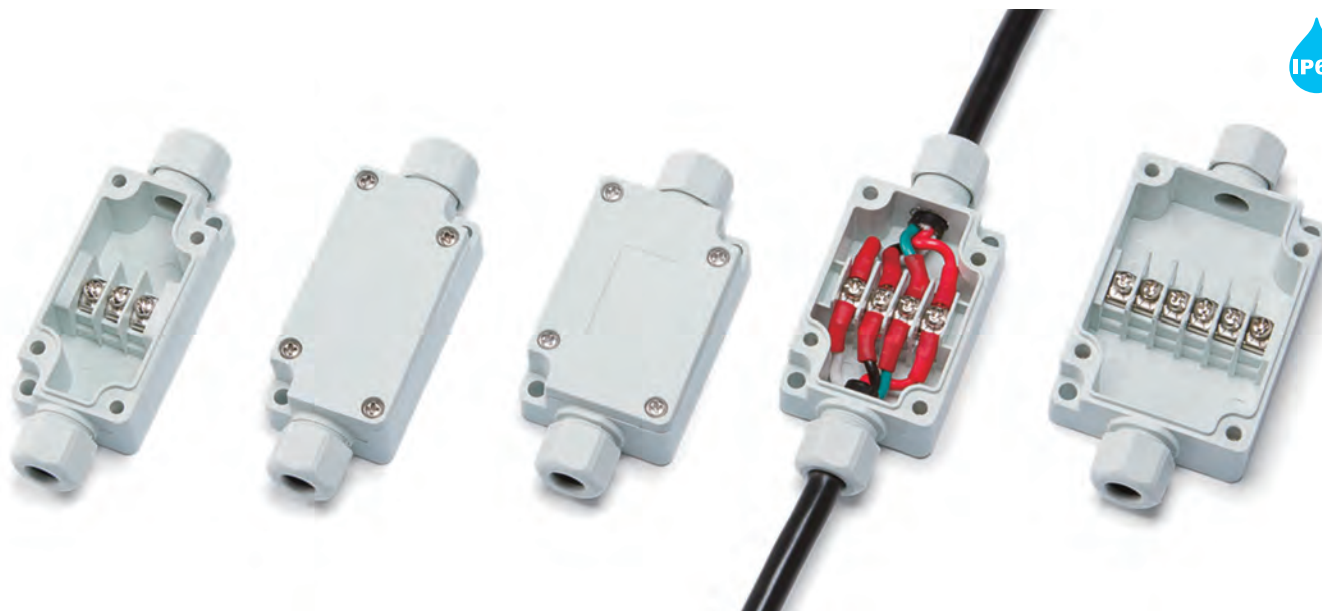
TMB-20P



TMB-20PL



IP65

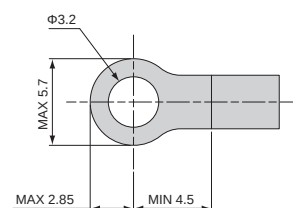
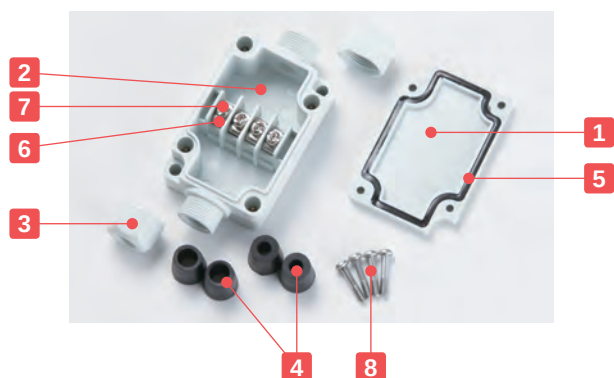


- Integrated junction box consisting of cable glands and a terminal block.
- Suitable for industrial facilities, power cable joints, relay between motors and/or sensors.
- IP65 protection class with high oil resistant PBT material.
- 3, 4, and 6 pole types are available.
- $\Phi 5.0$ and $\Phi 7.4$ rubber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

Technical Data

Protection class: IP65
 Operating temperature: $-20^{\circ}\text{C} \sim +75^{\circ}\text{C}$
 Recommended torque : $0.5\text{N} \cdot \text{m}$

Applicable crimp terminal
 R1.25-3



Terminal Block Specification

Rated voltage	250V
Rated current	15A
Applicable wire	1.25mm^2
Standard tightening torque	$0.5\text{N} \cdot \text{m}$

Components

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	PBT UL94V-0	Light gray
2	Base	1	PBT UL94V-0	Light gray
3	Cable cap	2	PBT UL94V-0	Light gray
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 website

Rubber Bush RB series
 See website

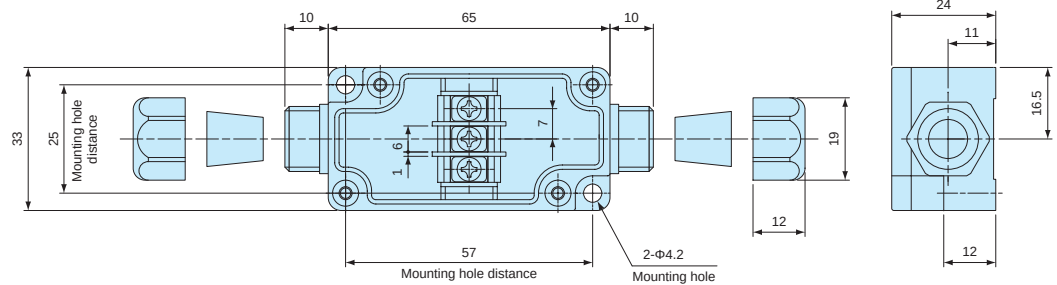
Product no. / Dimensions

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

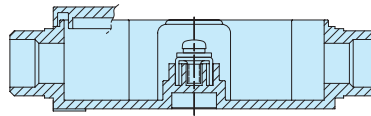
TMC dimensions

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

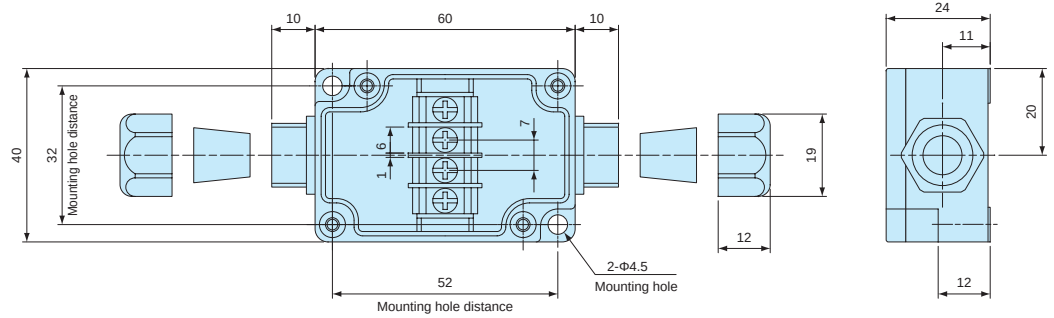
TMC-3PG



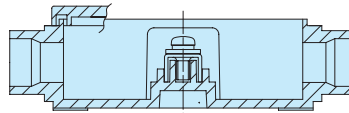
Inner diameter of rubber bush	Cable range
Φ5.0	Φ4 ~ Φ5
Φ7.4	Φ6 ~ Φ7



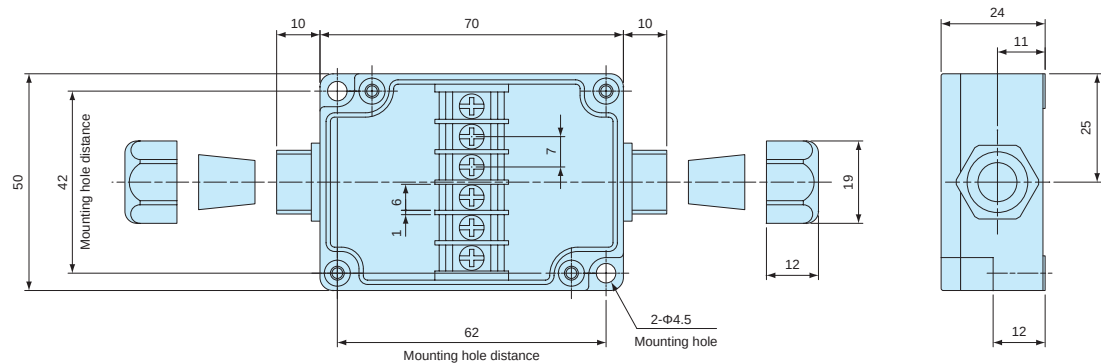
TMC-4PG



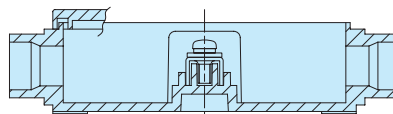
Inner diameter of rubber bush	Cable range
Φ5.0	Φ4 ~ Φ5
Φ7.4	Φ6 ~ Φ7



TMC-6PG

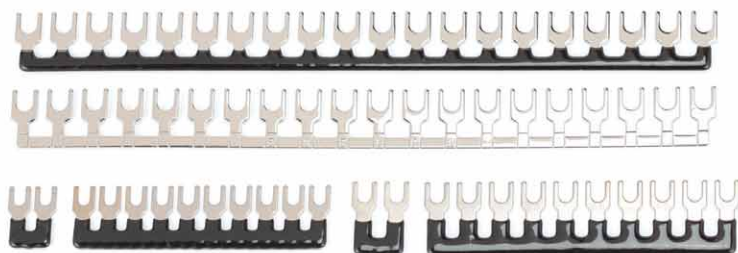


Inner diameter of rubber bush	Cable range
Φ5.0	Φ4 ~ Φ5
Φ7.4	Φ6 ~ Φ7



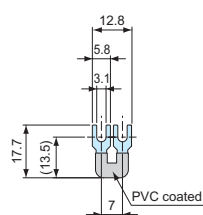
SBR SERIES

SHORTING BAR

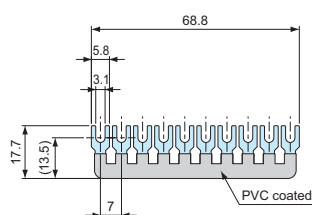


- Shorting bar for common-wiring.
- SBR70-10P, SBR85-10P, SBR95-20P, and SBR95-20N can be cut accordingly into required poles.
- PVC coated. SBR95-20 available in both PVC coated (SBR95-20P) and non PVC coated (SBR95-20N) models.
- See chart below for suitable box.

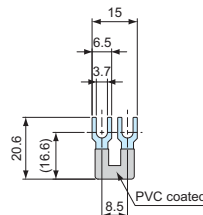
SBR70-2P



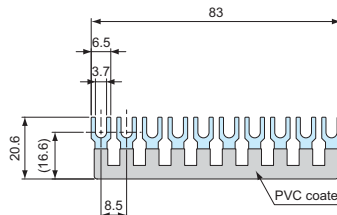
SBR70-10P



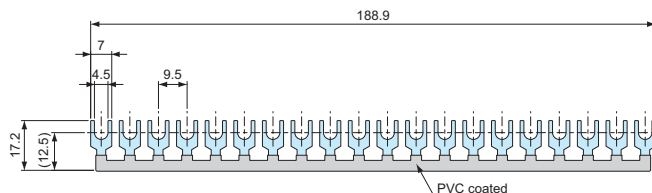
SBR85-2P



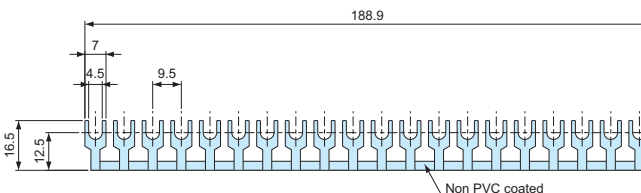
SBR85-10P



SBR95-20P



SBR95-20N



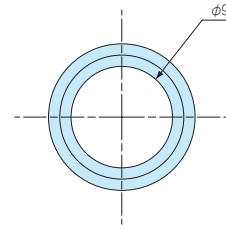
Suitable Box Chart

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)

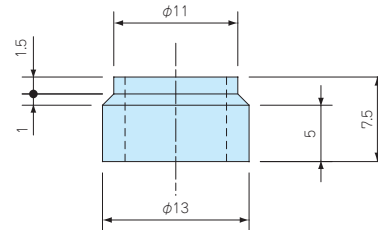
Product no. / Feature

■ 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**

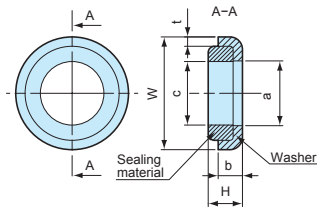
- Rubber bush for TMC series terminal junction box.
- Applicable for $\phi 8 \sim \phi 9$ mm diameter cable.

**Product no. / Feature**

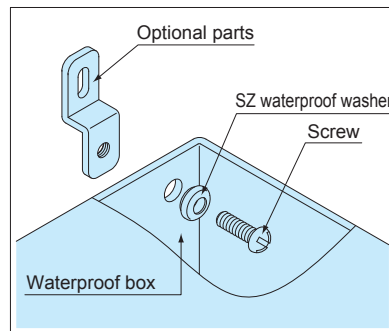
Product no.	Material	Color	Cable range	Pack of
RB-9	NBR	Black	$\phi 8 \sim \phi 9$ mm	2

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).



- Shape of the sealing material vary by product.

**Technical Data**

Water pressure resistance:
M3 ~ M10 : 200kg/cm² 5min
M12 ~ M16 : 100kg/cm² 5min

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

WPMB-M4-3 series

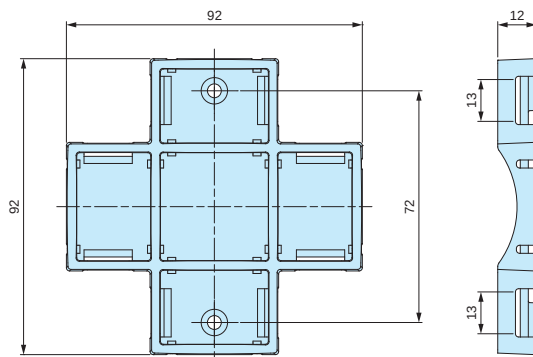
POLE MOUNTING BRACKET



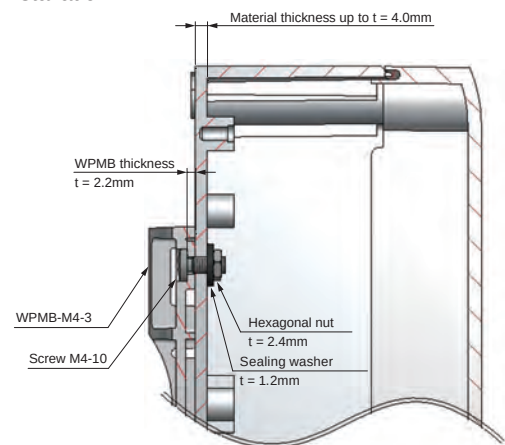
- Pole mount bracket made from weather resistant ASA material.
- Suitable for both vertical and horizontal mounting.
- IPX7 protection can be maintained through the use of sealing washers.
- Hole milling is required for bracket installation.
- Pole mount is possible with the use of PKB series mounting belt. (see page 324 for PKB series)

WPMB-M4-3 dimensions

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



Installation



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 - JIS Type 3)	2	Stainless steel	Unfinished

Product no. / Dimensions

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

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

PKB series

POLE MOUNTING BELT



PKB-10PM, 10P



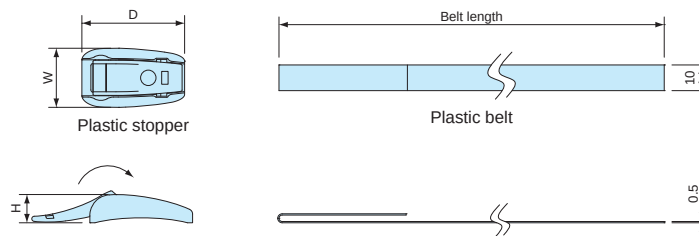
PKB-10S, 20S

- Pole mounting belt for attachment of enclosures with suitable pole mount brackets or construction onto poles.
- Designed for one time use only (not reusable).
- Strong stainless steel clamping type and easy installation plastic type are available.

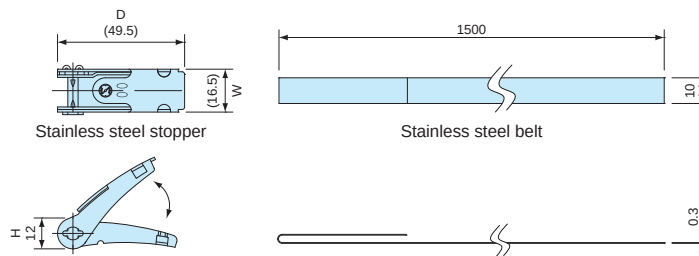
PKB dimensions

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

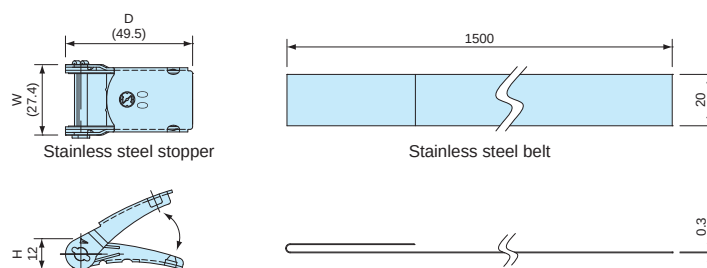
PKB-10PM, 10P



PKB-10S



PKB-20S



Components

No.	Part name	Material	Color / Finish
1	Stopper	Stainless steel SUS304 • POM	Barrel finish • Black
2	Belt	Stainless steel SUS430 • PET	Bright annealed finish • Gray

Product no. / Dimensions

Product no.	W	D	H	Belt length	Belt material	Tensile strength (horizontal)	Weight (g)	Pack of
PKB-10PM	24	23	11	500 mm	PET	0.8kN	14	2
PKB-10PM	23	40	11	1,500 mm	PET	1.3kN	31.8	2
PKB-10S	16.5	49.5	12	1,500 mm	Stainless steel SUS304	1.4kN	101.6	2
PKB-20S	27.4	49.5	12	1,500 mm	Stainless steel SUS430	2.9kN	182.2	2

NMG series

NEODYMIUM MAGNET

Round magnet

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

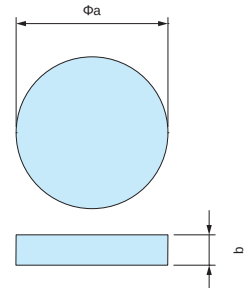


- Material / Finish: Neodymium / Nickel plated
- Please attach using a strong adhesive.

Components

Product no.	a	b	Weight (g)	Flux Density	Absorption
NMG3-15N	15	3	4	214.4 mT	2.44 kgf
NMG3-20N	20	3	7.1	170.7 mT	3.26 kgf
NMG5-22N	22	5	11.4	247.2 mT	5.91 kgf
NMG5-25N	25	5	18.4	221.9 mT	6.89 kgf

NMG dimensions



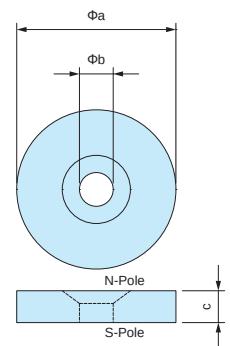
Round magnet with countersunk hole

- Please fasten with a screw.



Components

Product no.	a	b	c	Countersunk size	Weight (g)	Flux Density	Absorption
NMG3-15M3	15	3.2	3	M3	3.8	214.3 mT	2.33 kgf
NMG3-20M3	20	3.2	3	M3	6.9	170.6 mT	3.17 kgf
NMG5-22M4	22	4.3	5	M4	13.7	247.2 mT	5.68 kgf
NMG5-25M5	25	5.3	5	M5	17.6	221.9 mT	6.58 kgf



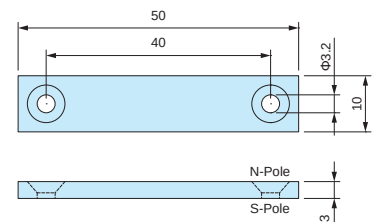
Rectangular magnet with countersunk holes

- Please fasten with a screw.



Components

Product no.	a	b	c	Countersunk size	Weight (g)	Flux Density	Absorption
NMG3-50M3	50	10	3	M3	11.3	210.0 mT	9.1 kgf



Example 1 The magnetic force remains strong even through plastic.



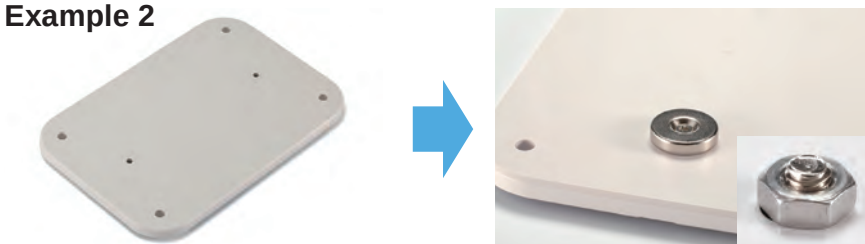
Make recessed pocket on the inside wall.

Glue on.



Attach onto a metallic surface.

Example 2



Make holes

Fasten with a screw and nut.



Attach onto a metallic surface.

CAUTION: Handle with care to avoid personal injury or damage to the magnet.

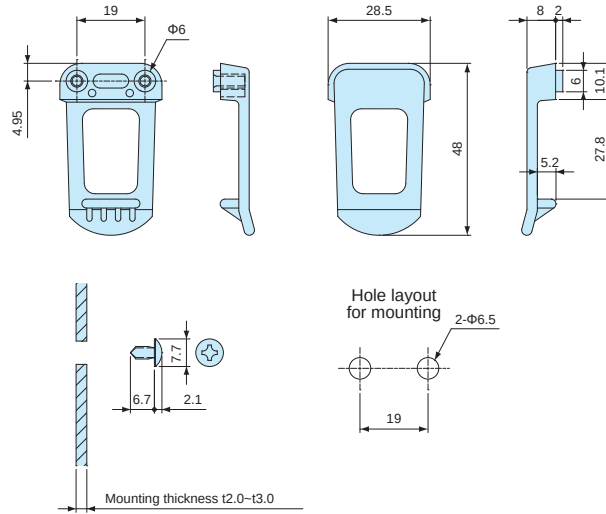
GDH series

PLASTIC BELT CLIP



GDH dimensions

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



Components

No.	Part name	Pcs	Material	Color / Finish
1	Clip	1	ABS UL94HB	White • Black
2	Screw	2	Steel M3.5-6	Zinc plated

Product no. / Dimensions

Product no.		W	H	D
● White	● Black			
GDH-1W	GDH-1B	28.5	10	48

DK series

STEEL BELT CLIP

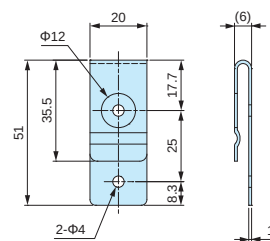
DK dimensions

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

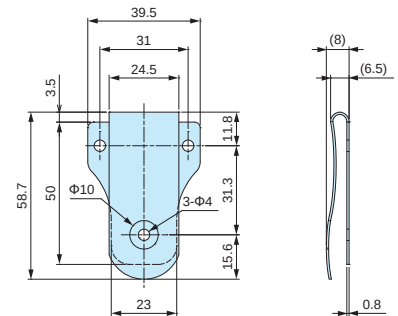
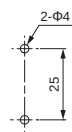


DK-1

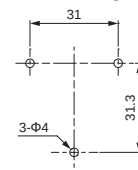
DK-2



Hole layout for mounting



Hole layout for mounting



Product no. / Dimensions

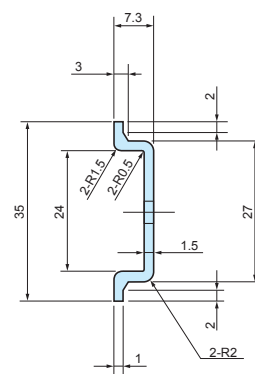
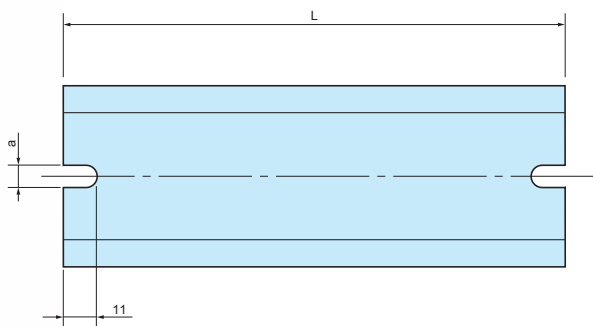
Product no.	Material	Finish
DK-1	Steel SPCC t=1.0	Chrome plated
DK-2	Steel SPCC t=0.8	Chrome plated

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
NEW 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
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
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)



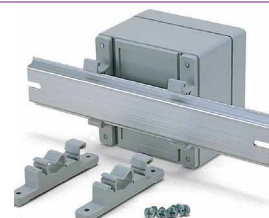
DIN-Rail stopper bracket TKR series
See page DIN-ACC-2



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



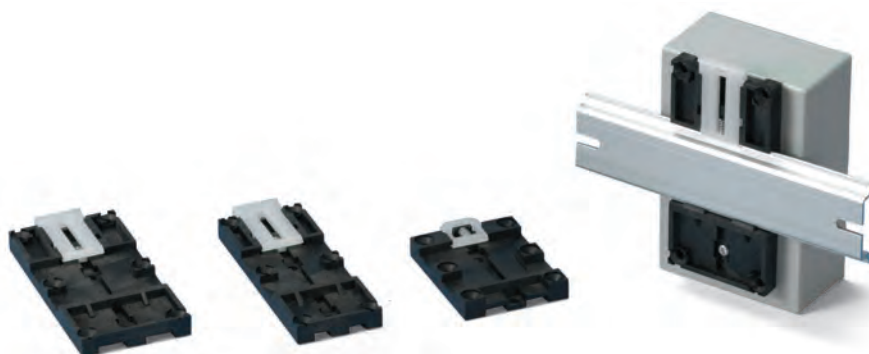
DIN-Rail mounting base DRT series
See page DIN-ACC-1



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

DRA series

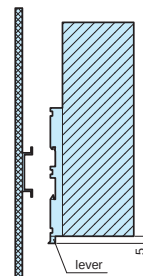
DIN-RAIL MOUNTING BASE



- For installation of enclosures, PCB and other parts onto a DIN rail.
- Simple installation and removal via the pull lever.

■ NOTE

Before installation, please ensure that the lever is not fully hidden behind the enclosure

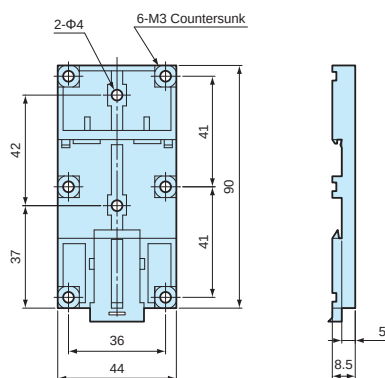


Technical Data

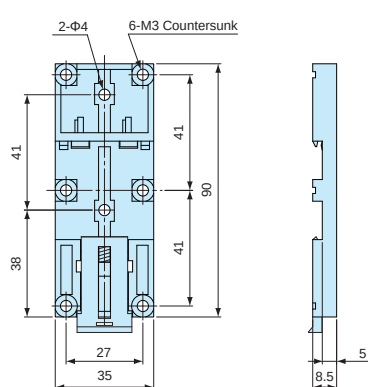
Max load : 5kg

DRA dimensions

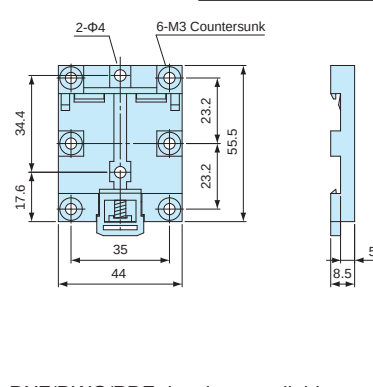
DRA-1



DRA-2



DRA-3



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

Product no. / Dimensions

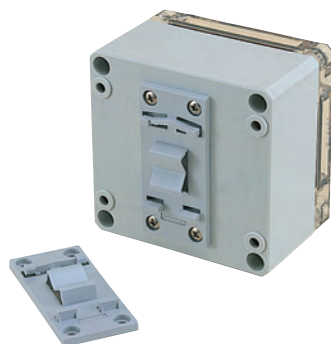
Product no.	Material (body)	Material (lever)	Color	Weight (g)
DRA-1	PPE : SB UL94V-1	Nylon 66 UL94V-2	Black : White	16.4
DRA-2	PPE : SB UL94V-1	Nylon 66 UL94V-2	Black : White	14.5
DRA-3	PPE : SB UL94V-1	Nylon 66 UL94V-2	Black : White	10.4

DRT series

DIN-RAIL MOUNTING BASE

DRT dimensions

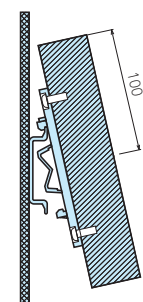
- DXF/DWG/PDF drawings available on our website.



- For installation of enclosures, PCB and other parts onto a DIN rail.
- Simple installation and removal by tilting the case at an angle and sliding it in/out.

■ NOTE

Before installation, please ensure that the length (from top) of the enclosure is equal to, or less than 100mm from the center of the mounting base.



Technical Data

Max load : 1kg
Operating temperature: -20°C ~ +70°C

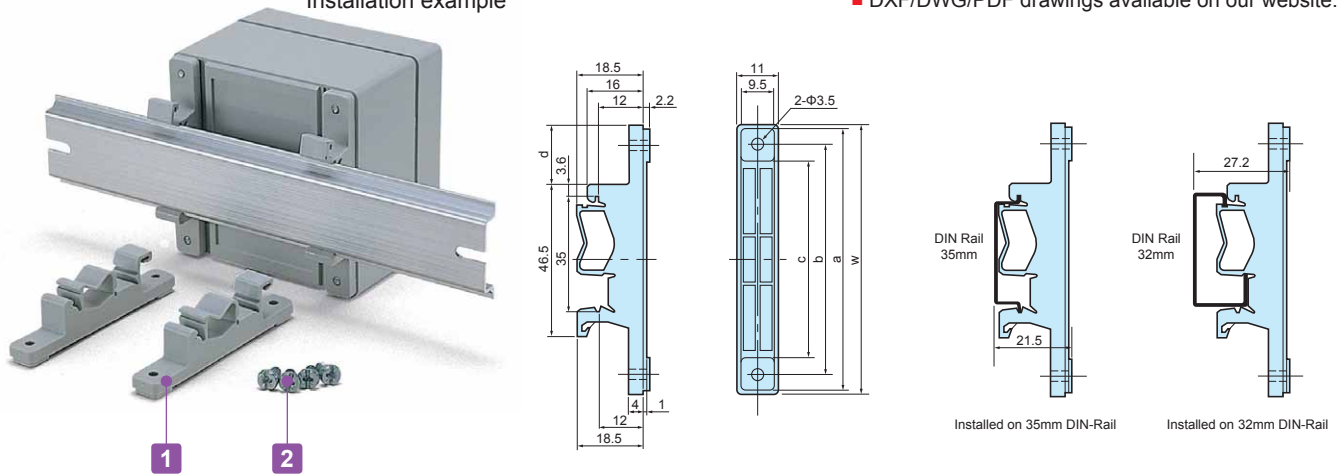
Product no. / Dimensions

Product no.	Material	Color	Weight (g)
DRT-1	PC/ABS UL94V-0	Light gray	7.3

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

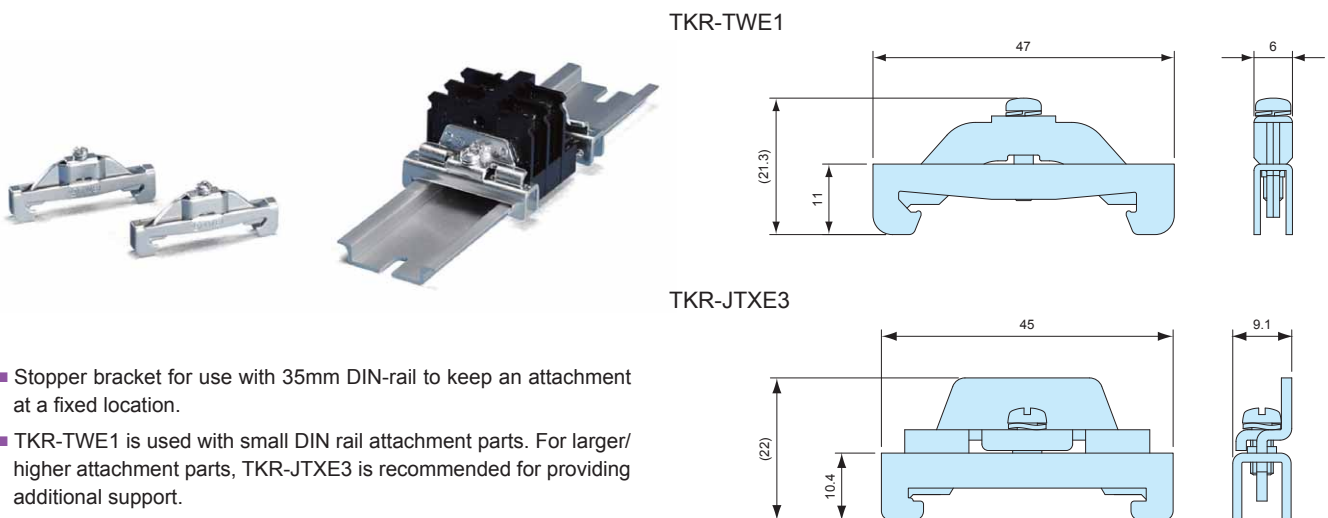
No.	Part name	Pcs	Material	Color / Finish
1	Mounting feet	2	Polyamide	White gray
2	Screw (special type 4.2 x 9.5)	4	Screw	Unichrome plated

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.



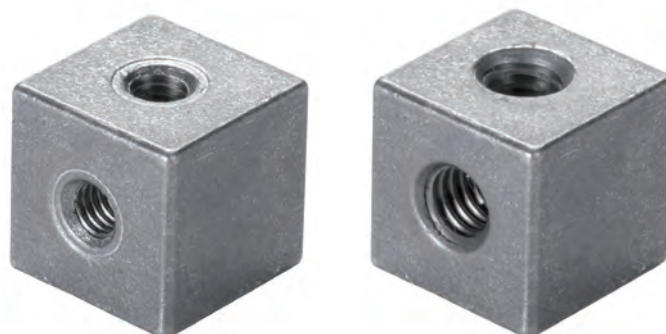
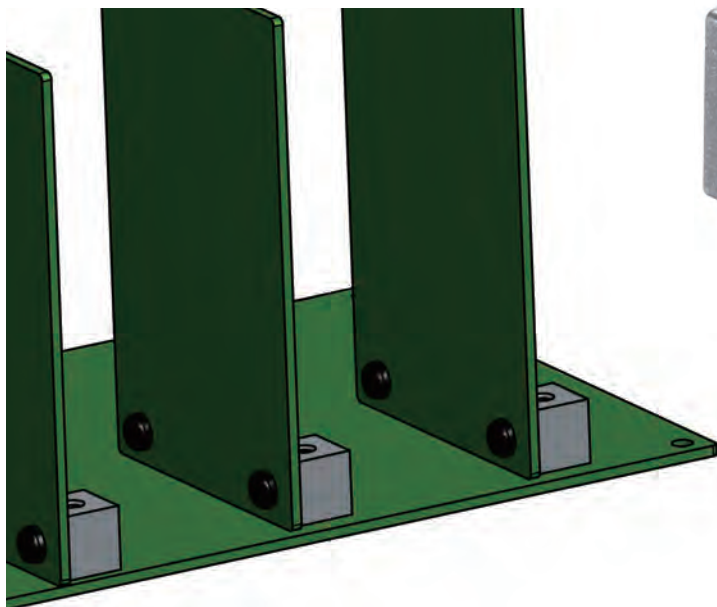
- Stopper bracket for use with 35mm DIN-rail to keep an attachment at a fixed location.
- TKR-TWE1 is used with small DIN rail attachment parts. For larger/higher attachment parts, TKR-JTXE3 is recommended for providing additional support.

Product no. / Feature

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

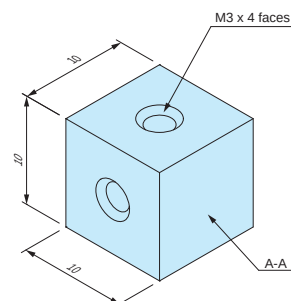
CUBE series

CUBE STANDOFF

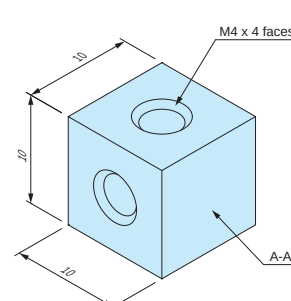


CUBE dimensions

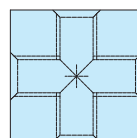
CUBE10-M3



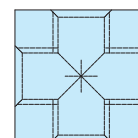
CUBE10-M4



A-A



A-A



- 10mm threaded cube shape standoff with a thread on 4 faces.
- M3 and M4 thread models available.
- Conveniently usable when installing PCB or metal plate upright.

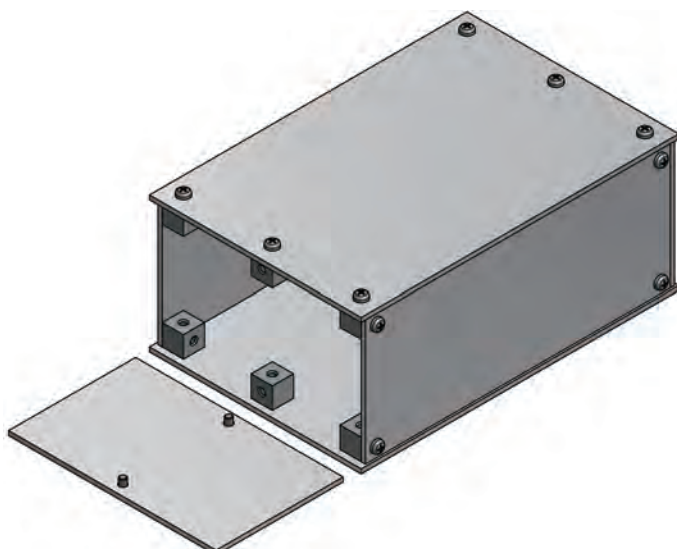
Product no. ■ Zinc diecast : Glossy barrel finish

Product no.	Pack of
CUBE10-M3	2
CUBE10-M4	2
CUBE10-M3-P	20
CUBE10-M4-P	20

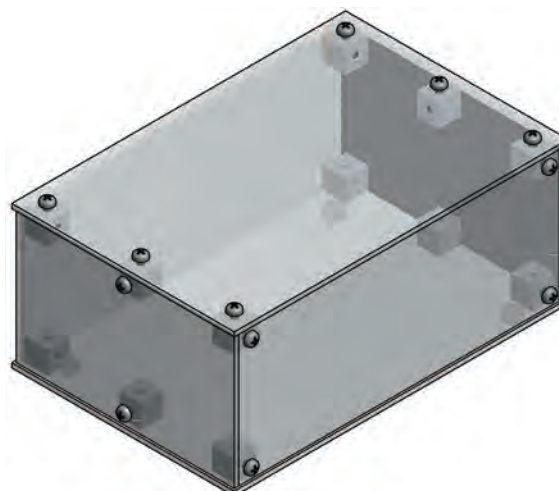
■ DXF/DWG/PDF/STP drawings available on our website.

- CUBE can also be used to make a simple housing by vertically aligning the plates.

Production example : Aluminium case



Production example : Acrylic case



AST series

INSERT NUT ADHESIVE STANDOFF

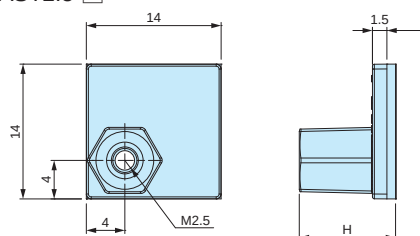


- Double-sided adhesive tape allows the standoff to be mounted quickly and easily; allows PCB mounting in non-boss enclosures.
- Convenient for installing PCBs into enclosures without the need for customization.
- Please ensure that surface is cleaned and grease-free before adhering.
- Once removed, it cannot be adhered on again.

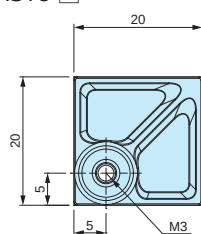
AST dimensions

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

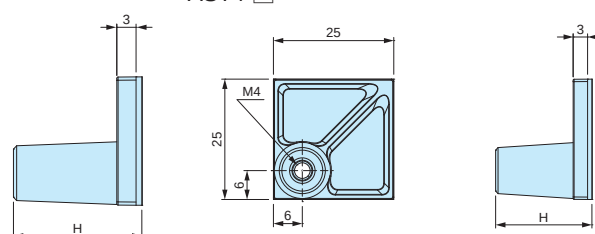
AST2.5-□



AST3-□



AST4-□



Product no. / Dimensions

Bulk package

Product no	H dimension	Included screw	Recommended PCB Thickness (mm)	Recommended torque (N • m)	Weight (g)	Pack of	Product no	Pack of
AST2.5-5B	5	M2.5-5 pan head	1.0 ~ 2.0	0.3	0.6 (1 piece)	4	AST2.5-5B-P	100
AST2.5-10B	10	M2.5-5 pan head	1.0 ~ 2.0	0.3	0.8 (1 piece)	4	AST2.5-10B-P	100
AST3-6B	6	M3-6 pan head	1.0 ~ 3.0	0.4	1.5 (1 piece)	4	AST3-6B-P	100
AST3-10B	10	M3-6 pan head	1.0 ~ 3.0	0.4	1.6 (1 piece)	4	AST3-10B-P	100
AST3-15B	15	M3-6 pan head	1.0 ~ 3.0	0.4	1.8 (1 piece)	4	AST3-15B-P	100
AST3-20B	20	M3-6 pan head	1.0 ~ 3.0	0.4	2.1 (1 piece)	4	AST3-20B-P	100
AST4-10.5B	10.5	M4-8 pan head	1.0 ~ 3.5	0.8	2.6 (1 piece)	4	AST4-10.5B-P	50
AST4-20B	20	M4-8 pan head	1.0 ~ 3.5	0.8	3.2 (1 piece)	4	AST4-20B-P	50

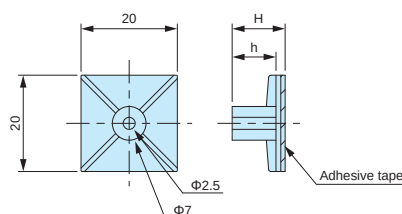
- Base material / color : Nylon 66 (UL94V-2) / Black
- Nut • screw material / finish : Steel / Trivalent chromate

- Bulk packaging is available. See "Bulk package" column above.
- Screws are not included for bulk packages.

ASR series

ADHESIVE PCB STANDOFF

ASR dimensions



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

Technical Data

Recommended torque : 0.4N • m

- M3 tapping screw use adhesive standoff.
Recommended to be used with EM-3 or EM-3-6 self-tapping screws (See page 123).
- Please ensure that surface is cleaned and grease-free before adhering.
- Once removed, it cannot be adhered on again.

Product no. / Dimensions

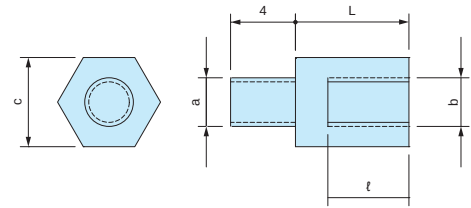
Product no	H	h	Weight (g)	Pack of
ASR- 5	5.1	3.1	0.9 (1 piece)	10
ASR- 6	6.4	4.4	1.0 (1 piece)	10
ASR- 7	7.2	5.1	0.9 (1 piece)	10
ASR- 8	8.1	6.3	0.9 (1 piece)	10
ASR- 9	9	7	1.0 (1 piece)	10
ASR-11	11	9	1.0 (1 piece)	10
ASR-13	12.7	10.7	1.2 (1 piece)	10
ASR-14.5	14.7	12.8	1.1 (1 piece)	10
ASR-16	15.9	13.9	1.3 (1 piece)	10
ASR-19	19.1	17.1	1.4 (1 piece)	10

TPS series

TAPPING STANDOFF



TPS dimensions



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



- Tapping screw head allows for easy installation onto existing enclosure boss mount.
- 4 different sizes available : M2.3, M2.6, M3 and M4 size.

Product no. / Dimensions

■ Material / Finish : Brass / Unfinished

Product no.	Screw size (a)	Screw size (b)	c	L	ℓ	Pack of	Suitable models
TPS-M2.3-4	M2.3	M2.3	5	4	3	4	WH series • PFE series LC • LCE • LCS • LCT series PF • PFF series (M2.3 boss models) TW • TWN • TWF series (M2.3 boss models) WP series (M2.3 boss models)
TPS-M2.3-5	M2.3	M2.3	5	5	3	4	
TPS-M2.3-6	M2.3	M2.3	5	6	4	4	
TPS-M2.3-7	M2.3	M2.3	5	7	5	4	
TPS-M2.3-8	M2.3	M2.3	5	8	6	4	
TPS-M2.3-10	M2.3	M2.3	5	10	6	4	
TPS-M2.3-12	M2.3	M2.3	5	12	6	4	
TPS-M2.6-4	M2.6	M2.6	5	4	3	4	PF • PFF series (M2.6 boss models) WP series (M2.6 boss models)
TPS-M2.6-5	M2.6	M2.6	5	5	3	4	
TPS-M2.6-7	M2.6	M2.6	5	7	5	4	
TPS-M2.6-10	M2.6	M2.6	5	10	6	4	
TPS-M2.6-12	M2.6	M2.6	5	12	6	4	TWS • TW • TWN • TWF series (M3 boss models)
TPS-M3-4	M3	M3	5.5	4	3	4	
TPS-M3-5	M3	M3	5.5	5	3	4	
TPS-M3-6	M3	M3	5.5	6	4	4	
TPS-M3-7	M3	M3	5.5	7	5	4	
TPS-M3-8	M3	M3	5.5	8	5	4	
TPS-M3-10	M3	M3	5.5	10	6	4	
TPS-M3-12	M3	M3	5.5	12	6	4	BCAP • BCPC • BCPK • BCAR • BCPR series (M4 boss models)
NEW TPS-M4-6	M4	M4	7	6	4	4	
NEW TPS-M4-10	M4	M4	7	10	6	4	
NEW TPS-M4-15	M4	M4	7	15	8	4	
NEW TPS-M4-20	M4	M4	7	20	10	4	



- Please use a suitable sized socket driver to both secure and loosen the tapping standoff.



How to tighten

MT series

PCB MOUNTING SCREWS for TPS



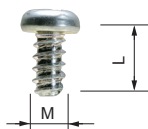
- PCB mounting Screws for TPS tapping standoffs

Product no. / Dimensions

Product no.	M	L	Head style	Material	Finish	Pack of
MT2.3-4	2.3	4	Pan	Steel	Trivalent chromate	20
MT2.3-6	2.3	6		Steel	Trivalent chromate	20
MT2.6-4	2.6	4		Steel	Trivalent chromate	20
MT3-4	3	4		Steel	Trivalent chromate	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

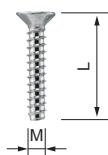
Product no.	M	L	Material	Finish	Suitable models	Pack of
EM-1.6	1.6	4	Steel	Trivalent chromate	CSS • CS WC • PS (M1.6 boss models)	50
EM-2	2	5	Steel	Trivalent chromate	SIC • SIM • WC • PS • TW • TWN • TWF PF • WC • WP (M2 boss models)	50
EM-2.3	2.3	6	Steel	Trivalent chromate	WH • LC • LCT • LCS • LCE • PFE WSC (Top cover bosses) PF • PFF (M2.3 boss models) TW • TWN • TWF (M2.3 boss models) WP (M2.3 boss models)	50
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 boss models)	50
EM-3	3	5	Steel	Trivalent chromate	TWS • TW • TWN • TWF (M3 boss models)	50
EM-3-6	3	6	Steel	Trivalent chromate		50

MR series

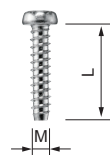
TORX SCREW



Flat head



Pan head



With pin



pin

★ Without pin



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

- Self-tapping torx screws for securing of the enclosure.

Product no. / Dimensions

★ Mark = Without pin

Product no.	M	L	head no.	Head style	Material	Finish	Suitable models	Pack of
MR1.6-6S★	1.6	6	T3	Pan	Steel	Nickel plated	CSS • CS	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	Flat	Steel	Nickel plated	TW • TWN (M2.6 size)	20
MR2.6-10B★	2.6	10	T8	Flat	Steel	Black trivalent chromate	TWF (M2.6 size) MX • MXA • MXB • MXF (M2.6 size)	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	Flat	Steel	Nickel plated	LCT • LCS • LC115-N / F2 / F3 LCT • LCS • LC145S-N / 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	Flat	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	Flat	Steel	Nickel plated	TW • TWN (M3 size)	20
MR3-14B★	3	14	T10	Flat	Steel	Black trivalent chromate	TWF (M3 size) MX • MXA • MXB • MXF (M3 size)	20
MR-1S	3	5	T10	Flat	Steel	Nickel plated	UC	20
MR-1B	3	5	T10	Flat	Steel	Black trivalent chromate		20

PMF-6B

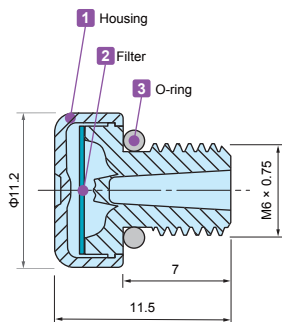
SMALL PROTECTIVE VENT



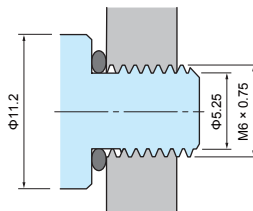
Application example

- Small and screw-in protective vent suitable for compact, and hand-held type devices.
- IP68 protection class (water depth 2 meters / 60 mins) and $-40^{\circ}\text{C} \sim +150^{\circ}\text{C}$ 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.

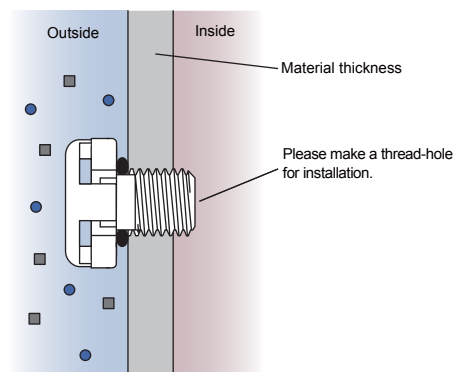
PMF-6B dimensions



Hole milling drawings



Installation drawings



Technical Data

Airflow	300ml / min ($\text{dp} = 7 \text{ kPa}$)
Recommended Torque	$0.2 \sim 0.4 \text{ N} \cdot \text{m}$
Certifications	IEC60529 (Protection class test) : IP66 • IP67 • IP68 IEC60068-2-1, 2, 14 (Heat resistance test) : $-40^{\circ}\text{C} \sim +150^{\circ}\text{C}$ IEC60068-2-78 (Humidity test) : $85^{\circ}\text{C} \cdot 85\% \text{ humidity} \cdot 1000 \text{ hours}$ 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	$M6 \times 0.75$	—

PMF-12M

STAINLESS STEEL PROTECTIVE VENT

★ ★ NEW

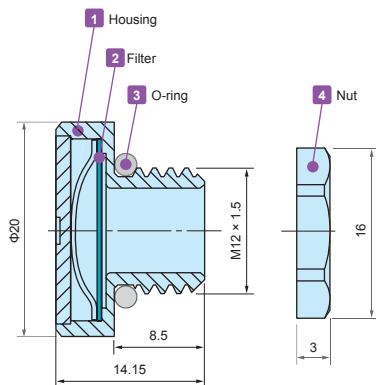
IP68 IP69K



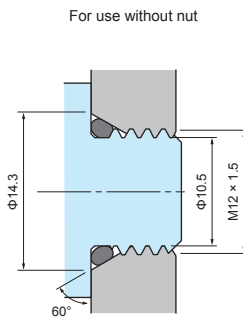
Application example

- Stainless steel protective vent for superior durability and chemical resistance.
- IP68 protection class (water depth 2 meters / 60 mins) and $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$ operating temperature range allows it to be used in various environments.
- Suitable for enclosures with capacities of 20 liters or under.
- For outdoor use, installation on the side of the enclosure unit is recommended.

PMF-12M dimensions

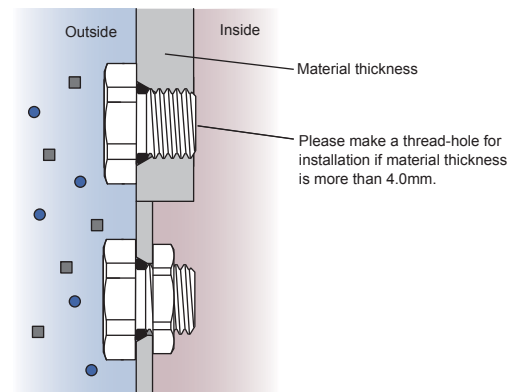


Hole milling drawings



- While $\Phi 12.2\text{mm}$ through-hole is sufficient for installation, 60° 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.

Technical Data

Airflow	1600ml / min (dp = 7 kPa)
Recommended Torque	0.6 ~ 1.2 N · m
Certifications	IEC60529 (Protection class test) : IP66 • IP67 • IP68 • IP69K IEC60068-2-1, 2, 14 (Heat resistance test) : $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$ IEC60068-2-78 (Humidity test) : $85^{\circ}\text{C} \cdot 85\%$ humidity • 1000 hours IEC60068-2-64 (Vibration test)

Product no. / Dimensions

Product no.	Material				G		Nut SW
● Metallic	1 Housing	2 Filter	3 O-ring	4 Nut	Thread size	Mount hole	
PMF-12M	Stainless steel	PTFE	Silicone	Brass • Nickel plated	M12 x 1.5	$\Phi 12.2$	15

PMF series

PROTECTIVE VENT

Pressure Equalization / Ventilation



Application Example

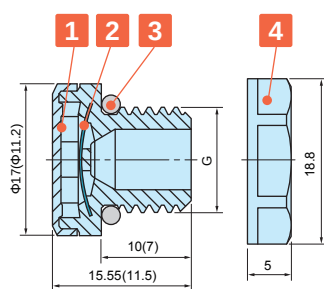
- Protective vent protects the enclosure from deformation by equalizing internal and external pressure differences, as well as venting the gas generated within the enclosure.
- IP68 protection class (water depth 2 meters / 60 mins) with an operating temperature range $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$ allows them to be used in harsh environments.
- PMF-6B model is suitable for enclosures with capacities of up to 2.0 liters. PMF-12 and PMF-12HS models are suitable for up to 5 and 50 liters respectively.
- Recommended to be installed at the sides of the enclosure.
- Use in industrial and electrical / electronic products only; not suitable to be used in medical, food and beverage, and cosmetic industries and related industrial equipment.

PMF dimensions

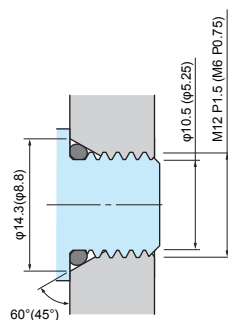
Hole milling drawings

Installation drawings

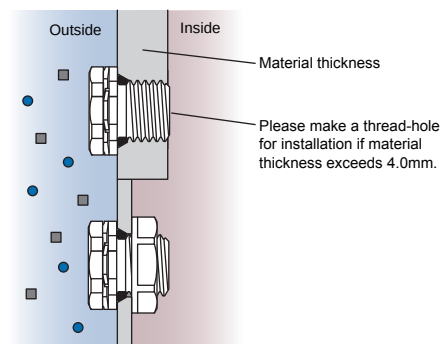
■ DXF/DWG/PDF drawings available on our website.



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



■ Recommended for prevention of O-ring deformation during tightening.
If tightened with a lock nut, a standard through-hole is sufficient for installation.



■ If used with a lock nut, material thickness should not exceed 4.0mm.

Technical Data

Product no.	PMF-6B	PMF-12	PMF-12HA
Airflow	300ml / min (dp = 7kPa)	450ml / min (dp = 7kPa)	4,000ml / min (dp = 7kPa)
Recommended torque	0.2 ~ 0.4N · m	0.6 ~ 0.8N · m	0.6 ~ 0.8N · m
Certifications	IEC60529 (Protection class test) : IP65 • IP66 • IP67 • IP68 • IP69K (Not for PMF-6B) IEC60068-2-1, 2, 14 (Heat resistance test) : $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$ ($\sim +150^{\circ}\text{C}$ for PMF-6B) IEC60068-2-78 (Humidity test) : $85^{\circ}\text{C} \cdot 85\%$ humidity • 1,000 hours IEC60068-2-11, 52 (Salt spray test) IEC60068-2-64 (Vibration test) GR-3108-CORE (Corrosive gas test) UL94V-0 (Flame-resistant) • UL746C f1		

Product no. / Dimensions

Product no.		Material				G		Lock nut
● Light gray	● Black	1 Housing	2 Filter	3 O-ring	4 Lock nut	Thread size	Mount hole	SW
—	PMF- 6B	PA6 / 66	PTFE	Silicone	—	M6 x P0.75	—	—
PMF-12S	PMF-12B	PA66 / 6	PTFE	Silicone	PA66 (UL94V-2)	M12 x P1.5	Φ12.2	17
PMF-12HAS	PMF-12HAB	PA66 / 6	PTFE	Silicone	PA66 (UL94V-2)	M12 x P1.5	Φ12.2	17

PMF-32S

LARGE PROTECTIVE VENT

Pressure Equalization / Ventilation



Application Example

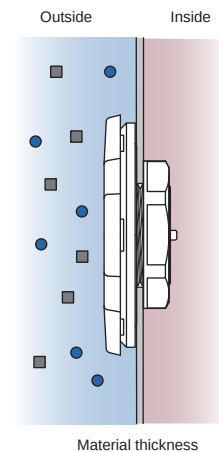
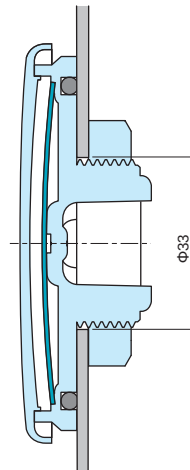
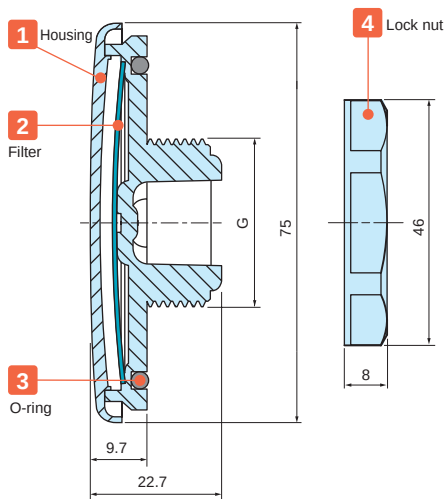
- Maintaining high airflow for large enclosures in an outdoor environment.
- Protective vent protects the enclosure from deformation by equalizing internal and external pressure differences, as well as venting the gas generated within the enclosure.
- Simple and flat design allows it to be used on a 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.
- Recommended to be installed at the sides of the enclosure.
- Use in industrial and electrical / electronic products only; not suitable to be used in medical, food and beverage, and cosmetic industries and related industrial equipment.

PMF-32 dimensions

Hole milling drawings

Installation drawings

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



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

Technical Data

Airflow	16ℓ / min (dp = 1.2kPa)
Recommended torque	5 N • m
Certifications	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 • 1,000 hours IEC60068-2-11, 52 (Salt spray test) IEC60068-2-64 (Vibration test) IEC62108, 10.8 • 9 (Solar industry test) : Freezing • High temperature tes • Hail impact test GR-3108-CORE (Corrosive gas test) UL94V-0 (Flame-resistant) • UL746C f1

Product no. / Dimensions

Product no.	Material				G			Lock nut SW
	1 Housing	2 Filter	3 O-ring	4 Lock nut	Thread size	Thread diameter	Mount hole	
PMF-32S	Polycarbonate	PTFE	Silicone	PA66	M32 x P1.5	Φ32	Φ33	41.5

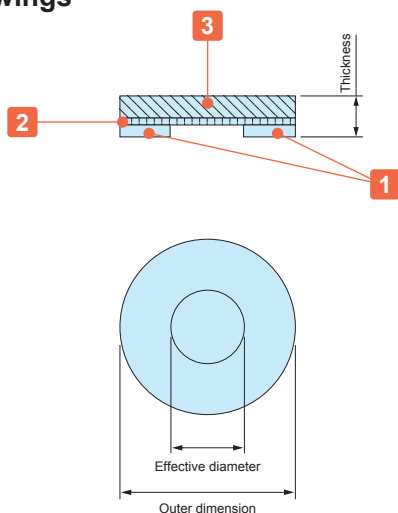
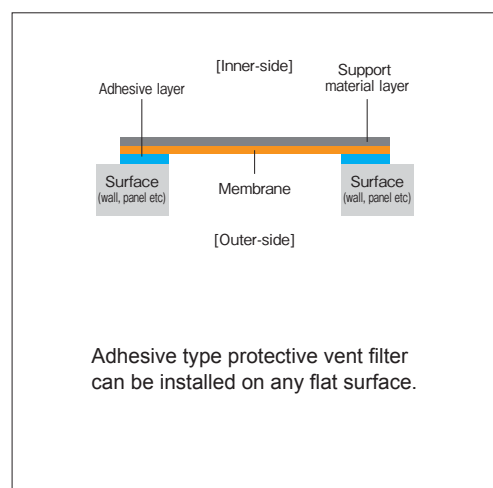
VE8 series**ADHESIVE PROTECTIVE VENT FILTER****Technical Data**

Protection class : Dustproof IP6X
 Waterproof IPX4, IPX7
 Airflow: 3,300ml/min/cm² (at 7Kpa)
 Operating temperature: -40°C ~ +100°C

- Improved airflow of 3,300ml/min/cm² as compared to previous VSC series.
- Vent filter protects the enclosure from deformation by equalizing internal and external pressure differences, as well as venting the gas generated within the enclosure.
- Allows water vapor molecules to diffuse through the microporous membrane.
- Highly water and oil repellent membrane protects electronic components from water, corrosive liquids, salts and dust.
- Easy installation adhesive filter.
- Recommended to be adhered onto flat plastic or metallic surfaces.

CAUTION

- Install only on the inner surface of the case / box with the membrane and adhesive side facing outwards.
- An initial period of 24 hours is required for the adhesive to properly bond to the surface. Avoid using the vent filter with a heavy load.
- Please do not adhere onto the top-side of enclosures. Rain water etc. will collect on the filter, which will weaken the adhesive seal and prevent proper ventilation.
- After degreasing and cleaning, adhere the filter without touching the center part of the vent filter.
- Use in industrial and electrical / electronic products only; not suitable to be used in medical, food and beverage, and cosmetic industries and related industrial equipment.

VE8 drawings**Installation drawings****Components**

No.	Part name	Material	Color
1	Adhesive	Acrylic adhesive	Transparent
2	Filter	ePTFE (Oil-repellent type)	White
3	Support material	Polyester fabric	White

Product no. / Dimensions

Product no.	Outer dimension (Φ-mm)	Effective diameter (Φ-mm)	Thickness (mm)	Sales unit
VE80308	7.6	3.3	0.26	8 pcs (per pack)
VE80814	14.0	8.0	0.26	4 pcs (per pack)
VE81221	21.5	12.5	0.26	4 pcs (per pack)
NEW VE82029S	29.0	20.0	0.35	2 pcs (per pack)
VE80308-S	7.6	3.3	0.26	96 pcs (per sheet)
VE80814-S	14.0	8.0	0.26	56 pcs (per sheet)
VE81221-S	21.5	12.5	0.26	20 pcs (per sheet)
NEW VE82029S-S	29.0	20.0	0.35	10 pcs (per sheet)

VSC SERIES

ADHESIVE PROTECTIVE VENT FILTER



Technical Data

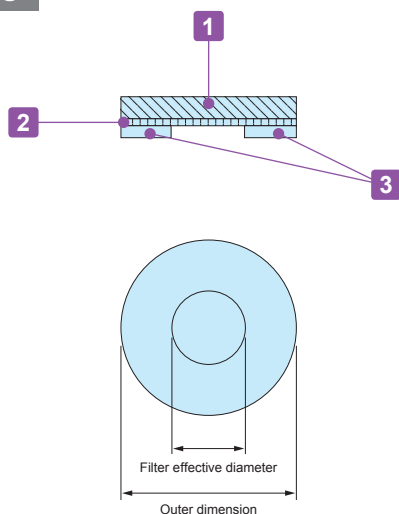
Water Entry Pressure (WEP): $\geq 20.0\text{kPa}$
 Airflow: $450\text{cc}/\text{cm}^2 \cdot \text{min}$ at 1.29Kpa

- Prevents ingress of a variety of contaminants, such as water, dust and other particles.
- Allows water vapor molecules to diffuse through the microporous membrane.
- Recommended to be adhered onto flat plastic or metallic surfaces.

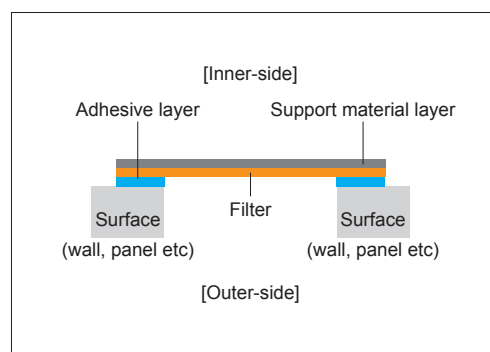
NOTE

- Surface must be wiped dry before adhering.
- An initial period of a few hours is required for the adhesive to properly bond to the surface.
- Please do not adhere onto the top-side of enclosures. Rain water etc will collect on the filter, which will weaken the adhesive seal and prevent ventilation.

Drawing



Installation drawing

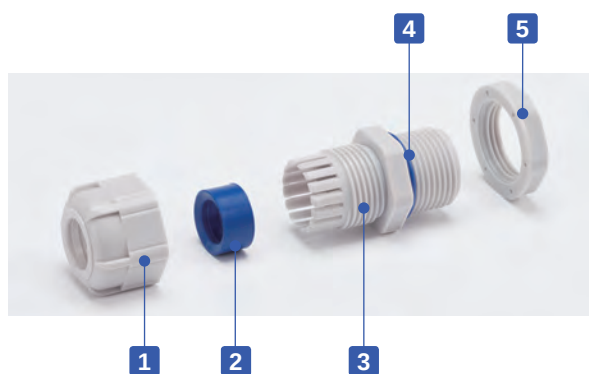


Components

No.	Part name	Material	Color
1	Adhesive	Acrylic adhesive	Transparent
2	Filter	PTFE	White
3	Support material	Polyester fabric	White

Product no. / Dimensions

Product no.	Outer dimension (Φ)	Filter effective diameter (Φ)	Thickness	Sales unit
VSC075	7.5	4.0	0.35	5 pcs (per pack)
VSC130	13.0	8.0	0.35	4 pcs (per pack)
VSC240	24.0	16.0	0.35	4 pcs (per pack)
VSC075-S	7.5	4.0	0.35	100 pcs (per sheet)
VSC130-S	13.0	8.0	0.35	56 pcs (per sheet)
VSC240-S	24.0	16.0	0.35	20 pcs (per sheet)



- Weatherproof cable gland equipped with high ultraviolet and degradation resistant silicone sealing insert and O-ring.
- Recommended to use outdoors where waterproofing is critical.
- IP67 protection class.

Components

■ PA = Polyamide

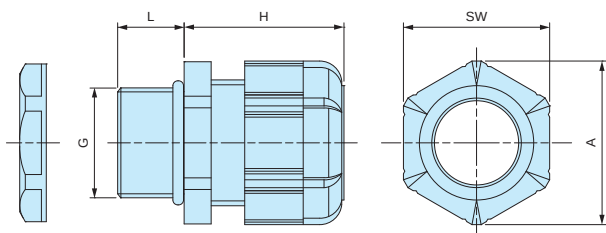
No.	Part name	Material
1	Cap	PA66 UL94V-2
2	Sealing insert	Silicone
3	Connector	PA66 UL94V-2
4	O-ring	Silicone
5	Lock nut	PA66 UL94V-2

RMW dimensions

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

Technical Data

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



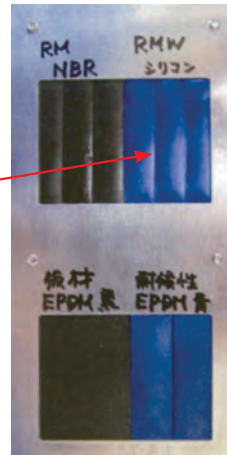
- Lock nut is not included for RMW10S-6.
- Please drill a proper thread hole into the enclosure for installation.

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
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

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^2 at 300-400nm

Black Panel Temperature : $63\pm 3^\circ\text{C}$ Humidity Range : $50\pm 10\%$

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^2

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

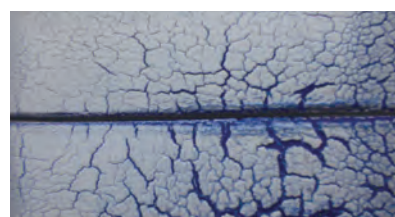


EPDM material from weatherproof cable gland of another manufacturer : Cracked, color drastically faded and powder appeared on the surface.

Before



After





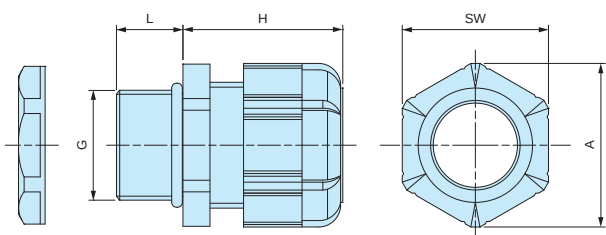
- Low cost cable glands made from polyamide material.
- Wide selection, for M8 ~ M63, suitable for $\Phi 1\text{mm} \sim \Phi 44\text{ mm}$ cable.
- High oil resistant NBR rubber sealing and O-ring.
- IP67 protection class.

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



Technical Data

Protection class: IP67
Operating temperature: $-20^{\circ}\text{C} \sim +80^{\circ}\text{C}$

- 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	$\Phi 8.2$	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	$\Phi 8.2$	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	$\Phi 10.2$	3	6	13	20.5	13	14.4	1
RM12S-7B	RM12S-7S	M12×1.5	$\Phi 12.2$	3.5	7	9	20.5	16	17.6	1
RM12L-7B	RM12L-7S	M12×1.5	$\Phi 12.2$	3.5	7	14.5	20.5	16	17.7	1
RM16S-8B	RM16S-8S	M16×1.5	$\Phi 16.2$	4	8	9	23.5	19	21	1
RM16L-8B	RM16L-8S	M16×1.5	$\Phi 16.2$	4	8	15	24	19	21	1
RM20S-12B	RM20S-12S	M20×1.5	$\Phi 20.2$	6	12	10	29	24	26.2	1
RM20L-12B	RM20L-12S	M20×1.5	$\Phi 20.2$	6	12	15	28.5	24	26.2	1
RM25L-17B	RM25L-17S	M25×1.5	$\Phi 25.2$	11	17	15	35	33	36.2	1
RM32L-21B	RM32L-21S	M32×1.5	$\Phi 32.3$	13	21	15	38	36	39.5	1
RM40L-27B	RM40L-27S	M40×1.5	$\Phi 40.3$	18	27	18	43.5	45.7	50.5	1
RM50L-38B	RM50L-38S	M50×1.5	$\Phi 50.4$	27	38	20	50.5	60	66.5	1
RM63L-44B	RM63L-44S	M63×1.5	$\Phi 63.4$	37	44	20	53	68	75.5	1
RM10L-6B-P	RM10L-6S-P	M10×1.5	$\Phi 10.2$	3	6	13	20.5	13	14.4	100
RM12S-7B-P	RM12S-7S-P	M12×1.5	$\Phi 12.2$	3.5	7	9	20.5	16	17.6	100
RM12L-7B-P	RM12L-7S-P	M12×1.5	$\Phi 12.2$	3.5	7	14.5	20.5	16	17.7	100
RM16S-8B-P	RM16S-8S-P	M16×1.5	$\Phi 16.2$	4	8	9	23.5	19	21	100
RM16L-8B-P	RM16L-8S-P	M16×1.5	$\Phi 16.2$	4	8	15	24	19	21	100
RM20S-12B-P	RM20S-12S-P	M20×1.5	$\Phi 20.2$	6	12	10	29	24	26.2	100
RM20L-12B-P	RM20L-12S-P	M20×1.5	$\Phi 20.2$	6	12	15	28.5	24	26.2	100
RM25L-17B-P	RM25L-17S-P	M25×1.5	$\Phi 25.2$	11	17	15	35	33	36.2	100

RSP series

STRAIN RELIEF CABLE GLAND



IP67

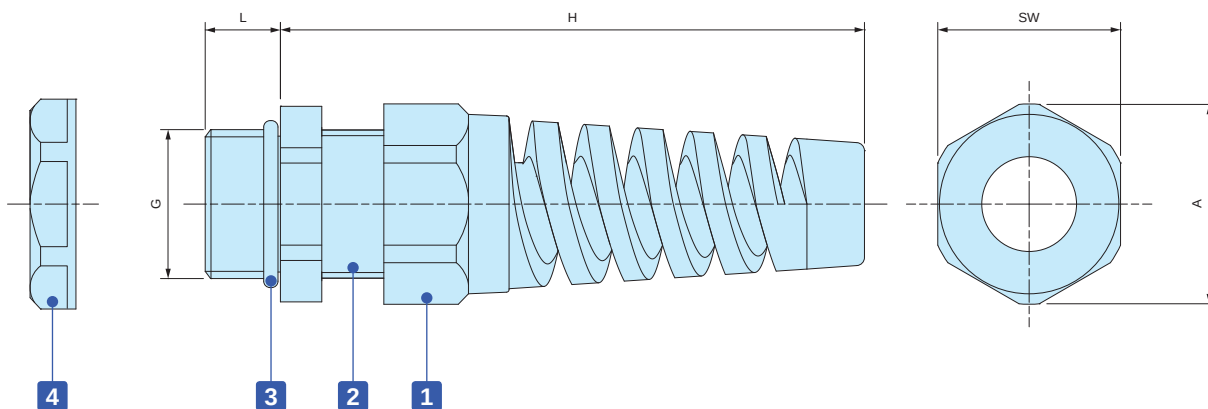
- Strain relief cap protects cables by preventing it from bending beyond its limit and breaking.

Technical Data

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

RSP dimensions

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

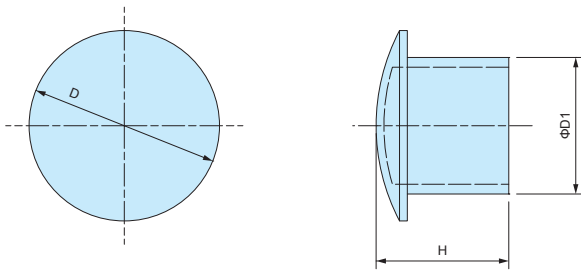


Components

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

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



- High water protection IP68 (1bar / 30min) polyamide cable gland.
- Wide selection, for M8 ~ M50, suitable for $\Phi 2.5\text{mm}$ ~ $\Phi 42\text{ mm}$ 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

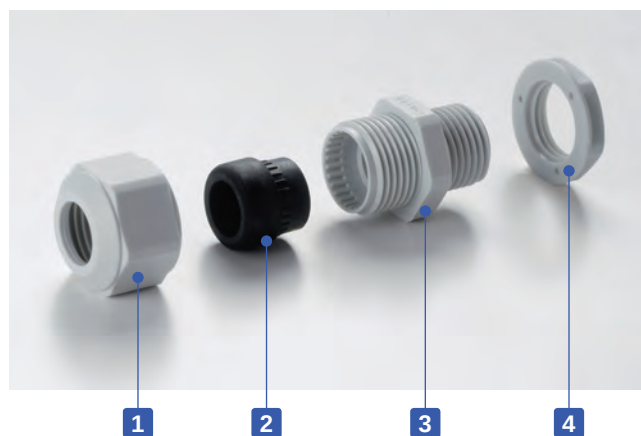
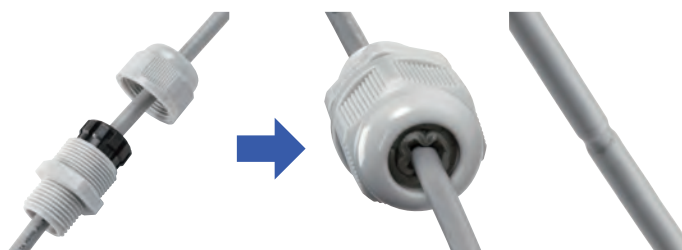
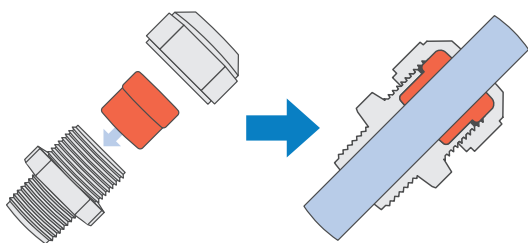
Protection class: IP68 1bar / 30min
 Operating temperature: -20°C ~ +100°C
 Compliant with EN50262 Ver. A

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.

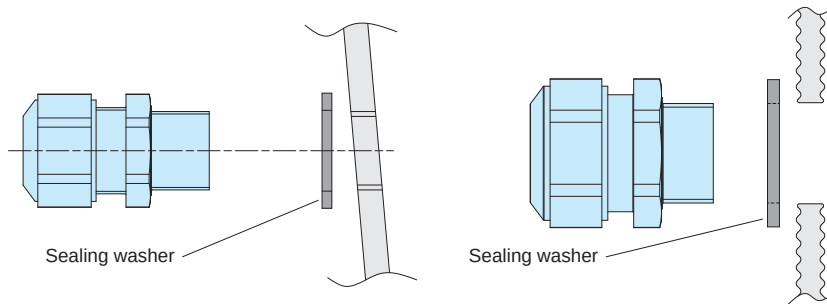
- Proper tightening torque varies by each cable diameter. Tighten the cap until top of the sealing insert forms a small bead between the cap and the cable.



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

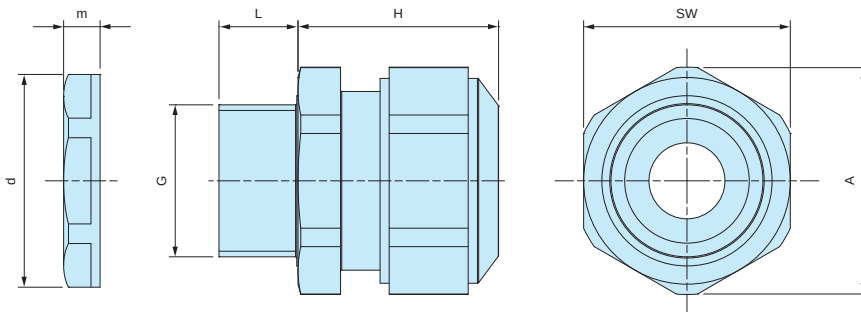
■ An optional sealing washer is required when installing on an uneven surface. (See website for more information on the optional sealing washer)

Waterproof rib



AG dimensions

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



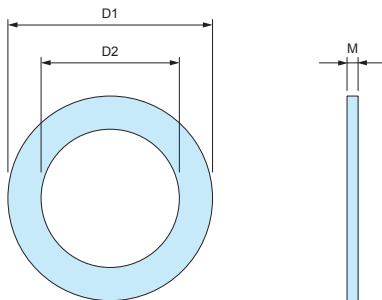
■ Lock nut is not included for M8 and M10 sizes.
Please drill a proper thread hole into the enclosure for installation.

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



- High water protection IP68 (1bar / 30min) metal cable gland.
- Wide selection, for M6 ~ M50 and PG7 ~ PG16.
Suitable for $\Phi 2$ mm ~ $\Phi 42$ mm cable.

Technical Data

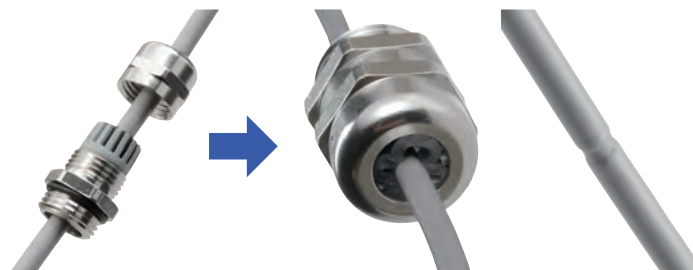
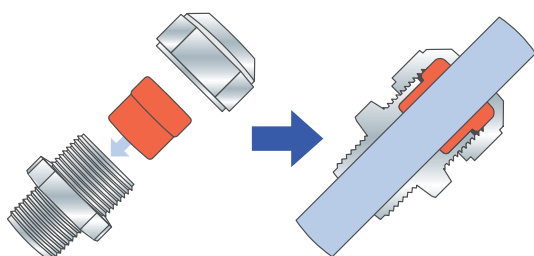
Protection class: IP68 1bar / 30min
 Operating temperature: -40°C ~ +100°C
 Compliant with EN50262 Ver. A

AGM 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.



- 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.

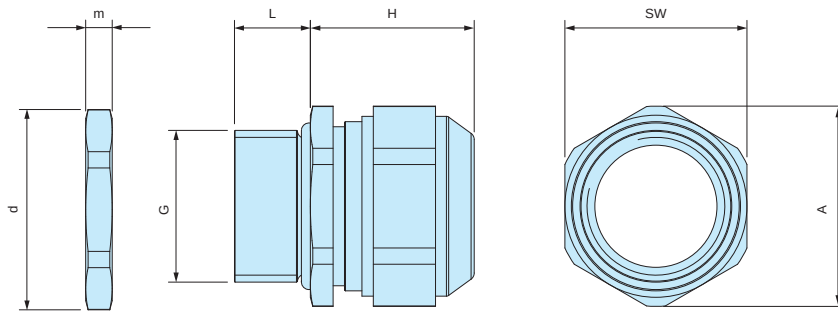


Components

No.	Part name	Material	Color / Finish
1	Cap	Brass	Nickel plated
2	Sealing insert	TPE	Black
3	Connector	Brass	Nickel plated
-	O-ring	NBR	Black
4	Lock nut	Brass	Nickel plated

AGM dimensions

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



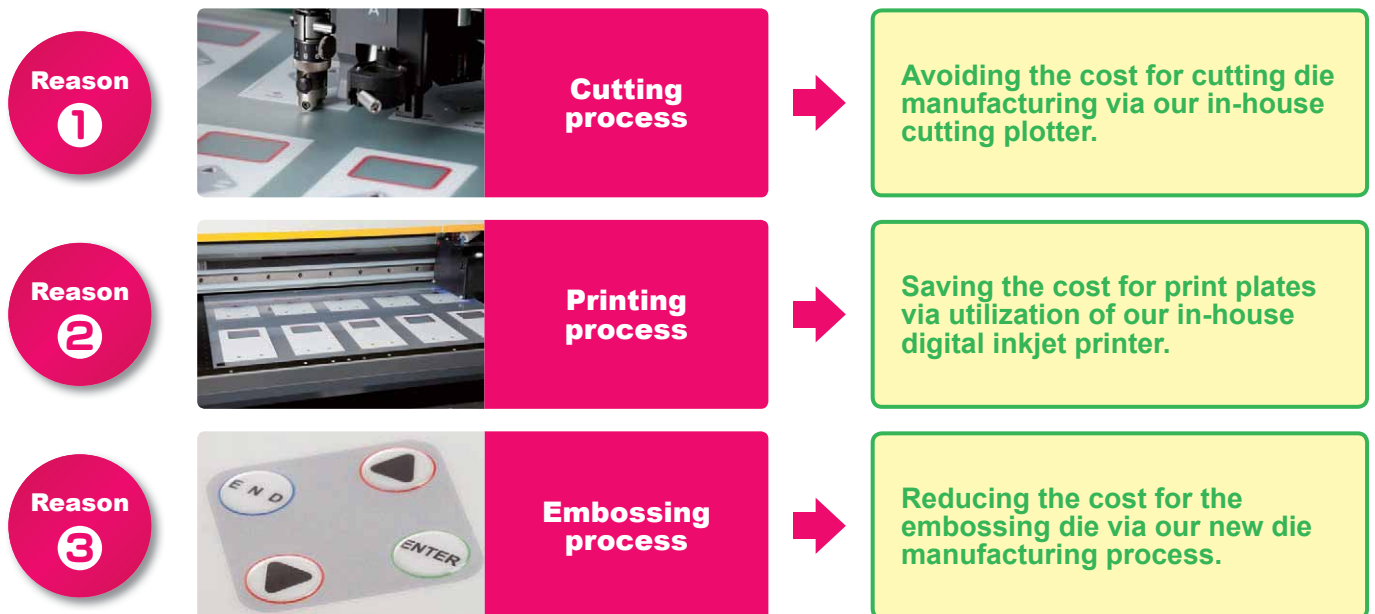
Product no. / Dimensions

Product no.	G			Cable range		L	H Max	SW	A	d	m	Pack of
	Thread size	Thread outer dia.	Mounting hole	Min	Max							
AGM6-2.5	M6×1.0	—	Φ6.2	2	2.5	8	12	8	9	10	2.8	1
AGM6-3	M6×1.0	—	Φ6.2	2.5	3.0	8	12	8	9	10	2.8	1
AGM6-3.5	M6×1.0	—	Φ6.2	3.0	3.5	8	12	8	9	10	2.8	1
AGM8-5	M8×1.25	—	Φ8.2	3.5	4.7	10	14	11	12	12	3	1
AGM10-6	M10×1.5	—	Φ10.2	4.0	6.0	10	15	13	14.3	14	2.8	1
AGM12-8	M12×1.5	—	Φ12.2	6.5	8.0	10	17	15	16.5	16.5	2.8	1
AGM16-10.5	M16×1.5	—	Φ16.2	8.0	10.5	10	21	18	20	21	3	1
AGM20-15	M20×1.5	—	Φ20.2	11.0	15.0	10	23	24	26.5	26.5	3.5	1
AGM25-20	M25×1.5	—	Φ25.2	16.0	20.0	11	28	30	33	33	4	1
AGM32-25.5	M32×1.5	—	Φ32.3	21.0	25.5	13	29.5	36	39.5	39.5	4	1
AGM40-28.5	M40×1.5	—	Φ40.3	24.0	28.5	13	32	46	50.7	51	5	1
AGM40-33	M40×1.5	—	Φ40.3	28.5	33.0	13	32	46	50.7	51	5	1
AGM50-37	M50×1.5	—	Φ50.4	33.0	37.0	14	34	55	59.7	60	5.5	1
AGM50-42	M50×1.5	—	Φ50.4	37.0	42.0	14	34	55	59.7	60	5.5	1

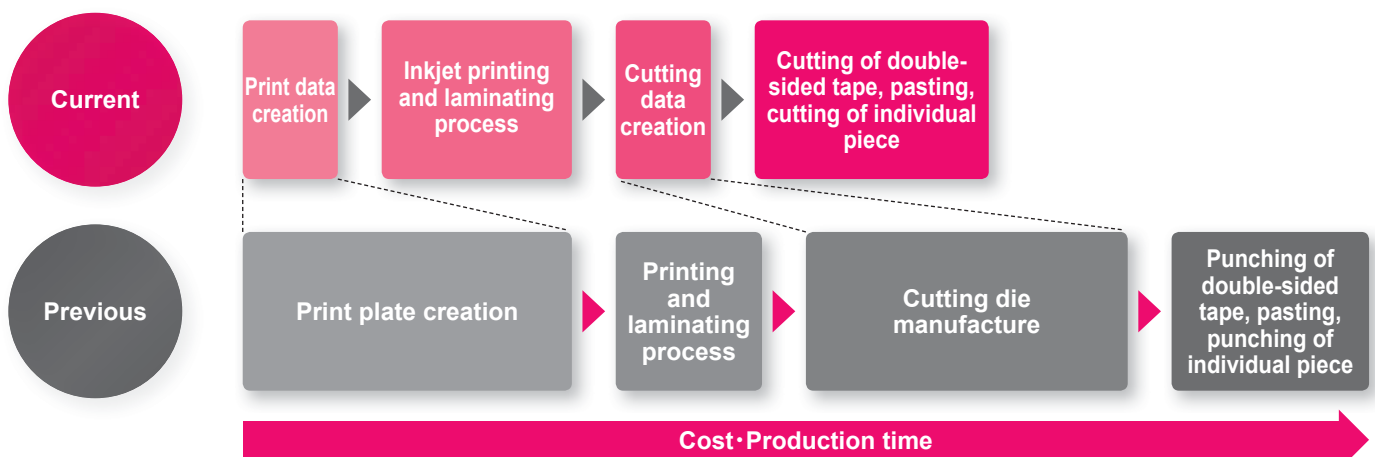
DIGITAL PRINTED OVERLAY



● 3 reasons for low initial costs



● Comparison of current and previous manufacturing methods



PRODUCTION PROCESS



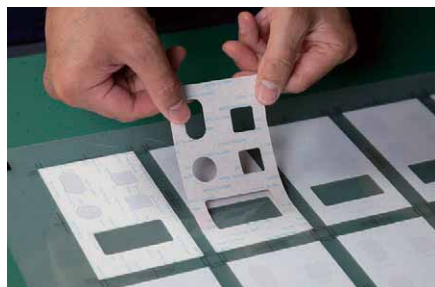
1. Inkjet printing on film



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

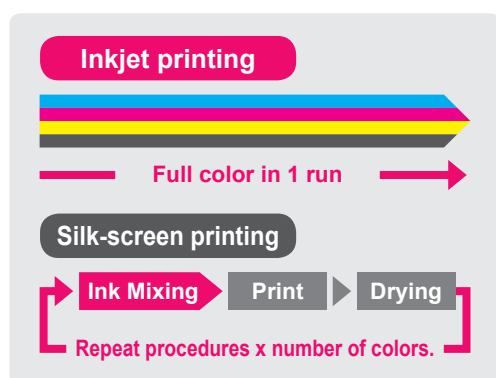
CUSTOMIZATION EXAMPLE



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	

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.



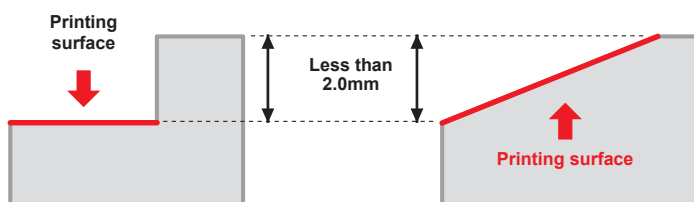
Maximum printable enclosure size



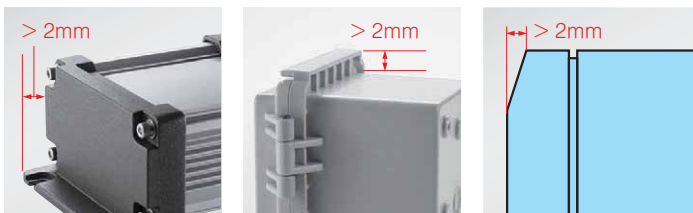
Printable on surfaces with height differential

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.

