

**TAKACHI**

**2019-20  
ALL PRODUCT CATALOG**



**CASE BOX RACK & CUSTOM  
TAKACHI ELECTRONICS ENCLOSURE CO., LTD.**

# TAKACHI STANDARD ENCLOSURES

**TAKACHI** is a leading Japanese manufacturer of enclosures for a variety of applications.

We provide high quality plastic, aluminium, and stainless steel enclosures for use in the electronic, industrial and various other fields worldwide.

Our warehousing facility allows us to both keep inventory, and provide timely shipments upon order.



PHYSICAL QUANTITY DETECTOR



COATING THICKNESS GAUGE



DATA HUB



IOT GATEWAY



Wi-Fi ACCESS POINT



MEDICAL EQUIPMENT



# CUSTOMIZED ENCLOSURE

**TAKACHI** can be your "one stop shop" for your customization requirements.

We provide value-added services, such as CNC machining, inkjet printing, and many more on our available range of enclosures.

Available from 1 unit onwards with a short lead-time, we can assist you with the creation of your original design.

CAD data can also be downloaded from our website for use in your design.



**CNC MACHINING on ALUMINIUM**



**CNC MACHINING on PLASTIC**



**LASER CUTTING**



**PUNCHING PRESS**



**INKJET PRINTING**



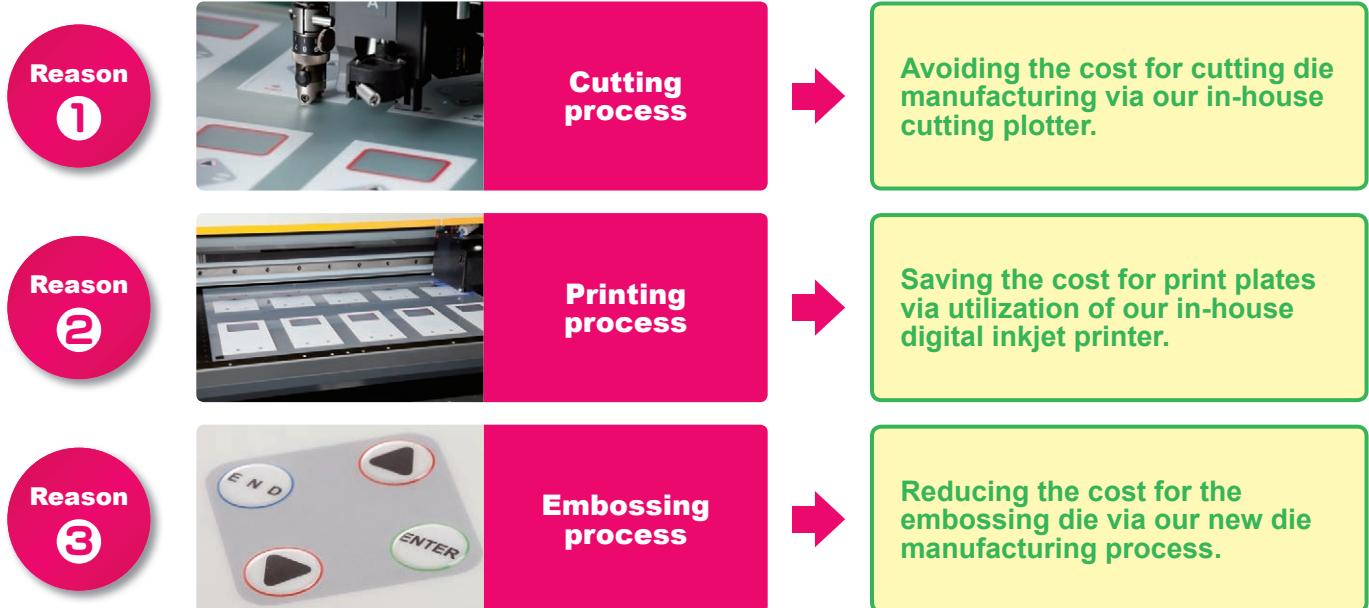
**DIGITAL PRINTED OVERLAY**



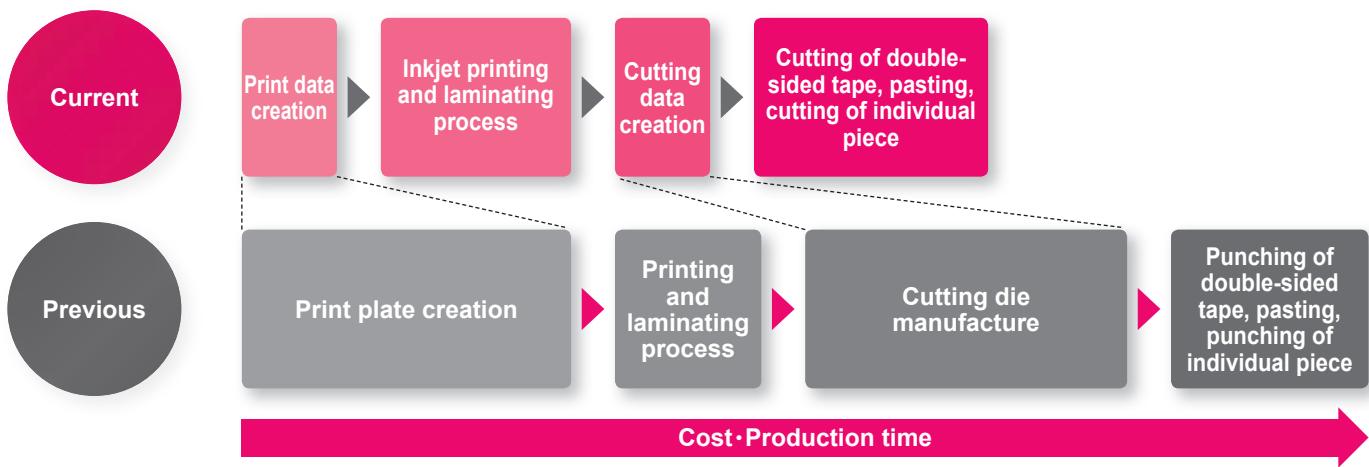
# DIGITAL PRINTED OVERLAY



## ● 3 reasons for low initial costs



## ● Comparison of current and previous manufacturing methods



# PRODUCTION PROCESS



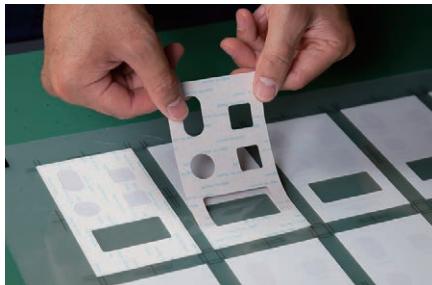
1. Inkjet printing on film



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

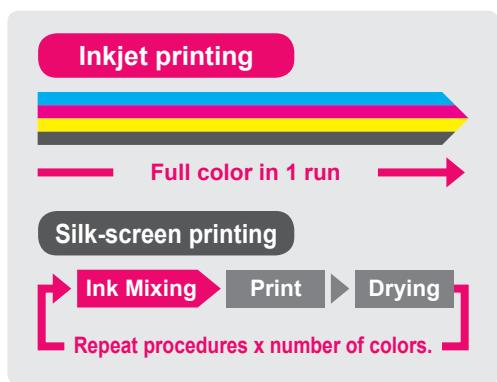


# INKJET PRINTING



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**

<b>Inkjet printing</b>	1 run only for full color print		
<b>Printing cost Full color</b>			
<b>Silk-screen printing</b>	<b>Printing cost x number of colors</b>		
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.



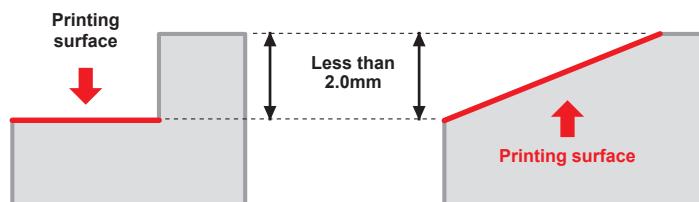
## Maximum printable enclosure size



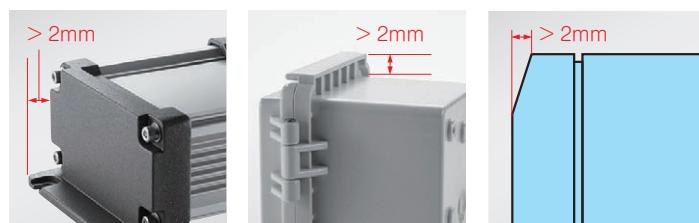
## Printable on surfaces with height differential

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

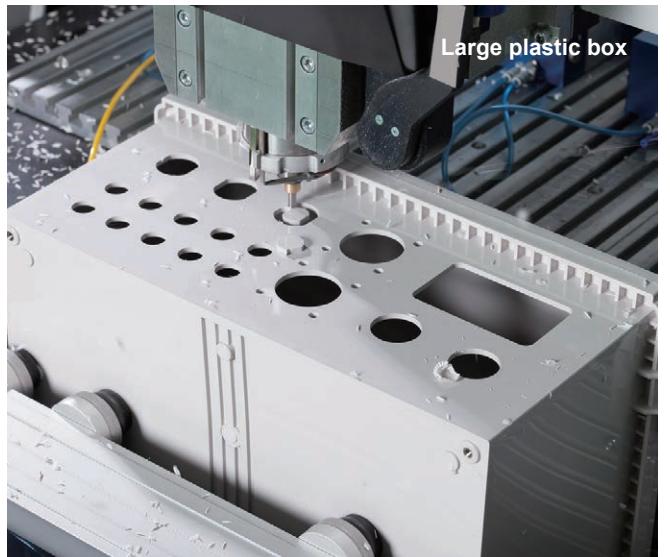


# CNC MACHINING

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.

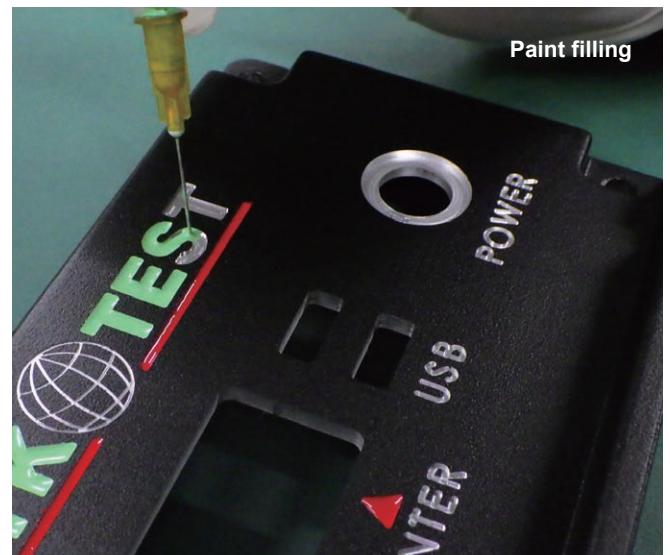
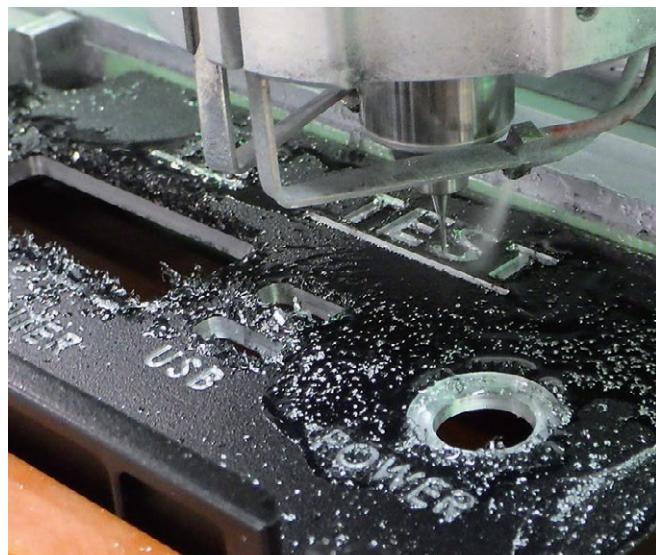
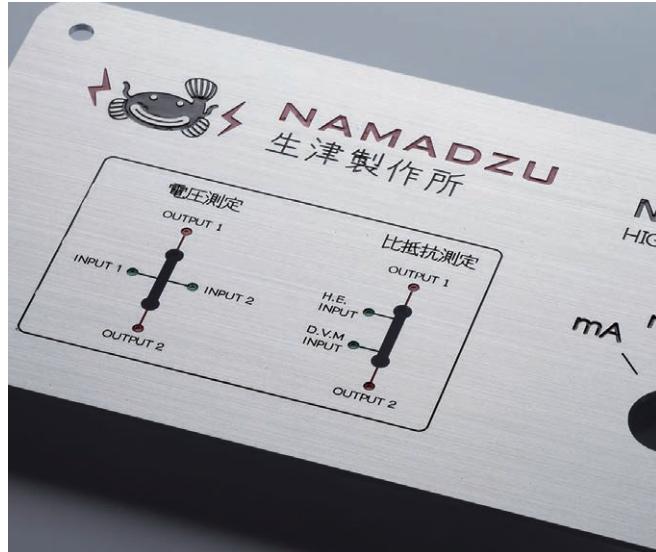


- Mainly used for plastic, aluminium die-cast, and aluminium extrusion material types.
- Able to perform milling for various shapes and sizes.
- Recommended for small quantity customization.



# ENGRAVING

By having the drill-head slightly milling the surface, the engraving of fine text or complex designs is able to be performed on a variety of surfaces, be it flat, curved, and so on.  
Suitable for small batch print, and/or simple lettering. Font shall be similar to VAG Rounded font type.



# LASER CUTTING

Laser cutting utilizes a laser to perform cutting on an object, allowing various types and shapes of holes to be cut.

New fiber laser machine allows the processing of aluminium sheets with both high precision and speed. Processing of Pure Aluminium 1050 is also possible with minimal burr as compared to conventional CO<sup>2</sup> laser machines, which causes excessive burring.

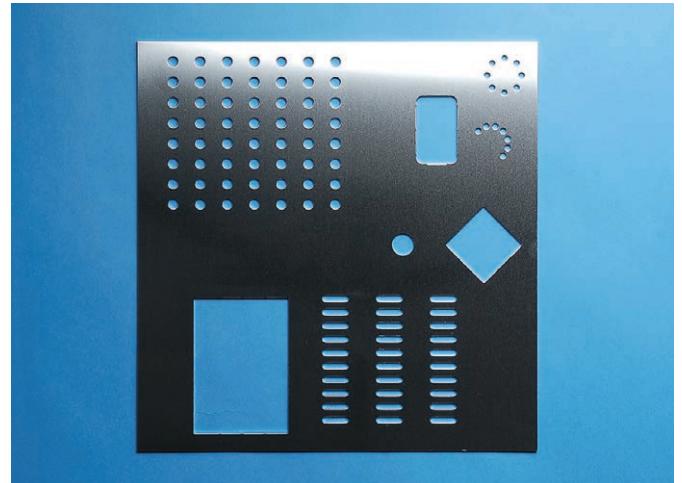
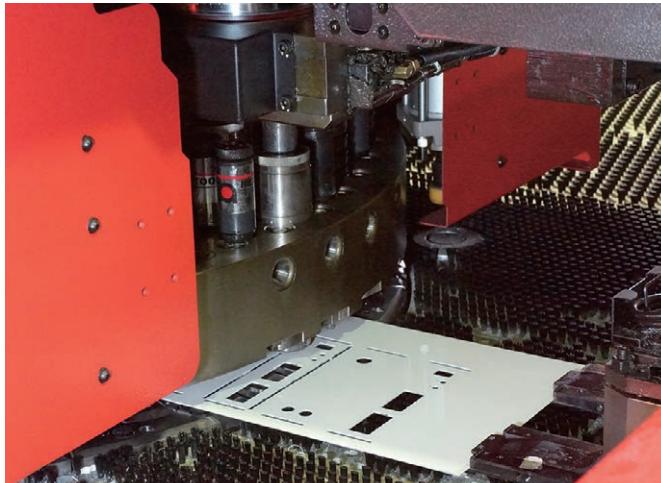


# PUNCHING PRESS

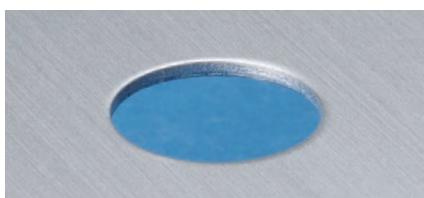
What is punching press? It is a type of machine press used to cut holes in material via the use of various sized die sets.

Punching press allows the realization of high cost performance due to its high speed automated turret punching process, which significantly reduces machining lead-time.

Due to its ability to create designated sized holes by means of rapid multiple hole punches, this enables it to punch holes of various sizes and types quickly and efficiently.



**Circular hole**



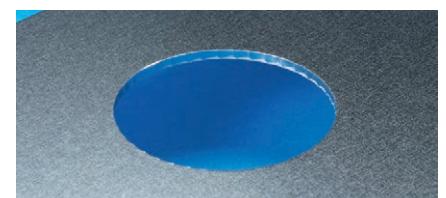
Circular holes as small as 1.0mm in diameter can be punched .

**Nibbling press (rectangle)**



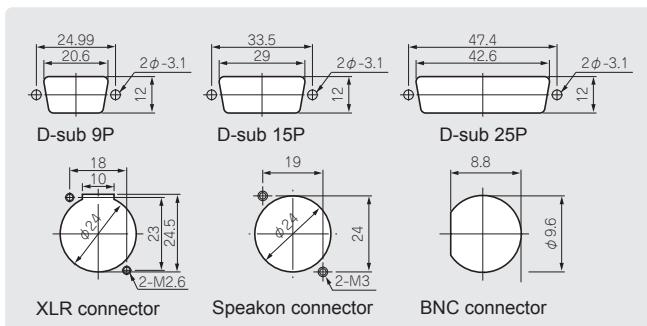
Complex or large rectangular shapes can be punched out with multiple presses.

**Nibbling press (round)**

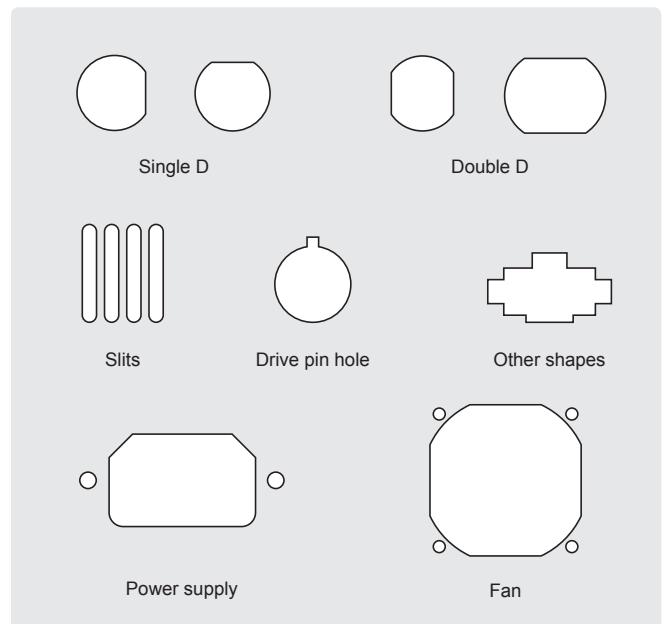


Punching of large circular holes with multiple smaller die strokes.

**Common connector shapes**



**Unique shapes**



**Burring punch**



# PHOTO INDEX

## PLASTIC ENCLOSURE



IP67 SLOPED PLASTIC CASE  
WSC series P1-4



IP67 HAND-HELD ENCLOSURE  
WH series P7-14



HAND-HELD CASE with SHOCK-PROOF SILICONE COVER  
LCT series P15-22, 31-36



HAND-HELD CASE with SILICONE COVER  
LCS series P15-18, 23-26, 31-36



HAND-HELD PLASTIC CASE  
LC series P15-18, 27-28, 31-36



EMC SHIELDED HAND-HELD PLASTIC CASE  
LCE series P15-18, 29-36



IP67 PORTABLE PLASTIC CASE  
WC series P37-42



PORTABLE PLASTIC CASE with SILICONE COVER  
CSS series 43-46, 49-52



PORTABLE PLASTIC CASE  
CS series P43-44, 47-52



PORTABLE PLASTIC CASE  
PS series P53-56



STRAP / KEY RING  
STPS • STP series / CR-20 series P57-58



IP67 NETWORK PLASTIC BOX  
WP series P59-68



NETWORK PLASTIC BOX  
PF series P69-76



EMC SHIELDED PLASTIC BOX  
PFE series P77-78



FLANGED NETWORK PLASTIC BOX  
PFF series P79-82



PLASTIC ENCLOSURE with WALL MOUNTING FLANGE  
TWB series P83-88



PLASTIC ENCLOSURE with SILICONE PROTECTOR  
TWS series P89-94, 98-100



MULTIPURPOSE PLASTIC ENCLOSURE  
TWN series P95-100

# PHOTO INDEX

## PLASTIC ENCLOSURE



SNAP-IN BATTERY BOX  
LD • LDN series P101-102



COMPACT SNAP-IN PLASTIC CASE  
SW • SW-N • SW-T series P103-104



NETWORK PLASTIC CASE  
SU series P105-106

## PLASTIC ENCLOSURE ACCESSORIES



SUSPENSION BRACKET  
WM series P107



NEODYMIUM MAGNET  
NMG series P108



BELT CLIP  
GDH • DK series P109



DIN-RAIL MOUNTING BASE  
DRA • DRT series P110



TAPPING STANOFF  
TPS series P111



ADHESIVE STANOFF  
T-600 • T-700 • ASR series P112



DUSTPROOF PLUG • CONNECTOR COVER  
P113-114



PCB MOUNTING SCREW • TORX SCREW  
EM • MR series P115



LITHIUM BATTERY HOLDER  
CR2 • CR123A series P116

## EXTRUDED ALUMINIUM ENCLOSURE / HEAT-SINK ALUMINIUM ENCLOSURE



FLANGED NETWORK ALUMINIUM ENCLOSURE  
MXF series P117-122, 129-130



ALUMINIUM MOBILE ENCLOSURE with SILICONE BAND  
MXB series P117-120, 123-124, 129-130



ALUMINIUM MOBILE ENCLOSURE  
Mxa series P117-120, 125-126, 129-130



MOBILE ENCLOSURE  
MX series P117-120, 127-130



ALUMINIUM PANEL CASE with CORNER GUARD  
EXP series P131-136, 149-154



ALUMINIUM EMC SHIELD CASE with CORNER GUARD  
EXPE series P131-134, 137-138, 149-154

# PHOTO INDEX

## EXTRUDED ALUMINIUM ENCLOSURE / HEAT-SINK ALUMINIUM ENCLOSURE



IP65 ALUMINIUM CASE with CORNER GUARD  
EXW series P131-134, 139-140, 149-154



FLANGED ALUMINIUM PANEL CASE  
EXP series P131-134, 141-142, 149-154



FLANGED ALUMINIUM EMC SHIELD CASE  
EXEF series P131-134, 143-144, 149-154



IP65 FLANGED ALUMINIUM CASE  
EXWF series P131-134, 145-146, 149-154



EXTRUDED ALUMINIUM CASE  
EX series P131-134, 147-154



IP67 FLANGED ALUMINIUM ENCLOSURE  
AW series P155-158, 167-168, 170



IP67 HEAT-SINK ALUMINIUM ENCLOSURE  
AWN series P155-156, 159-160, 167-170



IP67 ALUMINIUM ENCLOSURE with SILICONE PROTECTOR  
AWP series P155-156, 161-162, 167-170



HEAT-SINK ALUMINIUM ENCLOSURE  
AWA series P163-168, 170



HEAT-SINK ALUMINIUM ENCLOSURE  
EXH series P171-176, 179-182



FLANGED HEAT-SINK ALUMINIUM ENCLOSURE  
EXHF series P171-174, 177-182



HEAT-SINK ALUMINIUM ENCLOSURE  
HY series P183-186



HEAT-SINK ALUMINIUM CASE  
HIT series P187-188



HEAT-SINK ALUMINIUM CASE  
HEN series P189-190

### ALUMINIUM FEET



ALUMINIUM ISOLATION FEET  
AFS • AFM series P191-192



PLASTIC / ALUMINIUM FEET  
RS • TC series P193

### RUBBER FEET



RUBBER FEET  
TB • SJ-P series P194

# PHOTO INDEX

## ALUMINIUM ENCLOSURE



HIGH-END DESIGN ALUMINIUM CASE  
HD series P195-198



Raspberry Pi ALUMINIUM CASE  
RPI series P195-196, 199-200



UNIVERSAL ALUMINIUM CASE with CORNER GUARD  
UCG series P201-202



ALUMINIUM CASE with CORNER GUARD  
MCG series P203-204



ALUMINIUM CONTROL BOX  
FC series P205-212, 217-220



OPEN-CLOSING CONTROL BOX  
FCW series P205-206, 213-220



DESKTOP ENCLOSURE  
MS series P221-230



SLOPED ENCLOSURE  
CF series P231-232

## DIECAST ALUMINIUM BOX



DIECAST ALUMINIUM BOX  
TD series P233-234



IP67 DIECAST ALUMINIUM BOX  
BDN series P235-236

## IP65 PLASTIC BOX



IP65 LATCH-HINGED PLASTIC BOX  
BCAP • BCPC series P237-242, 247-258



IP65 POLYCARBONATE PLASTIC BOX with LOCK  
BCPK series P237-240, 243-244, 247-258



IP65 PLASTIC BOX with OUTDOOR ROOF  
BCAR • BCPR series P237-240, 245-258



VENTILATION PARTS  
PMF • V • VF series P259-262



IP65 TERMINAL JUNCTION BOX  
TMC series P263-264



IP67-68 CABLE GLAND  
RMW • RM • AGSP • RSP • AG • AGM series P265-272

# 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.



Photo : 13° type



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

High elasticity and good durability for maintaining waterproofing capability.

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



# APPLICATION EXAMPLE

## Medical Measurement Device · Medical Controller



**Digital Card Reader**



**Transmitter · Network Equipment**



### How to make waterproof buttons and switches

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

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



### How to make waterproof cable hole

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



## WSC SERIES

## IP67 SLOPED PLASTIC CASE



IP67



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

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

## Components

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

## Accessories (Optional parts)



PCB mounting screw EM series  
See page 115



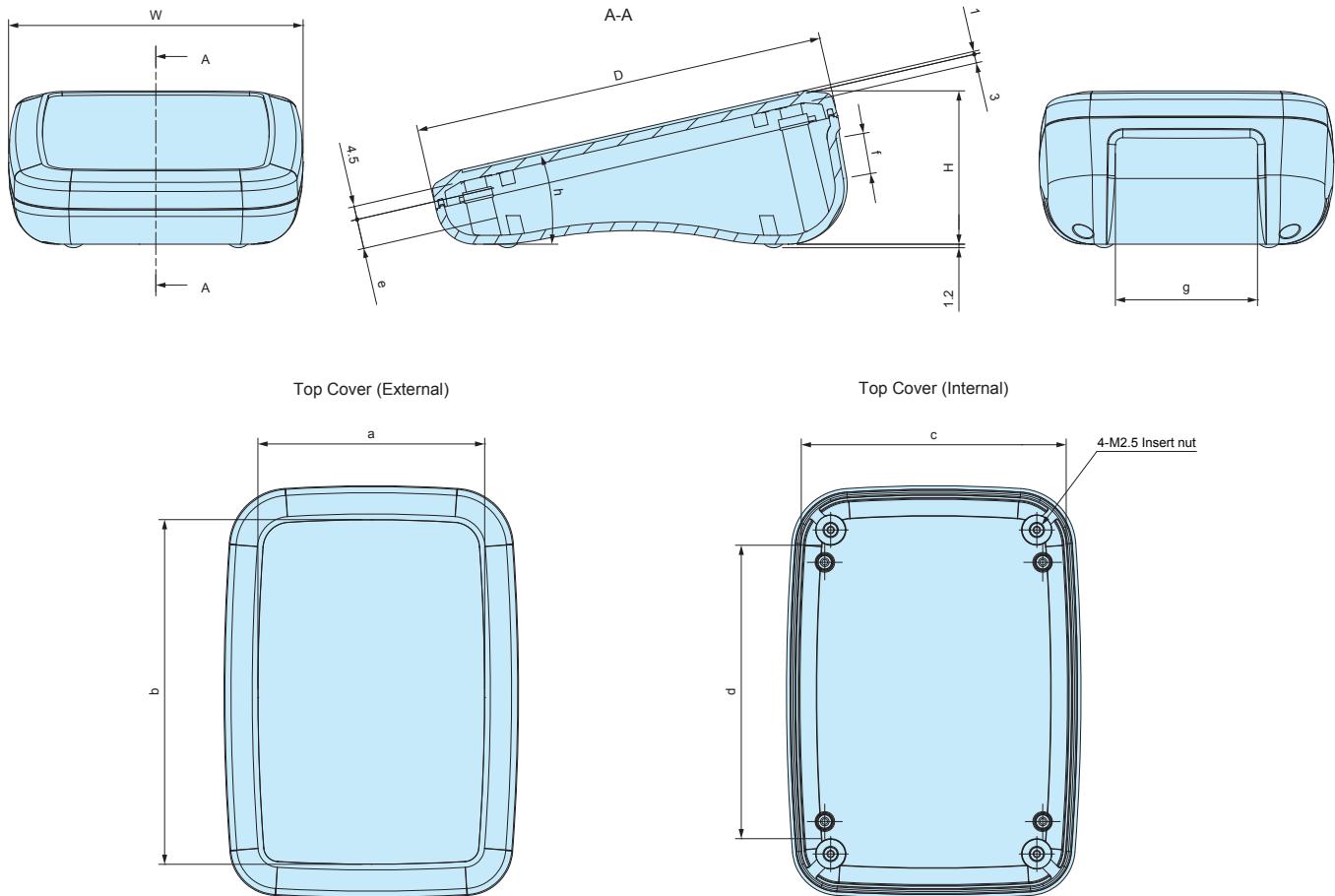
Cable gland  
See 265 ~ 272



TORX screw MR series  
See page 115

## WSC dimensions

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



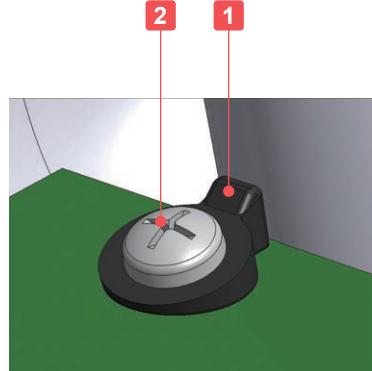
### Product no. / Dimensions

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

## WSP-M2.3

## INCLINED SPACER

★ NEW



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



### Components

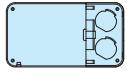
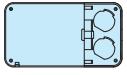
No.	Part name	Pcs	Material	Color / Finish
1	Inclined spacer	4	POM	Black
2	Screw (Tapping M2.3-8)	4	Steel	Trivalent chromate

■ Torque 0.1N · m

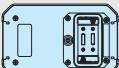
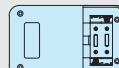
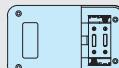
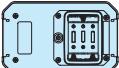
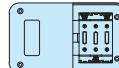
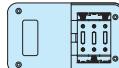
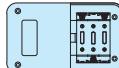
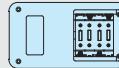
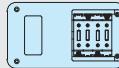
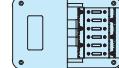
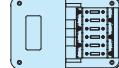
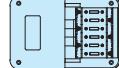
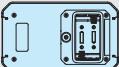
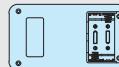
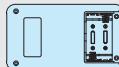
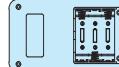
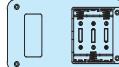
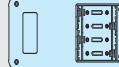
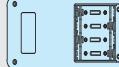
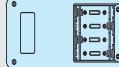
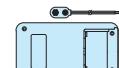
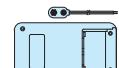
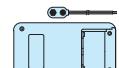
### Product no. / Details

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

# BUILT-IN BATTERY COMPARTMENT MODEL CHART

Series Battery Compartment	WC Series Page37 ~ 42	CS Series Page47 ~ 52	CSS Series Page45 ~ 46
CR2032 x 1	 WC72-15 (43×15.5×72) WC72-21 (43×21.5×72) WC90-15 (44.2×15.7×90)	 CS75 (35×12×75) CS90 (45×12×90)	 CSS75 (38.6×15.5×78.6) CSS90 (48.6×15.5×93.6)
CR2032 x 2		 CS115 (63×12×115)	 CSS115 (67.1×16×119.1)
AAA x 2			
AAA x 3			
AAA x 4			
AAA x 6			
AA x 2			
AA x 3			
AA x 4			
AA x 6			
9V x 1			

■ Enclosure shape, model number, and dimensions (W x H x D) are listed.

WH Series Page7 ~ 14	LC Series Page27 ~ 28	LCS Series Page23 ~ 26	LCT Series Page19 ~ 22
 IP67			
 WH125-20-F2 (79×20×126) WH125-28-F2 (79×28×126)	 LC115-F2 (69×19.5×115) LC115H-F2 (69×28×115)	 LCS115-F2 (74×24×120) LCS115H-F2 (74×32.5×120)	 LCT115-F2 (76×28×121.9) LCT115H-F2 (76×36.5×121.9)
 WH125-20-F3 (79×20×126) WH125-28-F3 (79×28×126)	 LC115-F3 (69×19.5×115) LC115H-F3 (69×28×115)	 LCS115-F3 (74×24×120) LCS115H-F3 (74×32.5×120)	 LCT115-F3 (76×28×121.9) LCT115H-F3 (76×36.5×121.9)
 WH145-20-F4 (88×20×146)	 LC135-F4 (76×27×135) LC135H-F4 (76×35×135)	 LCS135-F4 (81×32×141) LCS135H-F4 (81×40×141)	 LCT135-F4 (85×40×143.9) LCT135H-F4 (85×48×143.9)
	 LC145S-F6 (96×20×145) LC145-F6 (96×27×145) LC145H-F6 (96×35×145)	 LCS145S-F6 (101×25×151) LCS145-F6 (101×32×151) LCS145H-F6 (101×40×151)	 LCT145S-F6 (105×33×153.9) LCT145-F6 (105×40×153.9) LCT145H-F6 (105×48×153.9)
 WH145-25-M2 (88×25×146) WH145-33-M2 (88×33×146)	 LC115H-M2 (69×28×115) LC135-M2 (76×27×135) LC135H-M2 (76×35×135) LC145-M2 (96×27×145) LC145H-M2 (96×35×145)	 LCS115H-M2 (74×32.5×120) LCS135-M2 (81×32×141) LCS135H-M2 (81×40×141) LCS145-M2 (101×32×151) LCS145H-M2 (101×40×151)	 LCT115H-M2 (76×36.5×121.9) LCT135-M2 (85×40×143.9) LCT135H-M2 (85×48×143.9) LCT145-M2 (105×40×153.9) LCT145H-M2 (105×48×153.9)
 WH145-25-M3 (88×25×146) WH145-33-M3 (88×33×146)	 LC135-M3 (76×27×135) LC135H-M3 (76×35×135)	 LCS135-M3 (81×32×141) LCS135H-M3 (81×40×141)	 LCT135-M3 (85×40×143.9) LCT135H-M3 (85×48×143.9)
 WH170-25-M4 (95×25×171) WH170-33-M4 (95×33×171)	 LC145-M4 (96×27×145) LC145H-M4 (96×35×145) LC165-M4 (80×27×165) LC165H-M4 (80×35×165)	 LCS145-M4 (101×32×151) LCS145H-M4 (101×40×151) LCS165-M4 (85×32×171) LCS165H-M4 (85×40×171)	 LCT145-M4 (105×40×153.9) LCT145H-M4 (105×48×153.9) LCT165-M4 (89×40×173.9) LCT165H-M4 (89×48×173.9)
 WH190-25-M6 (126×25×191) WH190-33-M6 (126×33×191)			
	 LC115H-9V (69×28×115) LC135-9V (76×27×135) LC135H-9V (76×35×135)	 LCS115H-9V (74×32.5×120) LCS135-9V (81×32×141) LCS135H-9V (81×40×141)	 LCT115H-9V (76×36.5×121.9) LCT135-9V (85×40×143.9) LCT135H-9V (85×48×143.9)

\*Dimensions shown for CSS, LCT and LCS series are with silicone cover attached.

# WH SERIES

## IP67 WATERPROOF HAND-HELD ENCLOSURE



● IEC60529 standard is a system for classifying the degrees of protection provided by the enclosures of electrical equipment, such as against dust and water.  
**IP6x : No ingress of dust; complete protection against contact (dust tight).**  
**IPx7 : No ingress of water when submerged up to a depth of 1 meter for 30 minutes**

### High waterproof performance with a silicone gasket

High elasticity and good durability for maintaining waterproofing capability.  
Built-in insert nut use for great long lasting water protection even after frequent opening and closing.  
Battery compartment is also waterproofed.  
Various battery compartment types are available, ranging from AAA x2, to AA x6.



### Side grip provides great protection

Elastic TPE grips provides for a more secured hold.  
Side grips are designed to be on the sides and corners of the enclosure to minimize drop impact.



### Available in 10 different color combinations.



# How to Make Waterproof Buttons and Switches



Please utilize a waterproof membrane keypad or membrane switch.

Note that the waterproof ability will be voided if holes are made for buttons or switches on the waterproof enclosures.



# APPLICATION EXAMPLE

Suitable for industrial measuring instruments, transceiver, controller, medical equipment and so on.



## WIRELESS TEMPERATURE DETECTOR

Product by BRESIMAR AUTOMAÇÃO (Portugal)



\*See page 53 for more information on Sigfox network.

## GPS TRACKER

Product by Averos (Saudi Arabia)



## GPS SYNCHRONIZED PIPELINE SURVEY METER

Product by Corrosion Instruments (Australia)





## BABY RESPIRATION SENSOR (NURSERY use)

Product by Liquid Design Systems (Japan)



## HONEY BEE TRACKER

Product by APiS Technology (Portugal)



## INDUSTRIAL TABLET



## DIGITAL X-RAY SYSTEM

Product by SmartRayVision (USA)



## AUTOMATIC VIDEO TIMING TRACKING SYSTEM

Product by FlashTiming (USA)



## WH SERIES

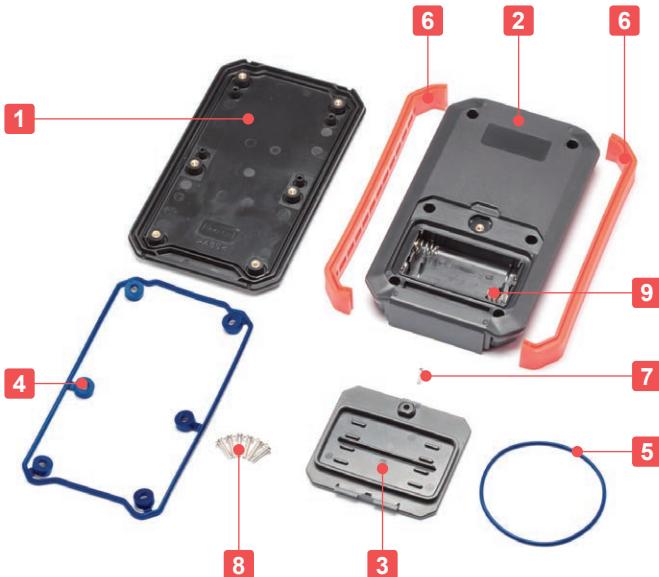
## IP67 HAND-HELD ENCLOSURE



IP67

## Technical Data

Protection class : IP67
Operating temperature : -10°C ~ +60°C
Recommended torque:
0.2N・m ~ 0.3N・m (2kgf・cm ~ 3kgf・cm)



- Stylish and elegantly designed with chamfered edge construction.
- IP67 protection class enclosure.
- Manufactured from flame-resistant ABS UL94V-0 material.
- 8 different internal compartment types are available: AAA x 2, AAA x 3, AAA x 4, AA x 2, AA x 3, AA x 4, AA x 6 and no battery type. Battery compartments have positive (+) / negative (-) pole mark to prevent incorrect insertion.
- The TPE side grips are available in 5 unique colors, and functions as an anti-slip grip pad and drop impact protection.

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94V-0	Off-white • Black
2	Bottom cover	1	ABS UL94V-0	Off-white • Black
3	Battery cover (None for N-type)	1	ABS UL94V-0	Off-white • Black
4	Gasket	1	Silicone	N • F2 • F3 • M4 type : Black M2 type : Blue M3 • F4 • type : Light gray
5	O-ring (None for N-type)	1	Silicone	
6	Side grip	2	TPE	Black • Light gray • Navy • Red • Yellow
7	Battery cover screw (None for N-type)	1	Stainless steel M2.5-6	Unfinished
8	Screw	6	Stainless steel M2.5-6	Unfinished
9	Battery contact (None for N-type)	1 set	Brass	Nickel plated

## Accessories (Optional parts)



PCB mounting screw EM-2.3  
See page 115



Tapping standoff TPS series  
See page 111



Cable gland  
See page 265 ~ 272



Neodymium magnet NMG series  
See page 108



### Battery Compartment Types

Type	N None	F2 AAA x 2	F3 AAA x 3	F4 AAA x 4	M2 AA x 2	M3 AA x 3	M4 AA x 4	M6 AA x 6
Battery Compartment								

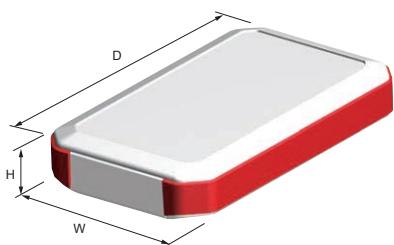
### Color Type

Code	B   B   Black / Black	B   L   Black / Light gray	B   N   Black / Navy	B   R   Black / Red	B   Y   Black / Yellow
Color					
Code	W   B   Off-white / Black	W   L   Off-white / Light gray	W   N   Off-white / Navy	W   R   Off-white / Red	W   Y   Off-white / Yellow
Color					

### Product no. / Dimensions

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

Product no.	W	H	D	Battery compartment	Weight (g)
WH125-20-N -□□	79	20	126	None	101.0
WH125-20-F2 -□□	79	20	126	AAA x 2	102.0
WH125-20-F3 -□□	79	20	126	AAA x 3	109.0
WH125-28-N -□□	79	28	126	None	119.0
WH125-28-F2 -□□	79	28	126	AAA x 2	121.0
WH125-28-F3 -□□	79	28	126	AAA x 3	127.0
WH145-20-N -□□	88	20	146	None	125.5
WH145-20-F4 -□□	88	20	146	AAA x 4	129.5
WH145-25-N -□□	88	25	146	None	137.5
WH145-25-M2 -□□	88	25	146	AA x 2	161.5
WH145-25-M3 -□□	88	25	146	AA x 3	159.5
WH145-33-N -□□	88	33	146	None	162.0
WH145-33-M2 -□□	88	33	146	AA x 2	180.5
WH145-33-M3 -□□	88	33	146	AA x 3	181.5
WH170-25-N -□□	95	25	171	None	169.0
WH170-25-M4 -□□	95	25	171	AA x 4	195.0
WH170-33-N -□□	95	33	171	None	191.0
WH170-33-M4 -□□	95	33	171	AA x 4	220.0
<b>NEW</b> WH190-25-N -□□	126	25	191	None	226.0
<b>NEW</b> WH190-25-M6 -□□	126	25	191	AA x 6	276.0
<b>NEW</b> WH190-33-N -□□	126	33	191	None	252.0
<b>NEW</b> WH190-33-M6 -□□	126	33	191	AA x 6	307.0



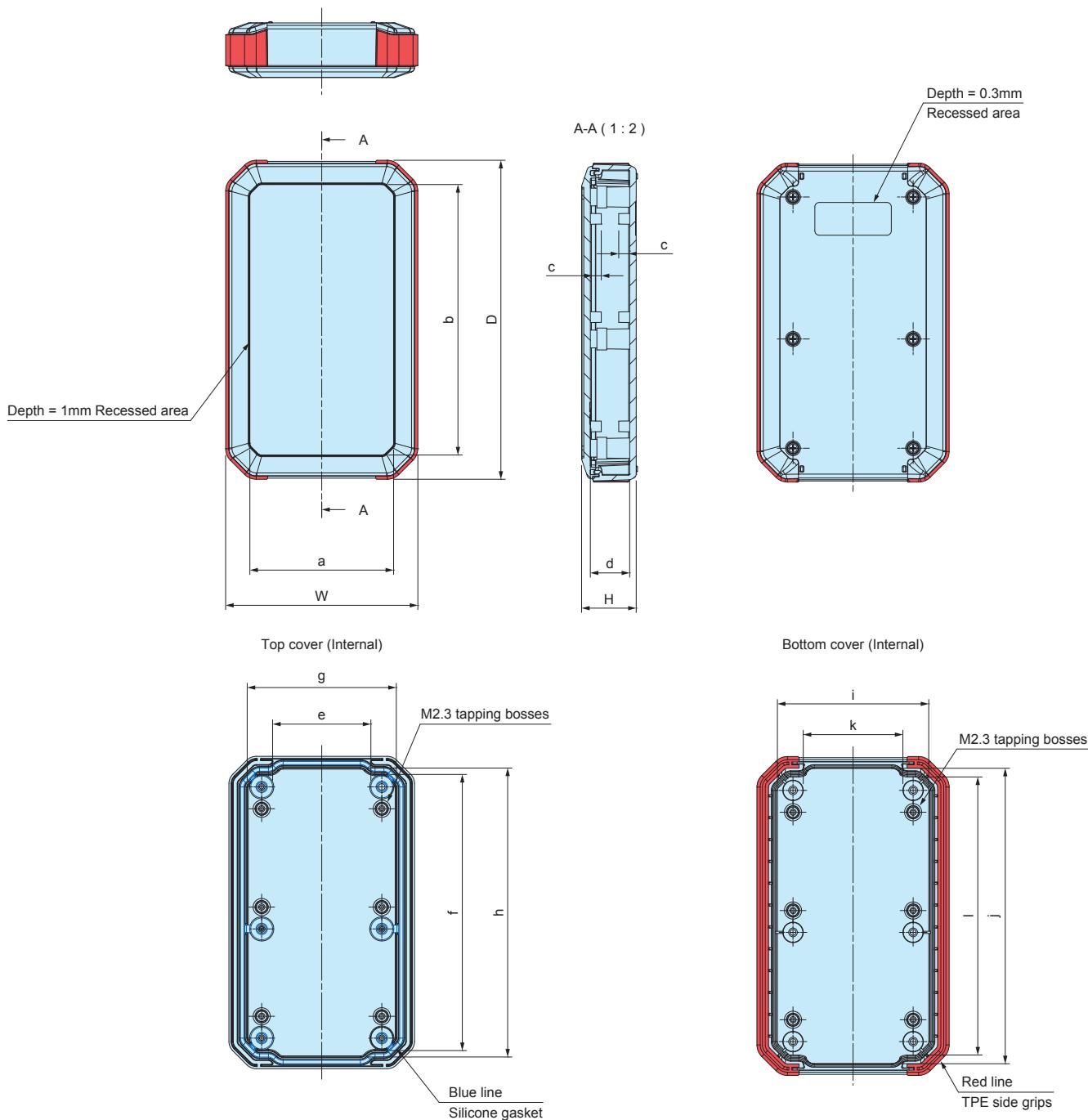
**WH dimensions**

WH125-20-N / WH125-28-N

WH145-20-N / WH145-25-N / WH145-33-N

WH170-25-N / WH170-33-N / WH190-25-N / WH190-33-N

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

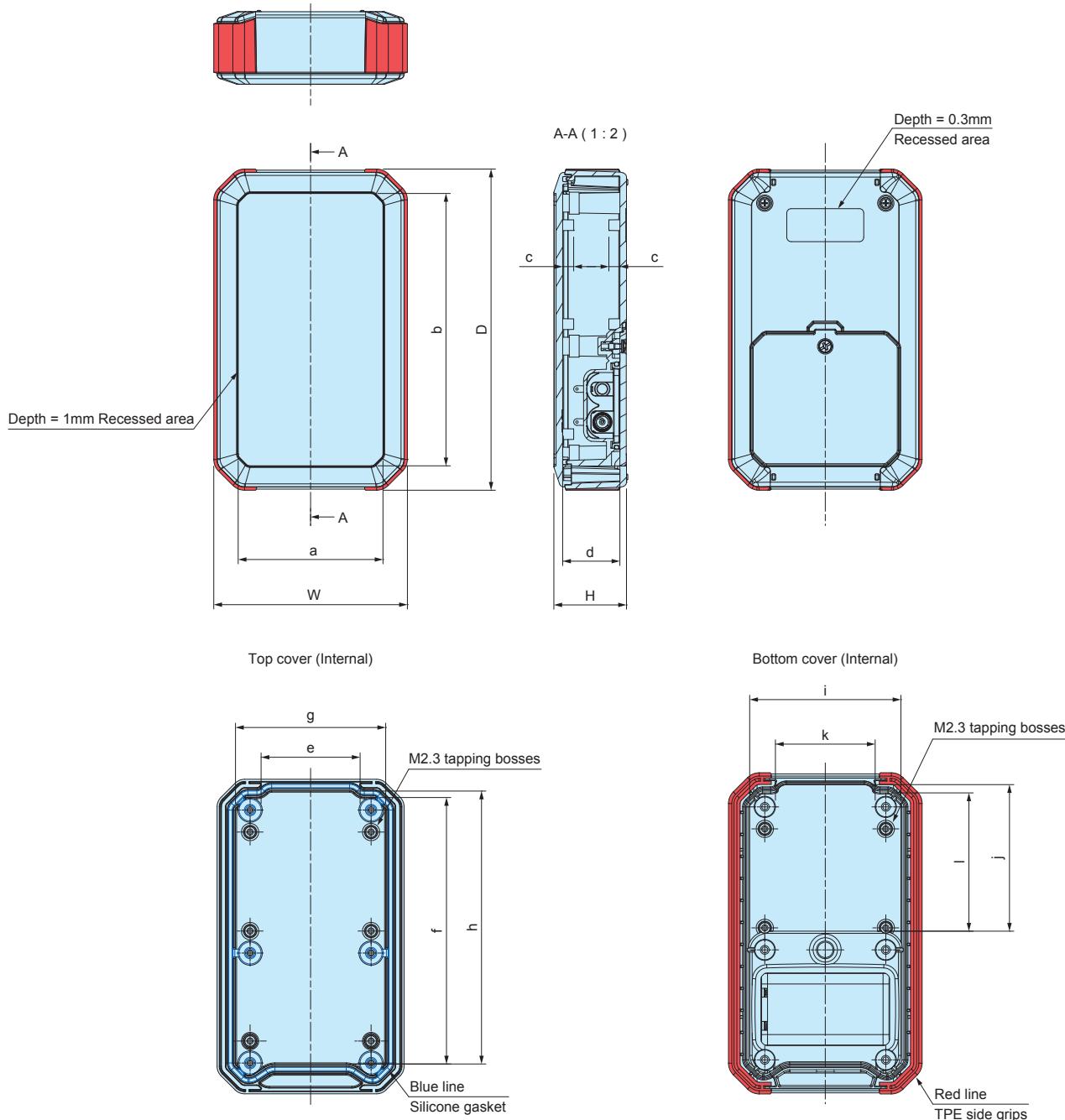


Product no.	W	H	D	a	b	c	d	e	f	g	h	i	j	k	l
WH125-20-N-□□	79	20	126	58.8	105.8	4	13	39	107	60	112.6	61.6	115.8	39	108
WH125-28-N-□□	79	28	126	58.8	105.8	4	21	39	107	60	112.6	61.1	115.8	39	108
WH145-20-N-□□	88	20	146	65.8	123.8	5	13	45	125.2	68.3	132.3	69.6	135.2	45	127.6
WH145-25-N-□□	88	25	146	65.8	123.8	5	18	45	125.2	68.3	132.3	69.3	135.2	45	127.2
WH145-33-N-□□	88	33	146	65.8	123.8	5	26	45	125.2	68.3	132.3	68.7	135.2	45	126.7
WH170-25-N-□□	95	25	171	69.6	145.6	5	18	51	150	74.4	156	77.3	159.8	50.6	152
WH170-33-N-□□	95	33	171	69.6	145.6	5	26	51	150	74.4	156	76.7	159.8	50.3	151
WH190-25-N-□□	126	25	191	96	161	5	18	81	170.3	105.4	176.4	107.6	180.2	80.2	172.3
WH190-33-N-□□	126	33	191	96	161	5	26	81	170.3	105.4	176.4	107.1	180.3	79.6	171.8

## WH dimensions

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

WH125-20-F2 / WH125-20-F3 / WH125-28-F2 / WH125-28-F3  
WH145-20-F4 / WH145-25-M2 / WH145-25-M3 / WH145-33-M2 / WH145-33-M3  
WH170-25-M4 / WH170-33-M4 / WH190-25-M6 / WH190-33-M6



Product no.	W	H	D	a	b	c	d	e	f	g	h	i	j	k	l
WH125-20-F2-□□	79	20	126	58.8	105.8	4	13	39	104	60	107	61.6	60.4	39	56.7
WH125-20-F3-□□	79	20	126	58.8	105.8	4	13	39	104	60	107	61.6	49.9	39	46.2
WH125-28-F2-□□	79	28	126	58.8	105.8	4	21	39	104	60	107	61.1	60.4	39	56.4
WH125-28-F3-□□	79	28	126	58.8	105.8	4	21	39	104	60	107	61.1	49.9	39	46.0
WH145-20-F4-□□	88	20	146	65.8	123.8	5	13	45	120	68.3	124.1	69.6	51.7	45	47.8
WH145-25-M2-□□	88	25	146	65.8	123.8	5	18	45	120	68.3	124.1	69.3	66.6	45	62.6
WH145-25-M3-□□	88	25	146	65.8	123.8	5	18	45	120	68.3	124.1	69.3	51.6	45	47.6
WH145-33-M2-□□	88	33	146	65.8	123.8	5	26	45	120	68.3	124.1	68.7	66.6	45	62.3
WH145-33-M3-□□	88	33	146	65.8	123.8	5	26	45	120	68.3	124.1	68.7	51.6	45	47.3
WH170-25-M4-□□	95	25	171	69.6	145.6	5	18	51	147.6	74.4	150.4	77.3	71.3	50.6	67.4
WH170-33-M4-□□	95	33	171	69.6	145.6	5	26	51	147.6	74.4	150.4	76.7	71.3	50.3	67.2
WH190-25-M6-□□	126	25	191	96	161	5	18	81	167.3	105.4	170.3	107.6	89.2	80.2	85.2
WH190-33-M6-□□	126	33	191	96	161	5	26	81	167.3	105.4	170.3	107.1	89.1	79.6	84.9

# LCT•LCS•LC•LCE HAND-HELD PLASTIC CASE

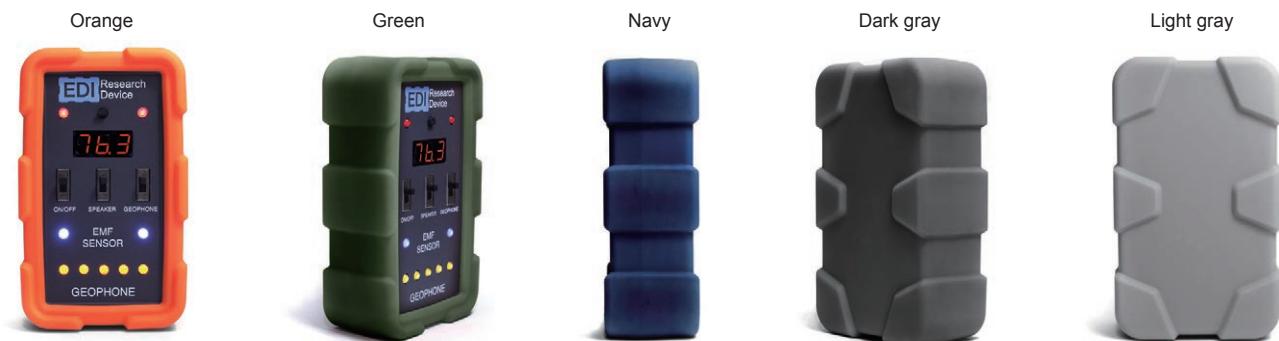
Hand-held case suitable for industrial measuring equipments, wireless communication devices and medical equipments.

8 different sizes and 9 different battery compartment types are available for LC plastic case.

LCS series comes with 7 silicone cover colors for selection.

LCT series is selectable in 5 different rugged shock-proof silicone cover colors.

## LCT Plastic case with shock-proof silicone cover



## LCS Plastic case with silicone cover



## CUSTOMIZATION



Machining



Custom cut on silicone cover



Custom color, custom shaped silicone cover



Digital printed overlay



# APPLICATION EXAMPLE

## METAL COATING THICKNESS GAUGE

Product by NOVOTEST (Ukraine)



## SOLAR PANEL TROUBLE CHECKER

Product by ITES (Japan)



## SOLAR CELL DISCONNECTION CHECKER

Product by Shinei Electronic Measuring (Japan)



## DIGITAL PRESSURE GAUGE SETTER

Product by NAGANO KEIKI (Japan)



## EMF DETECTOR

Product by CenTex Paranormal (USA)



## DISTRIBUTION TRANSFORMER TESTER

Product by ndb Technologies (Canada)



## NETWORK PARTIAL DISCHARGE CHECKER

Product by ndb Technologies (Canada)



## RADIATION SURVEY METER

Product by HISAKI Sekkei (Japan)



## MINI RADIATION SURVEY METER

Product by Techno AP (Japan)



## WIRELESS VOLTAGE PROBE

Product by Enertronics (Switzerland)



## PORTABLE ANEMOMETER

Product by FieldPro (Japan)



## ULTRASONIC THICKNESS GAUGE

Product by DEMEQ (Argentina)



## HYPERHIDROSIS TREATMENT DEVICE

Product by Merebit (Czech Republic)



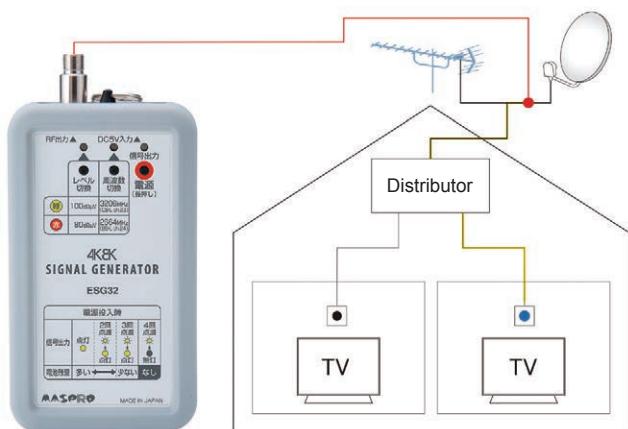
## RF SCOPE

Product by Arrow7 Corporation (Japan)



## SATELLITE BROADCASTING SIGNAL GENERATOR

Product by MASPRO (Japan)



## ONBOARD PROGRAMMER

Product by Hokuto Electronic (Japan)



## CODE DEBUGGER

Product by BITRAN (Japan)



**LCT SERIES****HAND-HELD CASE with SHOCK-PROOF SILICONE COVER****Technical Data**

Protection class: IP40  
Operating temperature: -10°C ~ +60°C

- Plastic case with shock-proof silicone cover. Protects the device from various impact.
- Manufactured with flame-resistant ABS UL94V-0 material. Selectable from a range of battery compartment types.
- Positive (+) / Negative (-) pole marks are incused on the inside of the battery compartments.
- Suitable for measuring instruments, test devices, wireless communication devices, medical devices and so on.

Battery compartment type

No battery compartment type

**Components**

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94V-0	Off-white • Dark gray
2	Bottom cover	1	ABS UL94V-0	Off-white • Dark gray
3	Panel	1	ABS UL94V-0	Off-white • Dark gray
4	Self tapping screws	4	Steel M2.6	Nickel plated • Black trivalent chromate
5	Battery cover	1	ABS UL94V-0	Off-white • Dark gray
6	Battery contact • Battery snap	1 set	Brass • Brass : PVC	Nickel plated • Nickel plated : Black
7	Silicone cover	1	Silicone	Orange • Green • Navy • Dark gray • Light gray

**Accessories (Optional parts)**

Tapping standoff TPS series  
See page 111



PCB mounting screw EM-2.3  
See page 115



TORX screw MR series  
See page 115



Key ring CR-20  
See page 58



Strap STP series  
See page 58

**Battery Compartment Type**

Type	N None	F2 AAA x 2	F3 AAA x 3	F4 AAA x 4	F6 AAA x 6	M2 AA x 2	M3 AA x 3	M4 AA x 4	9V 9V x 1
Battery compartment									

**Color Type**

Code	D O Dark gray / Orange	D G Dark gray / Green	D N Dark gray / Navy	D D Dark gray / Dark gray	D L Dark gray / Light gray
Color					
Code	W O Off-white / Orange	W G Off-white / Green	W N Off-white / Navy	W D Off-white / Dark gray	W L Off-white / Light gray
Color					

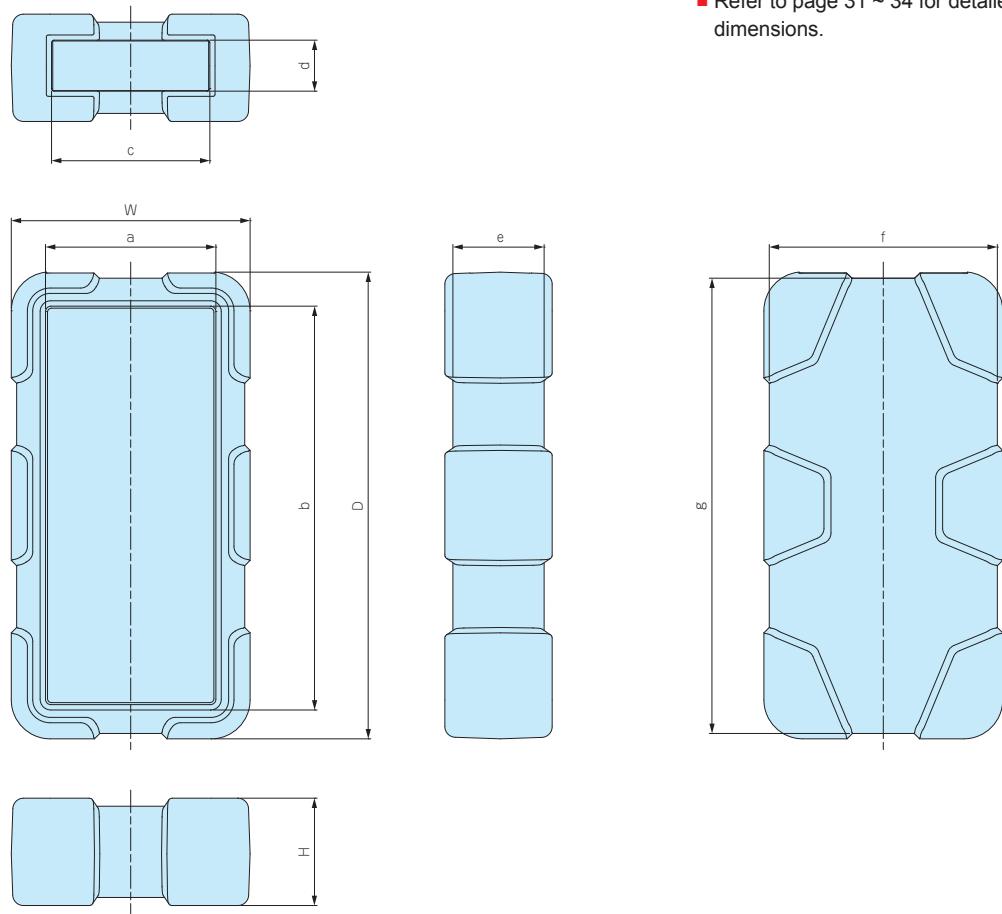
**Product no. / Dimensions**

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

Product no.	W	H	D	Battery compartment	Weight (g)
LCT115 -N -□□	76(69)	28(19.5)	121.9(115)	None	123.5
LCT115 -F2 -□□	76(69)	28(19.5)	121.9(115)	AAA x 2	128
LCT115 -F3 -□□	76(69)	28(19.5)	121.9(115)	AAA x 3	130
LCT115H-N -□□	76(69)	36.5(28)	121.9(115)	None	141
LCT115H-F2 -□□	76(69)	36.5(28)	121.9(115)	AAA x 2	145.5
LCT115H-F3 -□□	76(69)	36.5(28)	121.9(115)	AAA x 3	147
LCT115H-M2-□□	76(69)	36.5(28)	121.9(115)	AA x 2	149.5
LCT115H-9V -□□	76(69)	36.5(28)	121.9(115)	9V x 1	149
LCT135 -N -□□	85(76)	40(27)	143.9(135)	None	210.5
LCT135 -F4 -□□	85(76)	40(27)	143.9(135)	AAA x 4	225.5
LCT135 -M2-□□	85(76)	40(27)	143.9(135)	AA x 2	223.5
LCT135 -M3-□□	85(76)	40(27)	143.9(135)	AA x 3	229
LCT135 -9V -□□	85(76)	40(27)	143.9(135)	9V x 1	227
LCT135H-N -□□	85(76)	48(35)	143.9(135)	None	231.5
LCT135H-F4 -□□	85(76)	48(35)	143.9(135)	AAA x 4	246
LCT135H-M2-□□	85(76)	48(35)	143.9(135)	AA x 2	245
LCT135H-M3-□□	85(76)	48(35)	143.9(135)	AA x 3	250
LCT135H-9V -□□	85(76)	48(35)	143.9(135)	9V x 1	247.5
LCT145S-N -□□	105(96)	33(20)	153.9(145)	None	239.1
LCT145S-F6 -□□	105(96)	33(20)	153.9(145)	AAA x 6	259.1
LCT145 -N -□□	105(96)	40(27)	153.9(145)	None	258.5
LCT145 -F6 -□□	105(96)	40(27)	153.9(145)	AAA x 6	278.5
LCT145 -M2-□□	105(96)	40(27)	153.9(145)	AA x 2	272.5
LCT145 -M4-□□	105(96)	40(27)	153.9(145)	AA x 4	279.5
LCT145H-N -□□	105(96)	48(35)	153.9(145)	None	282
LCT145H-F6 -□□	105(96)	48(35)	153.9(145)	AAA x 6	302.5
LCT145H-M2-□□	105(96)	48(35)	153.9(145)	AA x 2	296
LCT145H-M4-□□	105(96)	48(35)	153.9(145)	AA x 4	303
LCT165 -N -□□	89(80)	40(27)	173.9(165)	None	263.5
LCT165 -M4-□□	89(80)	40(27)	173.9(165)	AA x 4	283
LCT165H-N -□□	89(80)	48(35)	173.9(165)	None	286
LCT165H-M4-□□	89(80)	48(35)	173.9(165)	AA x 4	305

■ ( ) value = enclosure dimension.

## Silicone cover dimensions



- Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.
- Refer to page 31 ~ 34 for detailed internal enclosure dimensions.

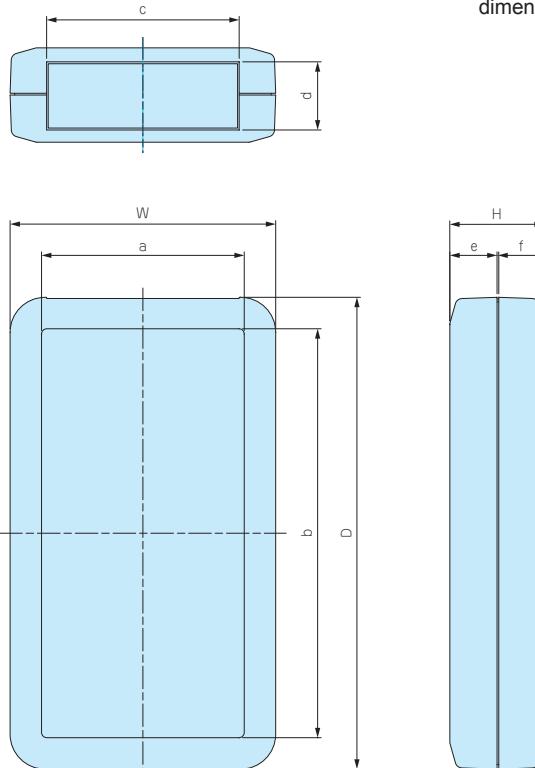
Product no.	W	H	D	a	b	c	d	e	f	g
LCT115 -N -□□	76	28	121.9	55.5	101.5	48.3	12	24	72	117.8
LCT115 -F2 -□□	76	28	121.9	55.5	101.5	48.3	12	24	72	117.8
LCT115 -F3 -□□	76	28	121.9	55.5	101.5	48.3	12	24	72	117.8
LCT115H-N -□□	76	36.5	121.9	55.5	101.5	48.3	20.5	32.5	72	117.8
LCT115H-F2 -□□	76	36.5	121.9	55.5	101.5	48.3	20.5	32.5	72	117.8
LCT115H-F3 -□□	76	36.5	121.9	55.5	101.5	48.3	20.5	32.5	72	117.8
LCT115H-M2-□□	76	36.5	121.9	55.5	101.5	48.3	20.5	32.5	72	117.8
LCT115H-9V -□□	76	36.5	121.9	55.5	101.5	48.3	20.5	32.5	72	117.8
LCT135 -N -□□	85	40	143.9	59.5	118.5	55	19	34	81	139.7
LCT135 -F4 -□□	85	40	143.9	59.5	118.5	55	19	34	81	139.7
LCT135 -M2 -□□	85	40	143.9	59.5	118.5	55	19	34	81	139.7
LCT135 -M3 -□□	85	40	143.9	59.5	118.5	55	19	34	81	139.7
LCT135 -9V -□□	85	40	143.9	59.5	118.5	55	19	34	81	139.7
LCT135H-N -□□	85	48	143.9	59.5	118.5	55	27	42	81	139.6
LCT135H-F4 -□□	85	48	143.9	59.5	118.5	55	27	42	81	139.6
LCT135H-M2 -□□	85	48	143.9	59.5	118.5	55	27	42	81	139.6
LCT135H-M3 -□□	85	48	143.9	59.5	118.5	55	27	42	81	139.6
LCT135H-9V -□□	85	48	143.9	59.5	118.5	55	27	42	81	139.6
LCT145S -N -□□	105	33	153.9	76.5	125.5	71	12	27	101	149.9
LCT145S -F6 -□□	105	33	153.9	76.5	125.5	71	12	27	101	149.9
LCT145 -N -□□	105	40	153.9	76.5	125.5	71	19	34	101	149.7
LCT145 -F6 -□□	105	40	153.9	76.5	125.5	71	19	34	101	149.7
LCT145 -M2 -□□	105	40	153.9	76.5	125.5	71	19	34	101	149.7
LCT145 -M4 -□□	105	40	153.9	76.5	125.5	71	19	34	101	149.7
LCT145H-N -□□	105	48	153.9	76.5	125.5	71	27	42	101	149.7
LCT145H-F6 -□□	105	48	153.9	76.5	125.5	71	27	42	101	149.7
LCT145H-M2 -□□	105	48	153.9	76.5	125.5	71	27	42	101	149.7
LCT145H-M4 -□□	105	48	153.9	76.5	125.5	71	27	42	101	149.7
LCT165 -N -□□	89	40	173.9	63.5	148.5	59	19	34	85	169.7
LCT165 -M4 -□□	89	40	173.9	63.5	148.5	59	19	34	85	169.7
LCT165H-N -□□	89	48	173.9	63.5	148.5	59	27	42	85	169.6
LCT165H-M4 -□□	89	48	173.9	63.5	148.5	59	27	42	85	169.6

## Enclosure dimensions

■ Drawings below are reference examples only.

DXF/DWG/PDF drawings available on our website.

■ Refer to page 31 ~ 34 for detailed internal enclosure dimensions.



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

Product no.	W	H	D	a	b	c	d	e	f	Battery compartment
LCT115 -N -□□	69	19.5	115	54	100	48.1	12	10	9	None
LCT115 -F2 -□□	69	19.5	115	54	100	48.1	12	10	9	AAA x 2
LCT115 -F3 -□□	69	19.5	115	54	100	48.1	12	10	9	AAA x 3
LCT115H-N -□□	69	28	115	54	100	48.1	20.5	18.5	9	None
LCT115H-F2 -□□	69	28	115	54	100	48.1	20.5	18.5	9	AAA x 2
LCT115H-F3 -□□	69	28	115	54	100	48.1	20.5	18.5	9	AAA x 3
LCT115H-M2-□□	69	28	115	54	100	48.1	20.5	18.5	9	AA x 2
LCT115H-9V -□□	69	28	115	54	100	48.1	20.5	18.5	9	9V x 1
LCT135 -N -□□	76	27	135	58	117	55.1	19.5	13.5	13	None
LCT135 -F4 -□□	76	27	135	58	117	55.1	19.5	13.5	13	AAA x 4
LCT135 -M2-□□	76	27	135	58	117	55.1	19.5	13.5	13	AA x 2
LCT135 -M3-□□	76	27	135	58	117	55.1	19.5	13.5	13	AA x 3
LCT135 -9V -□□	76	27	135	58	117	55.1	19.5	13.5	13	9V x 1
LCT135H-N -□□	76	35	135	58	117	55.1	27.5	21.5	13	None
LCT135H-F4 -□□	76	35	135	58	117	55.1	27.5	21.5	13	AAA x 4
LCT135H-M2-□□	76	35	135	58	117	55.1	27.5	21.5	13	AA x 2
LCT135H-M3-□□	76	35	135	58	117	55.1	27.5	21.5	13	AA x 3
LCT135H-9V -□□	76	35	135	58	117	55.1	27.5	21.5	13	9V x 1
LCT145S-N -□□	96	20	145	75	124	71.1	12.5	7.5	12	None
LCT145S-F6 -□□	96	20	145	75	124	71.1	12.5	7.5	12	AAA x 6
LCT145 -N -□□	96	27	145	75	124	71.1	19.5	14.5	12	None
LCT145 -F6 -□□	96	27	145	75	124	71.1	19.5	14.5	12	AAA x 6
LCT145 -M2-□□	96	27	145	75	124	71.1	19.5	14.5	12	AA x 2
LCT145 -M4-□□	96	27	145	75	124	71.1	19.5	14.5	12	AA x 4
LCT145H-N -□□	96	35	145	75	124	71.1	27.5	22.5	12	None
LCT145H-F6 -□□	96	35	145	75	124	71.1	27.5	22.5	12	AAA x 6
LCT145H-M2-□□	96	35	145	75	124	71.1	27.5	22.5	12	AA x 2
LCT145H-M4-□□	96	35	145	75	124	71.1	27.5	22.5	12	AA x 4
LCT165 -N -□□	80	27	165	62	147	59.1	19.5	13.5	13	None
LCT165 -M4-□□	80	27	165	62	147	59.1	19.5	13.5	13	AA x 4
LCT165H-N -□□	80	35	165	62	147	59.1	27.5	21.5	13	None
LCT165H-M4-□□	80	35	165	62	147	59.1	27.5	21.5	13	AA x 4

## LCS SERIES

## HAND-HELD CASE with SILICONE COVER



## Technical Data

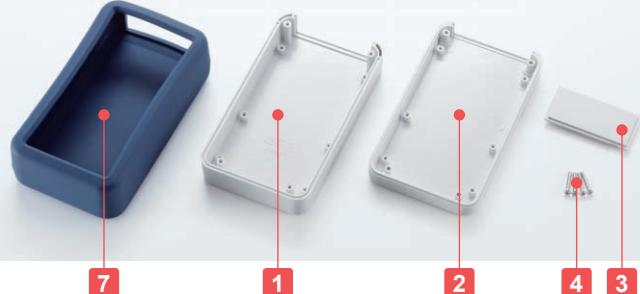
Protection class: IP40  
Operating temperature: -10°C ~ +60°C

- Plastic case with silicone cover providing not only comfortable and anti-slip grip, but also protection from drop impact.
- Manufactured with flame-resistant ABS UL94V-0. Several battery compartment types are available.
- Positive (+) / negative (-) pole mark are incused on the inside of the battery compartments.
- Suitable for measuring instruments, test devices, wireless communication devices, medical devices and so on.

Battery compartment type



No battery compartment type



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94V-0	Off-white • Dark gray
2	Bottom cover	1	ABS UL94V-0	Off-white • Dark gray
3	Panel	1	ABS UL94V-0	Off-white • Dark gray
4	Self tapping screw	4	Steel M2.6	Nickel plated • Black trivalent chromate
5	Battery cover	1	ABS UL94V-0	Off-white • Dark gray
6	Battery contact • Battery snap	1 set	Brass • Brass : PVC	Nickel plated • Nickel plated : Black
7	Silicone cover	1	Silicone	Red • Yellow • Green • Blue • Navy • Light gray • Dark gray

## Accessories (Optional parts)



Tapping standoff TPS series  
See page 111



PCB mounting screw EM-2.3  
See page 115



TORX screw MR series  
See page 115



Key ring CR-20  
See page 58



Strap STP series  
See page 58

**Battery Compartment Type**

Type	N None	F2 AAA x 2	F3 AAA x 3	F4 AAA x 4	F6 AAA x 6	M2 AA x 2	M3 AA x 3	M4 AA x 4	9V 9V x 1
Battery compartment									

**Color Type**

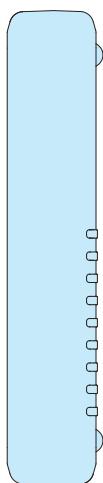
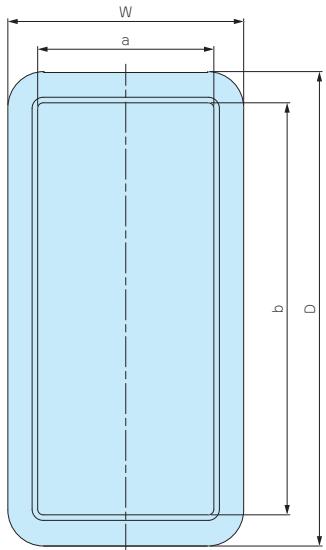
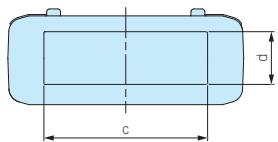
Code	D R Dark gray / Red	D Y Dark gray / Yellow	D G Dark gray / Green	D B Dark gray / Blue	D N Dark gray / Navy	D D Dark gray / Dark gray	D L Dark gray / Light gray
Color							
Code	W R Off-white / Red	W Y Off-white / Yellow	W G Off-white / Green	W B Off-white / Blue	W N Off-white / Navy	W D Off-white / Dark gray	W L Off-white / Light gray
Color							

**Product no. / Dimensions**

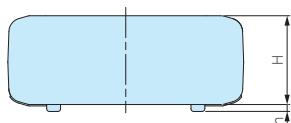
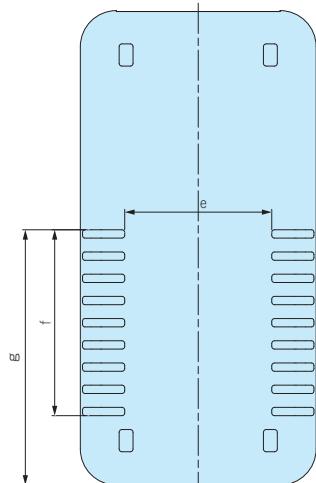
■ Please suffix color code at the end of the product number.

Product no.	W	H	D	Battery compartment	Weight (g)
LCS115 -N -□□	74(69)	24(19.5)	120(115)	None	113
LCS115 -F2 -□□	74(69)	24(19.5)	120(115)	AAA x 2	117.5
LCS115 -F3 -□□	74(69)	24(19.5)	120(115)	AAA x 3	119.5
LCS115H-N -□□	74(69)	32.5(28)	120(115)	None	130
LCS115H-F2 -□□	74(69)	32.5(28)	120(115)	AAA x 2	134.5
LCS115H-F3 -□□	74(69)	32.5(28)	120(115)	AAA x 3	136
LCS115H-M2 -□□	74(69)	32.5(28)	120(115)	AA x 2	138.5
LCS115H-9V -□□	74(69)	32.5(28)	120(115)	9V x 1	138
LCS135 -N -□□	81(76)	32(27)	141(135)	None	165
LCS135 -F4 -□□	81(76)	32(27)	141(135)	AAA x 4	180
LCS135 -M2 -□□	81(76)	32(27)	141(135)	AA x 2	178
LCS135 -M3 -□□	81(76)	32(27)	141(135)	AA x 3	183.5
LCS135 -9V -□□	81(76)	32(27)	141(135)	9V x 1	181.5
LCS135H-N -□□	81(76)	40(35)	141(135)	None	183
LCS135H-F4 -□□	81(76)	40(35)	141(135)	AAA x 4	197.5
LCS135H-M2 -□□	81(76)	40(35)	141(135)	AA x 2	196.5
LCS135H-M3 -□□	81(76)	40(35)	141(135)	AA x 3	201.5
LCS135H-9V -□□	81(76)	40(35)	141(135)	9V x 1	199
LCS145S-N -□□	101(96)	25(20)	151(145)	None	183.4
LCS145S-F6 -□□	101(96)	25(20)	151(145)	AAA x 6	203.4
LCS145 -N -□□	101(96)	32(27)	151(145)	None	202
LCS145 -F6 -□□	101(96)	32(27)	151(145)	AAA x 6	222
LCS145 -M2 -□□	101(96)	32(27)	151(145)	AA x 2	216
LCS145 -M4 -□□	101(96)	32(27)	151(145)	AA x 4	223
LCS145H-N -□□	101(96)	40(35)	151(145)	None	224
LCS145H-F6 -□□	101(96)	40(35)	151(145)	AAA x 6	244.5
LCS145H-M2 -□□	101(96)	40(35)	151(145)	AA x 2	238
LCS145H-M4 -□□	101(96)	40(35)	151(145)	AA x 4	245
LCS165 -N -□□	85(80)	32(27)	171(165)	None	203
LCS165 -M4 -□□	85(80)	32(27)	171(165)	AA x 4	222.5
LCS165H-N -□□	85(80)	40(35)	171(165)	None	220.5
LCS165H-M4 -□□	85(80)	40(35)	171(165)	AA x 4	239.5

■ ( ) value = enclosure dimension.

**Silicone cover dimensions**

- Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.
- Refer to page 31 ~ 34 for detailed internal enclosure dimensions.



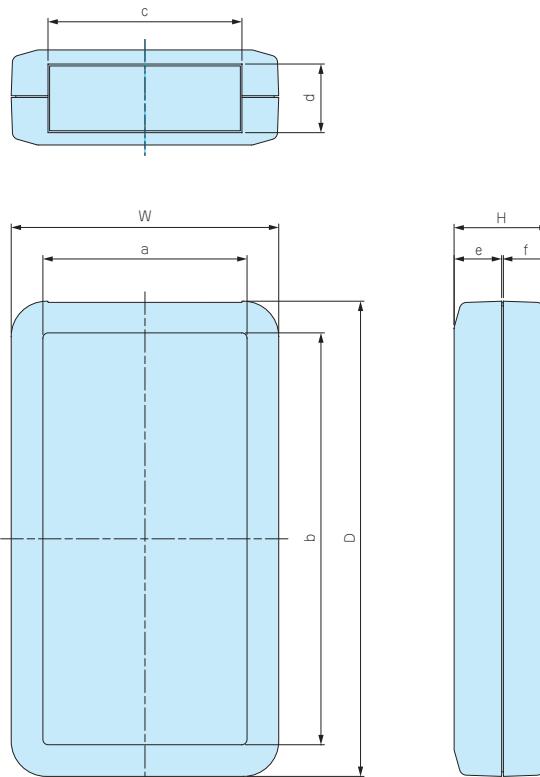
Product no.	W	H	D	a	b	c	d	e	f	g	h
LCS115 -N -□□	74	24	120	55.5	101.5	48.3	12	46	44.5	60.5	2
LCS115 -F2 -□□	74	24	120	55.5	101.5	48.3	12	46	44.5	60.5	2
LCS115 -F3 -□□	74	24	120	55.5	101.5	48.3	12	46	44.5	60.5	2
LCS115H-N -□□	74	32.5	120	55.5	101.5	48.3	20.5	46	44.5	60.5	2
LCS115H-F2 -□□	74	32.5	120	55.5	101.5	48.3	20.5	46	44.5	60.5	2
LCS115H-F3 -□□	74	32.5	120	55.5	101.5	48.3	20.5	46	44.5	60.5	2
LCS115H-M2-□□	74	32.5	120	55.5	101.5	48.3	20.5	46	44.5	60.5	2
LCS115H-9V -□□	74	32.5	120	55.5	101.5	48.3	20.5	46	44.5	60.5	2
LCS135 -N -□□	81	32	141	59.5	118.5	55	19	53	59	79	2.5
LCS135 -F4 -□□	81	32	141	59.5	118.5	55	19	53	59	79	2.5
LCS135 -M2-□□	81	32	141	59.5	118.5	55	19	53	59	79	2.5
LCS135 -M3-□□	81	32	141	59.5	118.5	55	19	53	59	79	2.5
LCS135 -9V -□□	81	32	141	59.5	118.5	55	19	53	59	79	2.5
LCS135H-N -□□	81	40	141	59.5	118.5	55	27	53	59	79	2.5
LCS135H-F4 -□□	81	40	141	59.5	118.5	55	27	53	59	79	2.5
LCS135H-M2-□□	81	40	141	59.5	118.5	55	27	53	59	79	2.5
LCS135H-M3-□□	81	40	141	59.5	118.5	55	27	53	59	79	2.5
LCS135H-9V -□□	81	40	141	59.5	118.5	55	27	53	59	79	2.5
LCS145S-N -□□	101	25	151	76.5	125.5	71	12	71	59	81	2.5
LCS145S-F6 -□□	101	25	151	76.5	125.5	71	12	71	59	81	2.5
LCS145 -N -□□	101	32	151	76.5	125.5	71	19	71	59	81	2.5
LCS145 -F6 -□□	101	32	151	76.5	125.5	71	19	71	59	81	2.5
LCS145 -M2-□□	101	32	151	76.5	125.5	71	19	71	59	81	2.5
LCS145 -M4-□□	101	32	151	76.5	125.5	71	19	71	59	81	2.5
LCS145H-N -□□	101	40	151	76.5	125.5	71	27	71	59	81	2.5
LCS145H-F6 -□□	101	40	151	76.5	125.5	71	27	71	59	81	2.5
LCS145H-M2-□□	101	40	151	76.5	125.5	71	27	71	59	81	2.5
LCS145H-M4-□□	101	40	151	76.5	125.5	71	27	71	59	81	2.5
LCS165 -N -□□	85	32	171	63.5	148.5	59	19	53	67	92	2.5
LCS165 -M4-□□	85	32	171	63.5	148.5	59	19	53	67	92	2.5
LCS165H-N -□□	85	40	171	63.5	148.5	59	27	53	67	92	2.5
LCS165H-M4-□□	85	40	171	63.5	148.5	59	27	53	67	92	2.5

## Enclosure dimensions

■ Drawings below are reference examples only.

DXF/DWG/PDF drawings available on our website.

■ Refer to page 31 ~ 34 for detailed internal enclosure dimensions.



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

Product no.	W	H	D	a	b	c	d	e	f	Battery compartment
LCS115 -N -□□	69	19.5	115	54	100	48.1	12	10	9	None
LCS115 -F2 -□□	69	19.5	115	54	100	48.1	12	10	9	AAA x 2
LCS115 -F3 -□□	69	19.5	115	54	100	48.1	12	10	9	AAA x 3
LCS115H-N -□□	69	28	115	54	100	48.1	20.5	18.5	9	None
LCS115H-F2 -□□	69	28	115	54	100	48.1	20.5	18.5	9	AAA x 2
LCS115H-F3 -□□	69	28	115	54	100	48.1	20.5	18.5	9	AAA x 3
LCS115H-M2-□□	69	28	115	54	100	48.1	20.5	18.5	9	AA x 2
LCS115H-9V -□□	69	28	115	54	100	48.1	20.5	18.5	9	9V x 1
LCS135 -N -□□	76	27	135	58	117	55.1	19.5	13.5	13	None
LCS135 -F4 -□□	76	27	135	58	117	55.1	19.5	13.5	13	AAA x 4
LCS135 -M2-□□	76	27	135	58	117	55.1	19.5	13.5	13	AA x 2
LCS135 -M3-□□	76	27	135	58	117	55.1	19.5	13.5	13	AA x 3
LCS135 -9V -□□	76	27	135	58	117	55.1	19.5	13.5	13	9V x 1
LCS135H-N -□□	76	35	135	58	117	55.1	27.5	21.5	13	None
LCS135H-F4 -□□	76	35	135	58	117	55.1	27.5	21.5	13	AAA x 4
LCS135H-M2-□□	76	35	135	58	117	55.1	27.5	21.5	13	AA x 2
LCS135H-M3-□□	76	35	135	58	117	55.1	27.5	21.5	13	AA x 3
LCS135H-9V -□□	76	35	135	58	117	55.1	27.5	21.5	13	9V x 1
LCS145S-N -□□	96	20	145	75	124	71.1	12.5	7.5	12	None
LCS145S-F6 -□□	96	20	145	75	124	71.1	12.5	7.5	12	AAA x 6
LCS145 -N -□□	96	27	145	75	124	71.1	19.5	14.5	12	None
LCS145 -F6 -□□	96	27	145	75	124	71.1	19.5	14.5	12	AAA x 6
LCS145 -M2-□□	96	27	145	75	124	71.1	19.5	14.5	12	AA x 2
LCS145 -M4-□□	96	27	145	75	124	71.1	19.5	14.5	12	AA x 4
LCS145H-N -□□	96	35	145	75	124	71.1	27.5	22.5	12	None
LCS145H-F6 -□□	96	35	145	75	124	71.1	27.5	22.5	12	AAA x 6
LCS145H-M2-□□	96	35	145	75	124	71.1	27.5	22.5	12	AA x 2
LCS145H-M4-□□	96	35	145	75	124	71.1	27.5	22.5	12	AA x 4
LCS165 -N -□□	80	27	165	62	147	59.1	19.5	13.5	13	None
LCS165 -M4-□□	80	27	165	62	147	59.1	19.5	13.5	13	AA x 4
LCS165H-N -□□	80	35	165	62	147	59.1	27.5	21.5	13	None
LCS165H-M4-□□	80	35	165	62	147	59.1	27.5	21.5	13	AA x 4

## LC SERIES

## HAND-HELD PLASTIC CASE



## Technical Data

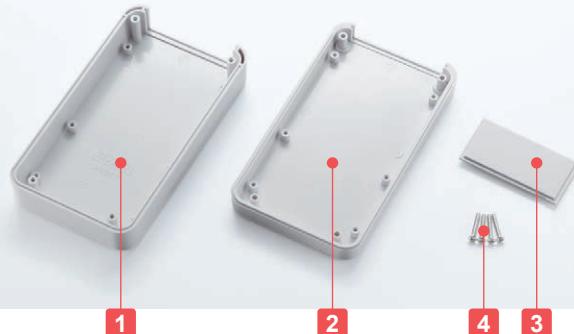
Protection class: IP40  
Operating temperature: -10°C ~ +60°C

- Designed with beveled edges and rounded corners, and manufactured from flame-retardant ABS UL94V-0 material.
- Available in 9 different compartment types: AAx2, AAx3, AAx4, AAAx2, AAAx3, AAAx4, AAx6, 9Vx1, and no battery compartment type.
- Positive (+) / negative (-) pole mark are incused within each battery compartment.
- Recommended to be used as measurement instruments, testing devices, wireless communication gadgets, medical equipment, and so on.

Battery compartment type



No battery compartment type



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94V-0	Off-white • Dark gray
2	Bottom cover	1	ABS UL94V-0	Off-white • Dark gray
3	Panel	1	ABS UL94V-0	Off-white • Dark gray
4	Self tapping screw	4	Steel M2.6	Nickel plated • Black trivalent chromate
5	Battery cover	1	ABS UL94V-0	Off-white • Dark gray
6	Battery contact • Battery snap	1 set	Brass • Brass : PVC	Nickel plated • Nickel plated : Black

## Accessories (Optional parts)



Tapping standoff TPS series  
See page 111



PCB mounting screw EM-2.3  
See page 115



TORX screw MR series  
See page 115



Key ring • Strap CR-20 • STP series  
See page 58



Suspension bracket WM series  
See page 107

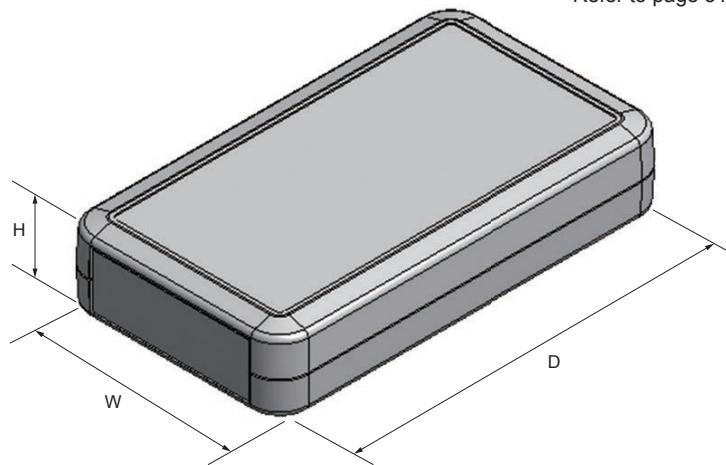


Neodymium magnet NMG series  
See page 108

■ Drawings below are reference examples only.

DXF/DWG/PDF drawings available on our website.

■ Refer to page 31~ 34 for detailed dimensions.



#### Battery Compartment Type

Type	N None	F2 AAAx2	F3 AAAx3	F4 AAAx4	F6 AAAx6	M2 AAx2	M3 AAx3	M4 AAx4	9V 9Vx1
Battery compartment									

#### Product no. / Dimensions

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

Product no.		W	H	D	a	b	c	d	e	f	Battery compartment	Weight (g)
● Dark gray	● Off-white											
LC115 -N -D	LC115 -N -W	69	19.5	115	54	100	48.1	12	10	9	None	70
LC115 -F2 -D	LC115 -F2 -W	69	19.5	115	54	100	48.1	12	10	9	AAA x 2	74.5
LC115 -F3 -D	LC115 -F3 -W	69	19.5	115	54	100	48.1	12	10	9	AAA x 3	76.5
LC115H -N -D	LC115H -N -W	69	28	115	54	100	48.1	20.5	18.5	9	None	80
LC115H -F2 -D	LC115H -F2 -W	69	28	115	54	100	48.1	20.5	18.5	9	AAA x 2	84.5
LC115H -F3 -D	LC115H -F3 -W	69	28	115	54	100	48.1	20.5	18.5	9	AAA x 3	86
LC115H -M2 -D	LC115H -M2 -W	69	28	115	54	100	48.1	20.5	18.5	9	AA x 2	88.5
LC115H -9V -D	LC115H -9V -W	69	28	115	54	100	48.1	20.5	18.5	9	9V x 1	88
LC135 -N -D	LC135 -N -W	76	27	135	58	117	55.1	19.5	13.5	13	None	95
LC135 -F4 -D	LC135 -F4 -W	76	27	135	58	117	55.1	19.5	13.5	13	AAA x 4	110
LC135 -M2 -D	LC135 -M2 -W	76	27	135	58	117	55.1	19.5	13.5	13	AA x 2	108
LC135 -M3 -D	LC135 -M3 -W	76	27	135	58	117	55.1	19.5	13.5	13	AA x 3	113.5
LC135 -9V -D	LC135 -9V -W	76	27	135	58	117	55.1	19.5	13.5	13	9V x 1	111.5
LC135H -N -D	LC135H -N -W	76	35	135	58	117	55.1	27.5	21.5	13	None	107.5
LC135H -F4 -D	LC135H -F4 -W	76	35	135	58	117	55.1	27.5	21.5	13	AAA x 4	122
LC135H -M2 -D	LC135H -M2 -W	76	35	135	58	117	55.1	27.5	21.5	13	AA x 2	121
LC135H -M3 -D	LC135H -M3 -W	76	35	135	58	117	55.1	27.5	21.5	13	AA x 3	126
LC135H -9V -D	LC135H -9V -W	76	35	135	58	117	55.1	27.5	21.5	13	9V x 1	123.5
LC145S -N -D	LC145S -N -W	96	20	145	75	124	71.1	12.5	7.5	12	None	110
LC145S -F6 -D	LC145S -F6 -W	96	20	145	75	124	71.1	12.5	7.5	12	AAA x 6	130
LC145 -N -D	LC145 -N -W	96	27	145	75	124	71.1	19.5	14.5	12	None	121
LC145 -F6 -D	LC145 -F6 -W	96	27	145	75	124	71.1	19.5	14.5	12	AAA x 6	141
LC145 -M2 -D	LC145 -M2 -W	96	27	145	75	124	71.1	19.5	14.5	12	AA x 2	135
LC145 -M4 -D	LC145 -M4 -W	96	27	145	75	124	71.1	19.5	14.5	12	AA x 4	142
LC145H -N -D	LC145H -N -W	96	35	145	75	124	71.1	27.5	22.5	12	None	135
LC145H -F6 -D	LC145H -F6 -W	96	35	145	75	124	71.1	27.5	22.5	12	AAA x 6	155.5
LC145H -M2 -D	LC145H -M2 -W	96	35	145	75	124	71.1	27.5	22.5	12	AA x 2	149
LC145H -M4 -D	LC145H -M4 -W	96	35	145	75	124	71.1	27.5	22.5	12	AA x 4	156
LC165 -N -D	LC165 -N -W	80	27	165	62	147	59.1	19.5	13.5	13	None	120.5
LC165 -M4 -D	LC165 -M4 -W	80	27	165	62	147	59.1	19.5	13.5	13	AA x 4	140
LC165H -N -D	LC165H -N -W	80	35	165	62	147	59.1	27.5	21.5	13	None	134.5
LC165H -M4 -D	LC165H -M4 -W	80	35	165	62	147	59.1	27.5	21.5	13	AA x 4	153.5

## LCE SERIES

## EMC SHIELDED HAND-HELD PLASTIC CASE

EMC  
Shielding  
Effects

## Technical Data

Protection class: IP40  
Operating temperature: -10°C ~ +60°C

- LCE series is an EMC shielded version of LC hand-held plastic case coated internally with DOTITE conductive paint (acrylic paint mixed with nickel filler).
- Designed with beveled edges and rounded corners, and manufactured from flame-resistant ABS UL94V-0 material.
- Recommended to be used as measurement instruments, testing devices, wireless communication gadgets, medical equipment, and so on.

## Components

No.	Part name	Pcs	Material	Color / Finish	Conductive paint
1	Top cover	1	ABS UL94V-0	Dark gray	DOTITE
2	Bottom cover	1	ABS UL94V-0	Dark gray	DOTITE
3	Panel	1	ABS UL94V-0	Dark gray	DOTITE
4	Self-tapping screw	4	Steel M2.6	Black trivalent chromate	—

## Accessories (Optional parts)



Silicone cover LCTP • LCSC series  
See page 35 ~ 36



Tapping standoff TPS series  
See page 111



PCB mounting screw EM-2.3  
See page 115



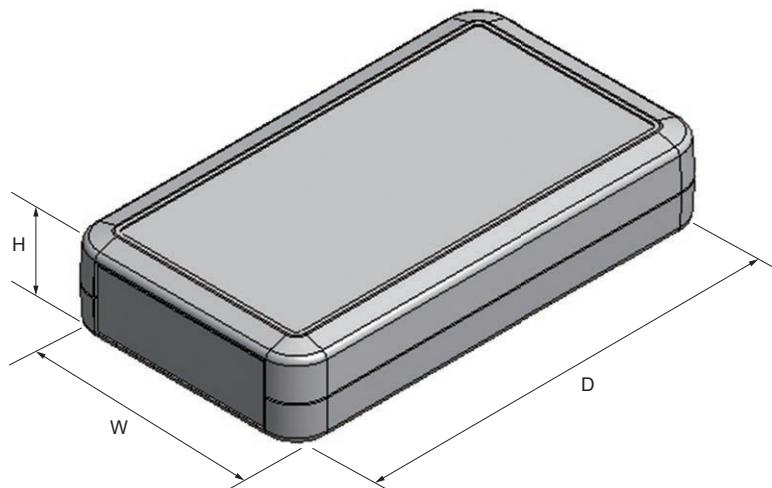
TORX screw MR series  
See page 115



Suspension bracket WM series  
See page 107

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

■ Refer to page 31 ~ 34 for detailed dimensions.



#### Product no. / Dimensions

Product no.	W	H	D	Included screws	Weight (g)
NEW LCE115 -N -D	69	19.5	115	Countersunk M2.6-14 x 4 pcs	72.5
NEW LCE115H -N -D	69	28	115	Countersunk M2.6-18 x 4 pcs	84
NEW LCE135 -N -D	76	27	135	Countersunk M2.6-18 x 4 pcs	97
NEW LCE145H -N -D	96	35	145	Countersunk M2.6-18 x 4 pcs	137
NEW LCE165H -N -D	80	35	165	Countersunk M2.6-18 x 4 pcs	139

## CONDUCTIVE PAINT CUSTOMIZATION AVAILABLE for LC series.

The LCE series are a selected few models of the LC series, customized with conductive paint.

Other LC series enclosures not listed can also be customized with conductive paint.

Contact us for more details.

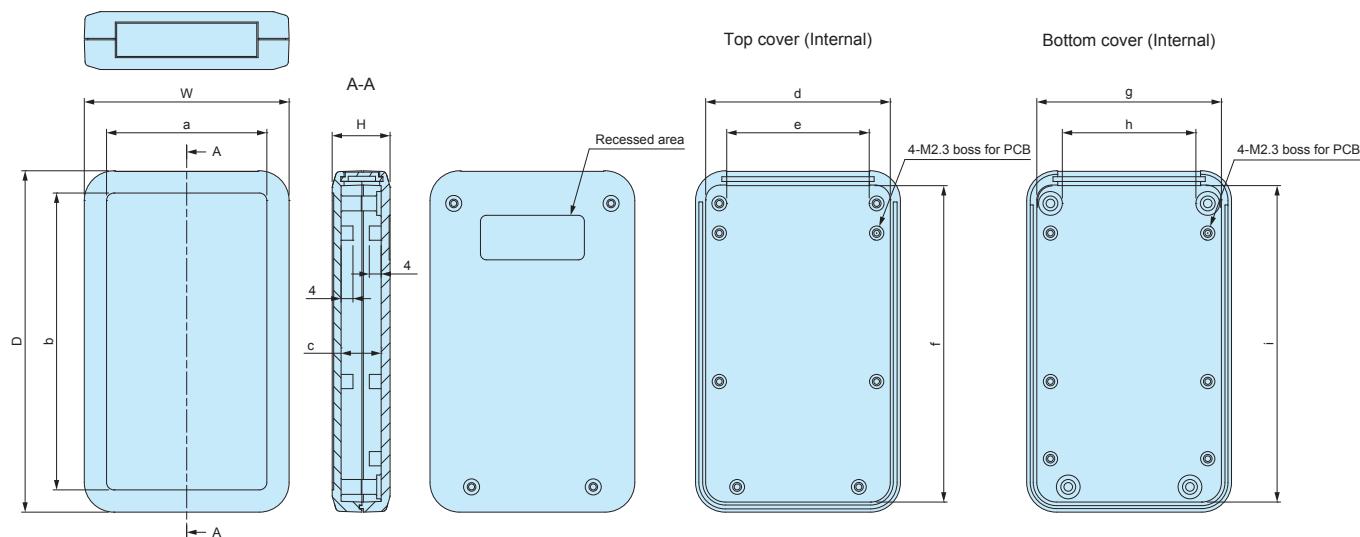
E-mail : sales@takachi-el.co.jp



**LCT • LCS (Case only) / LC • LCE Dimensions**

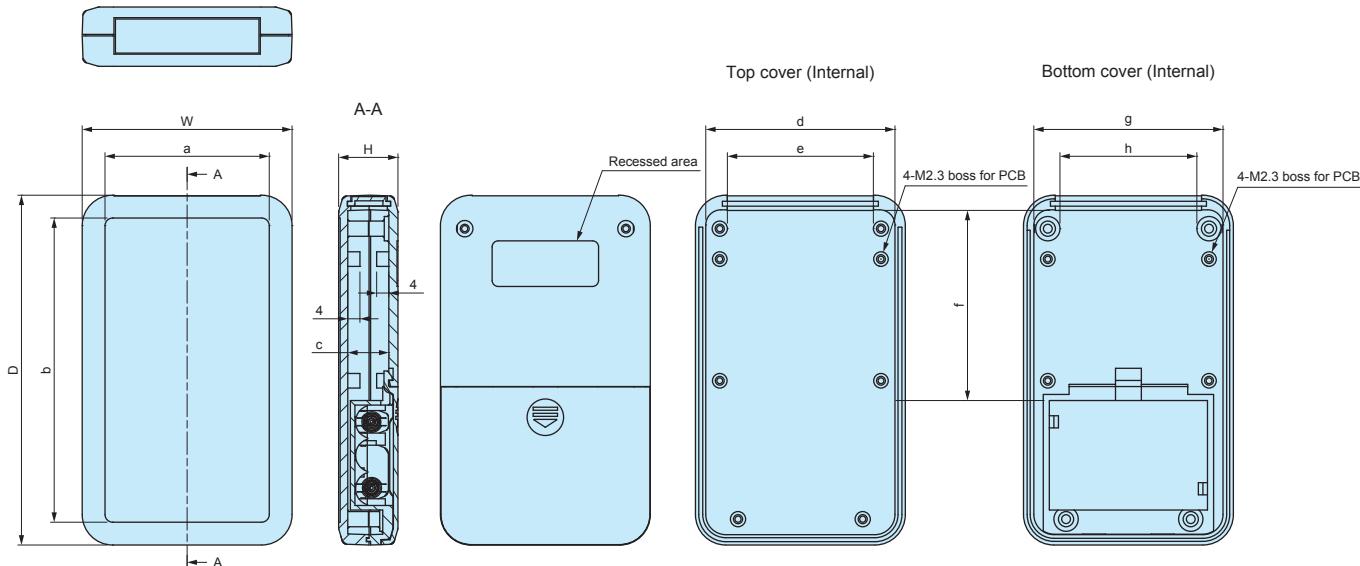
LC / LCE / LCS / LCT115-N  
LC / LCE / LCS / LCT115H-N

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



Product no.	W	H	D	a	b	c	d	e	f	g	h	i
LC • LCE • LCS • LCT115 -N	69	19.5	115	54	100	13.5	61.5	47	106.1	61.6	44	106.1
LC • LCE • LCS • LCT115H-N	69	28	115	54	100	22	60.9	47	105.5	61.5	44	106.1

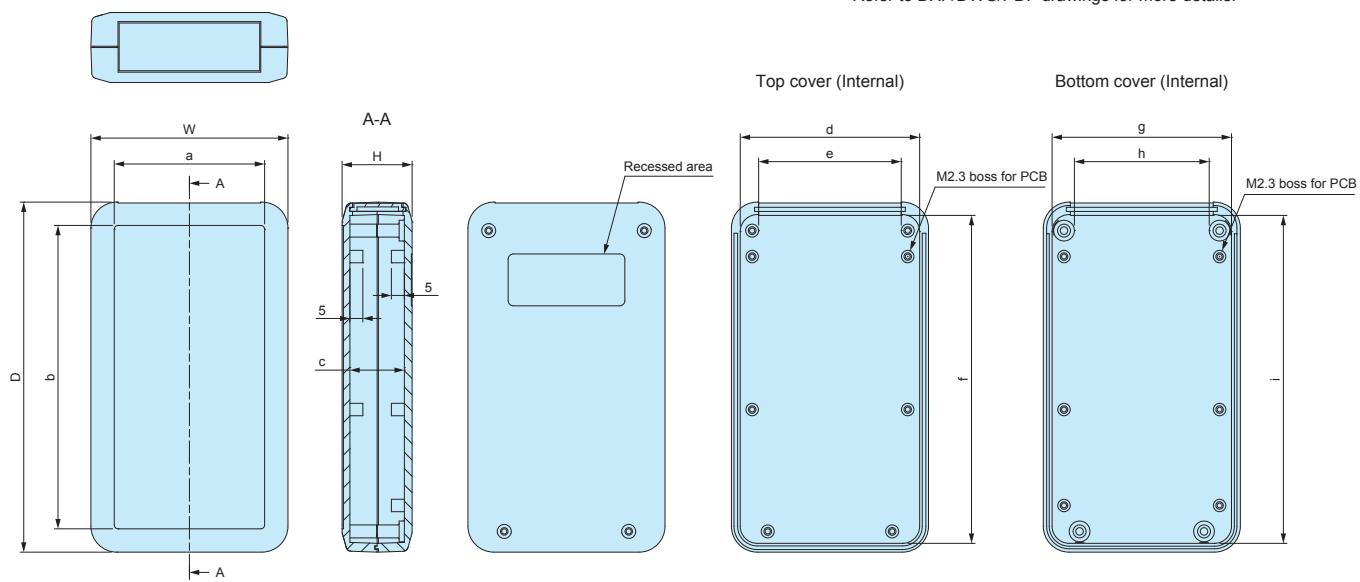
LC / LCS / LCT115-F2 • LC / LCS / LCT115H-F2  
LC / LCS / LCT115-F3 • LC / LCS / LCT115H-F3  
LC / LCS / LCT115H-M2 • LC / LCS / LCT115H-9V



Product no.	W	H	D	a	b	c	d	e	f	g	h
LC • LCS • LCT115 -F2	69	19.5	115	54	100	13.5	61.5	47	73.3	61.6	44
LC • LCS • LCT115 -F3	69	19.5	115	54	100	13.5	61.5	47	62.3	61.6	44
LC • LCS • LCT115H-F2	69	28	115	54	100	22	60.9	47	73.3	61.6	44
LC • LCS • LCT115H-F3	69	28	115	54	100	22	60.9	47	62.3	61.6	44
LC • LCS • LCT115H-M2	69	28	115	54	100	22	60.9	47	65.1	61.6	44
LC • LCS • LCT115H-9V	69	28	115	54	100	22	60.9	47	66	61.6	44

LC / LCE / LCS / LCT135-N  
LC / LCS / LCT135H-N

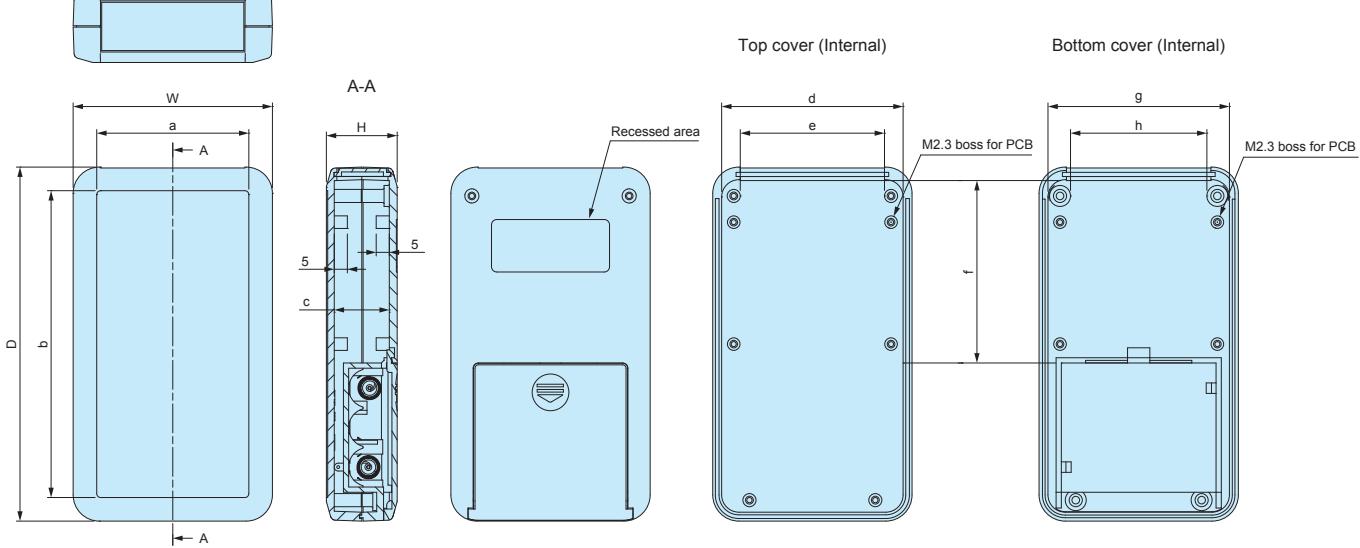
※ Number of PCB bosses vary by model.  
Refer to DXF/DWG/PDF drawings for more details.



Product no.	W	H	D	a	b	c	d	e	f	g	h	i
LC • LCE • LCS • LCT135-N	76	27	135	58	117	21	68.2	55	125.8	68.3	51	125.9
LC • LCS • LCT135H-N	76	35	135	58	117	29	67.7	54	125.3	68.3	51	125.9

LC / LCS / LCT135-F4 • LC / LCS / LCT135H-F4 • LC / LCS / LCT135-M2 • LC / LCS / LCT135H-M2  
LC / LCS / LCT135-M3 • LC / LCS / LCT135H-M3 • LC / LCS / LCT135-9V • LC / LCS / LCT135H-9V

※ Number of PCB bosses vary by model.  
Refer to DXF/DWG/PDF drawings for more details.

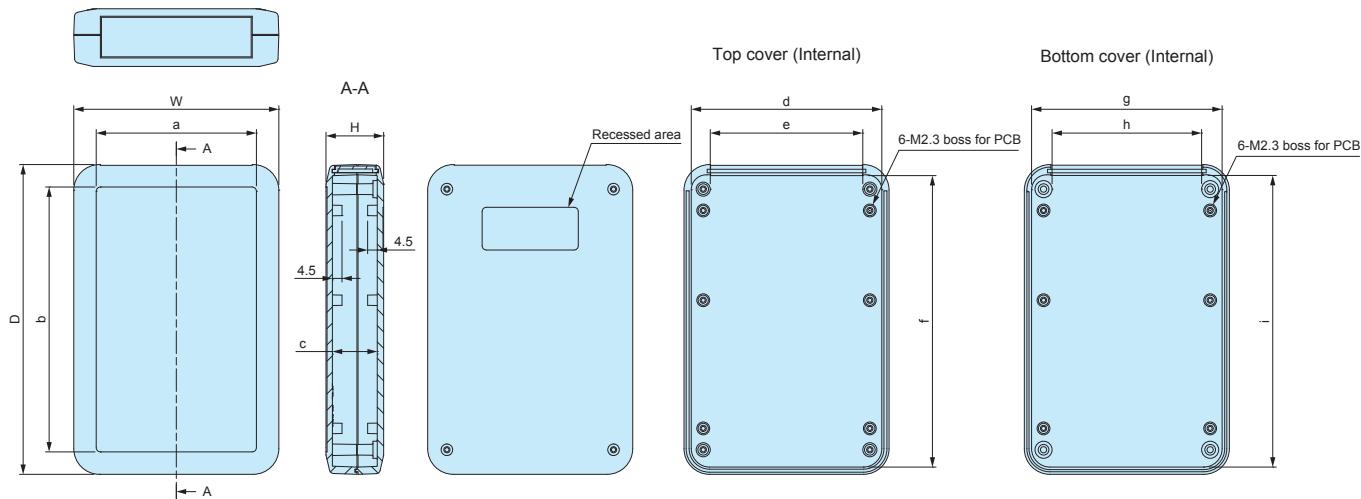


Product no.	W	H	D	a	b	c	d	e	f	g	h
LC • LCS • LCT135 -F4	76	27	135	58	117	21	68.2	55	69.4	68.3	51
LC • LCS • LCT135 -M2	76	27	135	58	117	21	68.2	55	84.5	68.3	51
LC • LCS • LCT135 -M3	76	27	135	58	117	21	68.2	55	69.4	68.3	51
LC • LCS • LCT135 -9V	76	27	135	58	117	21	68.2	55	84.5	68.3	51
LC • LCS • LCT135H-F4	76	35	135	58	117	29	67.7	54	69.4	68.3	51
LC • LCS • LCT135H-M2	76	35	135	58	117	29	67.7	54	84.5	68.3	51
LC • LCS • LCT135H-M3	76	35	135	58	117	29	67.7	54	69.4	68.3	51
LC • LCS • LCT135H-9V	76	35	135	58	117	29	67.7	54	84.5	68.3	51

## LCT • LCS (Case only) / LC • LCE Dimensions

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

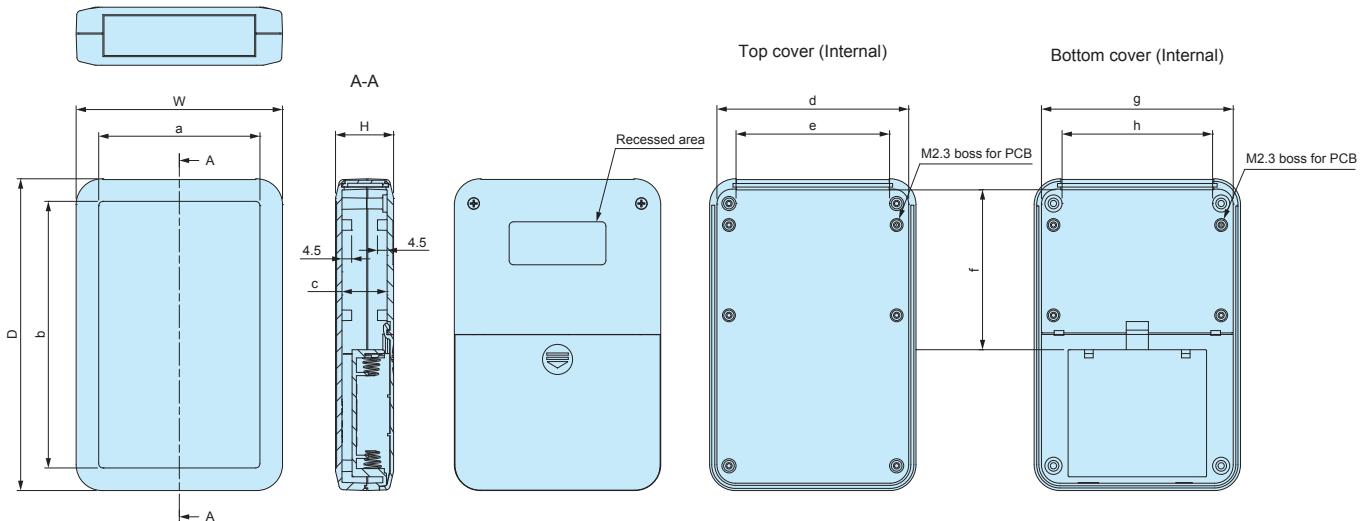
LC / LCS / LCT145S-N  
LC / LCS / LCT145-N  
LC / LCE / LCS / LCT145H-N



Product no.	W	H	D	a	b	c	d	e	f	g	h	i
LC • LCS • LCT145S-N	96	20	145	75	124	14	88.3	71.4	135.9	87.9	68.9	135.5
LC • LCS • LCT145 -N	96	27	145	75	124	21	87.8	71.4	135.4	87.9	68.9	135.5
LC • LCE • LCS • LCT145H-N	96	35	145	75	124	29	87.2	71	134.8	87.9	68.9	135.5

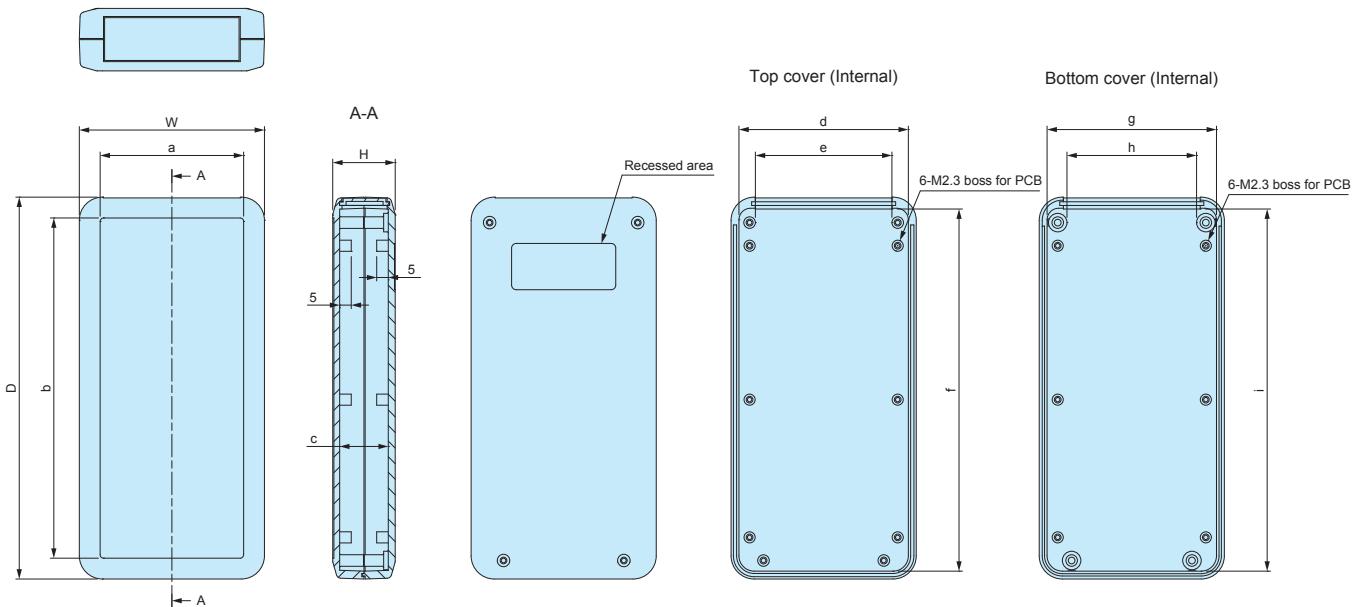
LC / LCS / LCT145S-F6 • LC / LCS / LCT145-F6 • LC / LCS / LCT145H-F6  
LC / LCS / LCT145-M2 • LC / LCS / LCT145H-M2  
LC / LCS / LCT145-M4 • LC / LCS / LCT145H-M4

※ Number of PCB bosses vary by model.  
Refer to DXF/DWG/PDF drawings for more details.



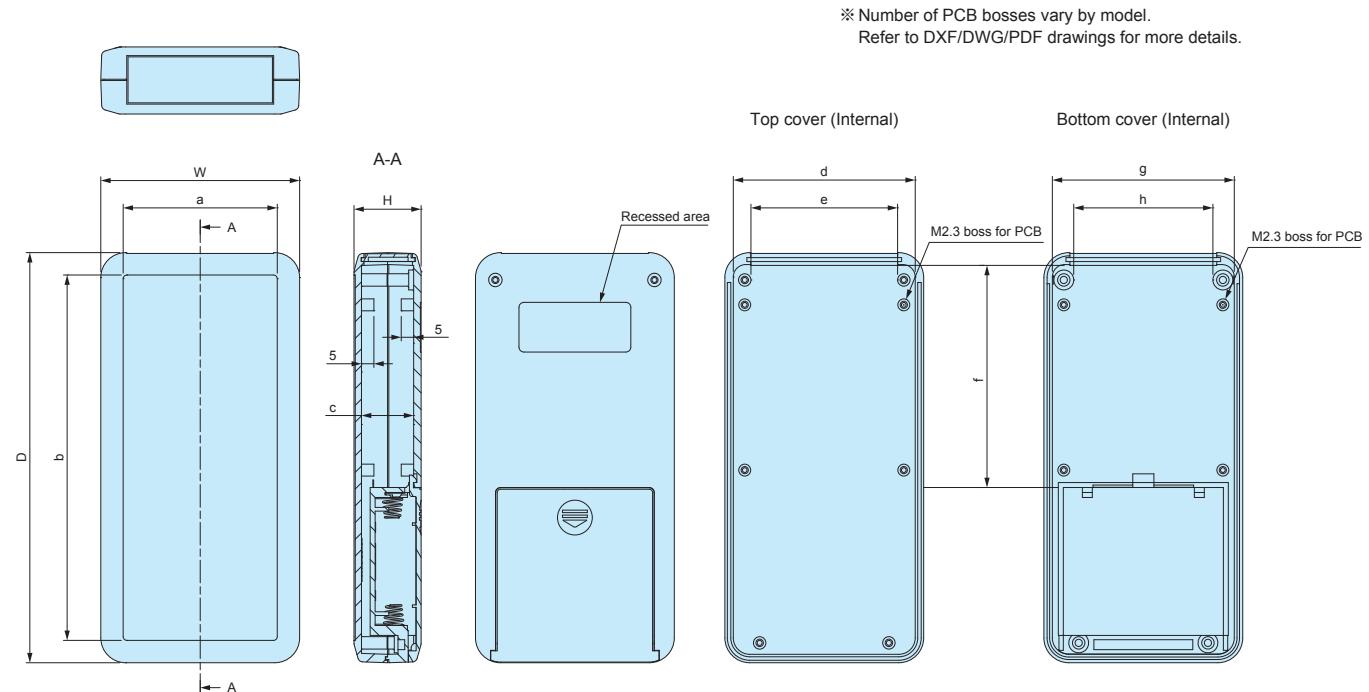
Product no.	W	H	D	a	b	c	d	e	f	g	h
LC • LCS • LCT145S -F6	96	20	145	75	124	14	88.3	71.4	78.4	87.9	68.9
LC • LCS • LCT145 -F6	96	27	145	75	124	21	87.8	71.4	78.4	87.9	68.9
LC • LCS • LCT145 -M2	96	27	145	75	124	21	87.8	71.4	97.4	87.9	68.9
LC • LCS • LCT145 -M4	96	27	145	75	124	21	87.8	71.4	74	87.9	68.9
LC • LCS • LCT145H -F6	96	35	145	75	124	29	87.2	71	78.4	87.9	68.9
LC • LCS • LCT145H -M2	96	35	145	75	124	29	87.2	71	97.4	87.9	68.9
LC • LCS • LCT145H -M4	96	35	145	75	124	29	87.2	71	74	87.9	68.9

LC / LCS / LCT165-N  
LC / LCE / LCS / LCT165H-N



Product no.	W	H	D	a	b	c	d	e	f	g	h	i
LC • LCS • LCT165-N	80	27	165	62	147	21	72.2	58	155.8	72.3	55	155.9
LC • LCE • LCS • LCT165H-N	80	35	165	62	147	29	71.7	58	155.3	72.3	55	155.9

LC / LCS / LCT165-M4  
LC / LCS / LCT165H-M4



Product no.	W	H	D	a	b	c	d	e	f	g	h
LC • LCS • LCT165 -M4	80	27	165	62	147	21	72.2	58	89.2	72.3	55
LC • LCS • LCT165H-M4	80	35	165	62	147	29	71.7	58	89.2	72.3	55

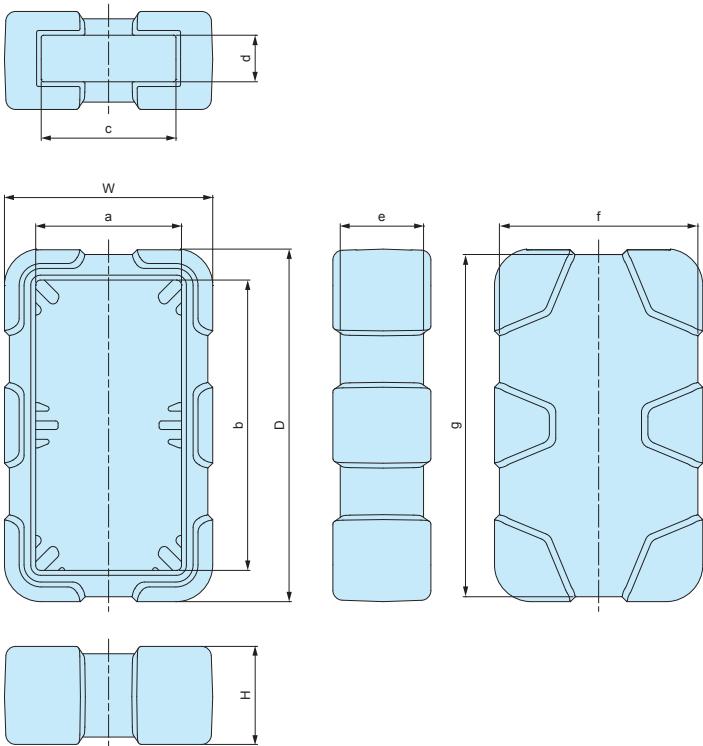
## LCTP SERIES

## SHOCK-PROOF SILICONE COVER

## Color Type

Code	O Orange	G Green	N Navy	D Dark gray	L Light gray
Color					

- Shock-proof silicone cover for LC series. New sizes now available!
- Custom color is available from 500pcs per order batch. For custom color order, please specify **PANTONE®**, RGB color number or provide your sample color.
- Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



## APPLICATION EXAMPLE

ULTRASONIC HARDNESS TESTER  
Product by NOVOTEST (Ukraine)

## Components

Part name	Material	Color
Silicone cover	Silicone	Orange • Green • Navy • Dark gray • Light gray

## Product no. / Dimensions

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

Product no.	W	H	D	a	b	c	d	e	f	g	Suitable case	Weight (g)
LCTP115 -□	76	28	121.9	55.5	101.5	48.3	12	24	72	117.8	LC115	53.5
LCTP115H -□	76	36.5	121.9	55.5	101.5	48.3	20.5	32.5	72	117.8	LC115H	61
LCTP135 -□	85	40	143.9	59.5	118.5	55	19	34	81	139.7	LC135	115.5
LCTP135H -□	85	48	143.9	59.5	118.5	55	27	42	81	139.6	LC135H	124
LCTP145S -□	105	33	153.9	76.5	125.5	71	12	27	101	149.9	LC145S	129.1
LCTP145 -□	105	40	153.9	76.5	125.5	71	19	34	101	149.7	LC145	137.5
LCTP145H -□	105	48	153.9	76.5	125.5	71	27	42	101	149.7	LC145H	147
LCTP165 -□	89	40	173.9	63.5	148.5	59	19	34	85	169.7	LC165	143
LCTP165H -□	89	48	173.9	63.5	148.5	59	27	42	85	169.6	LC165H	151.5

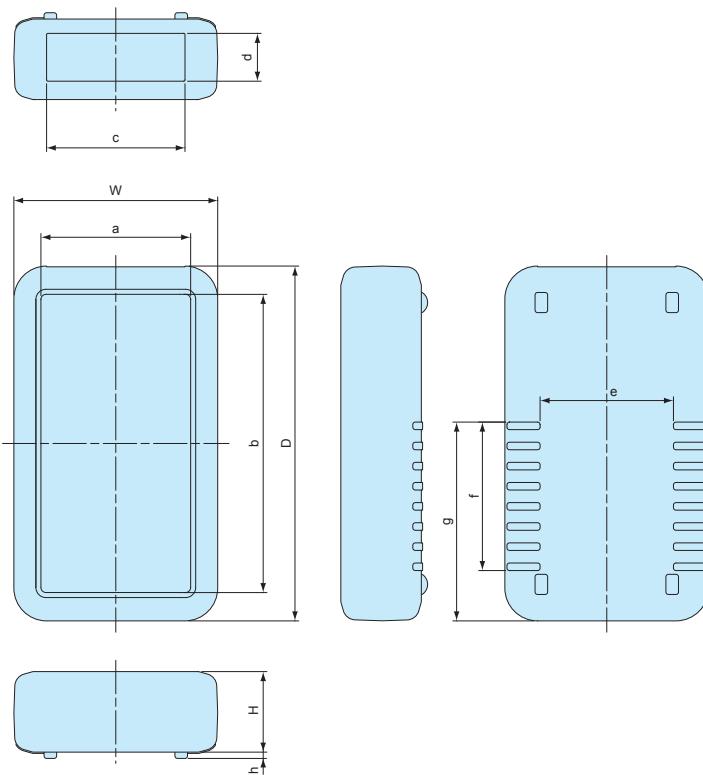
# LCSC SERIES

# SILICONE COVER

## Color Type

Code	<input type="checkbox"/> R Red	<input type="checkbox"/> Y Yellow	<input type="checkbox"/> G Green	<input type="checkbox"/> B Blue	<input type="checkbox"/> N Navy	<input type="checkbox"/> D Dark gray	<input type="checkbox"/> L Light gray
Color							

- Silicone cover for LC Series.
- Custom color is available from 500pcs per order batch. For custom color order, please specify **PANTONE®**, RGB color number or provide your sample color.
- Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



## APPLICATION EXAMPLE

TEMPERATURE SURVEILLANCE SENSOR  
Product by SENFIO (Brazil)



## Components

Part name	Material	Color
Silicone cover	Silicone	Red • Yellow • Green • Blue • Navy • Dark gray • Light gray

## Product no. / Dimensions

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

Product no.	W	H	D	a	b	c	d	e	f	g	h	Suitable case	Weight (g)
LCSC115 -□	74	24	120	55.5	101.5	48.3	12	46	44.5	60.5	2	LC115	43
LCSC115H-□	74	32.5	120	55.5	101.5	48.3	20.5	46	44.5	60.5	2	LC115H	50
LCSC135 -□	81	32	141	59.5	118.5	55	19	53	59	79	2.5	LC135	70
LCSC135H-□	81	40	141	59.5	118.5	55	27	53	59	79	2.5	LC135H	75.5
LCSC145S-□	101	25	151	76.5	125.5	71	12	71	59	81	2.5	LC145S	73.4
LCSC145 -□	101	32	151	76.5	125.5	71	19	71	59	81	2.5	LC145	81
LCSC145H-□	101	40	151	76.5	125.5	71	27	71	59	81	2.5	LC145H	89
LCSC165 -□	85	32	171	63.5	148.5	59	19	53	67	92	2.5	LC165	82.5
LCSC165H-□	85	40	171	63.5	148.5	59	27	53	67	92	2.5	LC165H	86

# IP67 PORTABLE CASE WC SERIES



● IEC60529 standard is a system for classifying the degrees of protection provided by the enclosures of electrical equipment, such as against dust and water.  
**IP6x : No ingress of dust; complete protection against contact (dust tight).**  
**IPx7 : No ingress of water when submerged up to a depth of 1 meter for 30 minutes**

## High waterproof performance with both TPE and silicone gasket

ABS and TPE double-shot molded top & bottom covers allows for a good waterproof seal. The durable silicone gasket maintains the battery lid seal. Insert nut and screw allow the battery compartment to remain durable even after repeated opening/closing.



## Great protection by TPE sides

Side grips in TPE material provides a comfortable grip and protection against drop impact.



## 3 color combinations available



# APPLICATION EXAMPLE

Best for outdoor use as a remote control, RFID tag, compact GPS, wireless device, simplified measurement gadget and so on.

## Structure AI Inspection Noise Detector System

Product by AIST (Japan)

Website : [aist.go.jp](http://aist.go.jp)



## Emergency Call Receiver / Transmitter

Product by Knop Elektronik A/S (Denmark)

Website : [knop.dk](http://knop.dk)



## GPS Transmit Trigger

Product by Tokyo Denki Gijyutsu Co., Ltd. (Japan)

Website : [tdg-net.co.jp/](http://tdg-net.co.jp/)



## LPWA (Low Power, Wide Area) Transmitter



## We are able to manufacture embossed or standard overlay sheets with low initial costs.

Waterproof performance may be lost by drilling/milling holes or cut-outs for buttons or switches on waterproof enclosures. Use an IP rated overlay sheet, or membrane keypad in order to allow the milled area to remain waterproof.



### Advantage 1

Reduce initial cost with digital inkjet printing.

### Advantage 2

Reduce initial tooling cost for cutting die with digital cutting plotter.

### Advantage 3

Reduce initial tooling cost for embossing with in-house mold processing.

### Advantage 4

Shorter lead time made possible by having all production be in-house.

## WC SERIES

## IP67 PORTABLE PLASTIC CASE



- TPE side grip provides not only a comfortable grip, but also protects from drop impact.
- Suitable to be used as a remote controller, key fob, wireless device, RFID tag, and so on.
- Case with a CR2032 coin battery, and no battery compartment types are available.
- Available in 4 different sizes, 7 model types, and 3 color variations.
- See page 40 for coin battery contact installation step.

## Technical Data

Protection class : IP67  
Operating temperature : -10 ~ +50°C  
Recommended torque : 0.06 ~ 0.08N · m

None battery compartment type



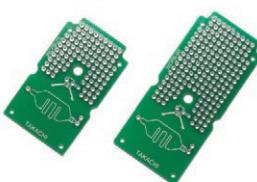
Battery compartment type



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94HB : Elastomer	Black & Black • Black & Marine • White & Light gray
2	Bottom cover	1	ABS UL94HB : Elastomer	Black & Black • Black & Marine • White & Light gray
3	Battery lid	1	ABS UL94HB	Black • White
4	Battery contact	1 set	Stainless steel SUS304	Nickel plated
5	O-ring	1	Silicone	Black
6	Screw	7	Stainless steel SUS304	Unfinished

## Accessories (Optional parts)



Exclusive PCB WCPB series  
See page 42



Strap STPS series  
See page 57

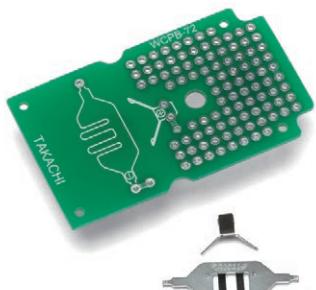


PCB mounting screw EM-1.6  
See page 115

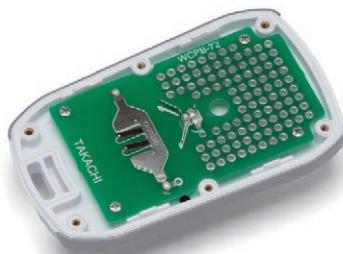


Neodymium magnet NMG series  
See page 108

# Coin battery contact installation step



Solder the contacts onto the PCB



Install the PCB in the top cover

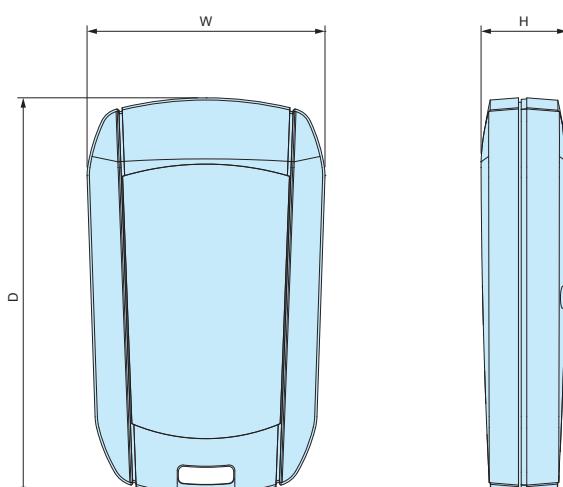
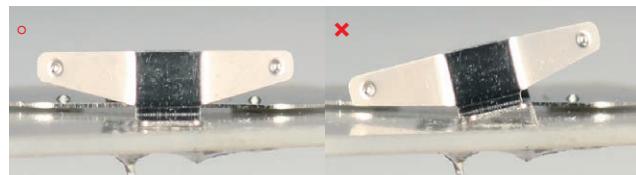


All set!



■ Battery direction is incused on the inner side of the battery lid.

**CAUTION** Use caution when mounting battery contacts.



## Battery Compartment Types

Type	N	C
	None	CR2032 x 1
Battery Compartment		

## Color Type

Code	B B	B M	W L
Body	Black	Black	White
Grip	Black	Marine	Light gray
Color			

## Product no. / Dimensions

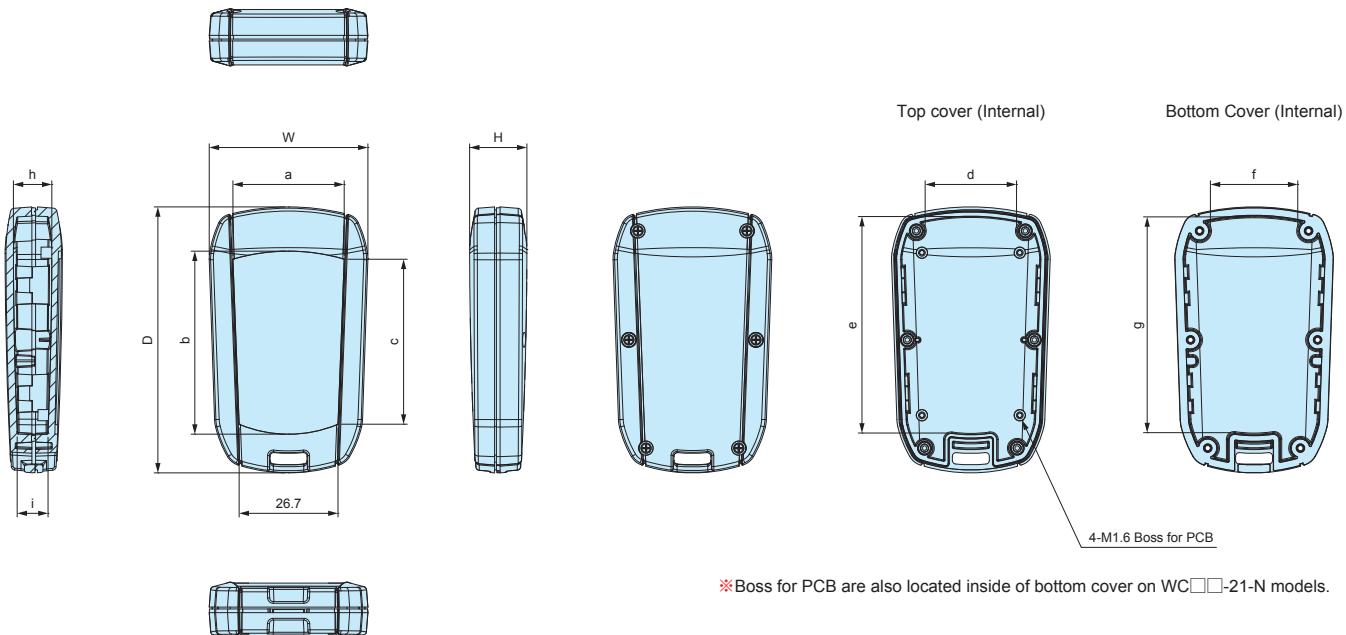
■ Please suffix color code at the end of the product number.

Product no.	W	H	D	Battery Compartment	Weight (g)
WC72-15-N-□□	43	15.5	72	None	18.5
WC72-15-C-□□	43	15.5	72	CR2032	22
<b>NEW</b> WC72-21-N-□□	43	21.5	72	None	22
<b>NEW</b> WC72-21-C-□□	43	21.5	72	CR2032	25.5
WC90-15-N-□□	44.2	15.7	90	None	23
WC90-15-C-□□	44.2	15.7	90	CR2032	26.5
<b>NEW</b> WC90-21-N-□□	44.2	21.7	90	None	27

## WC dimensions

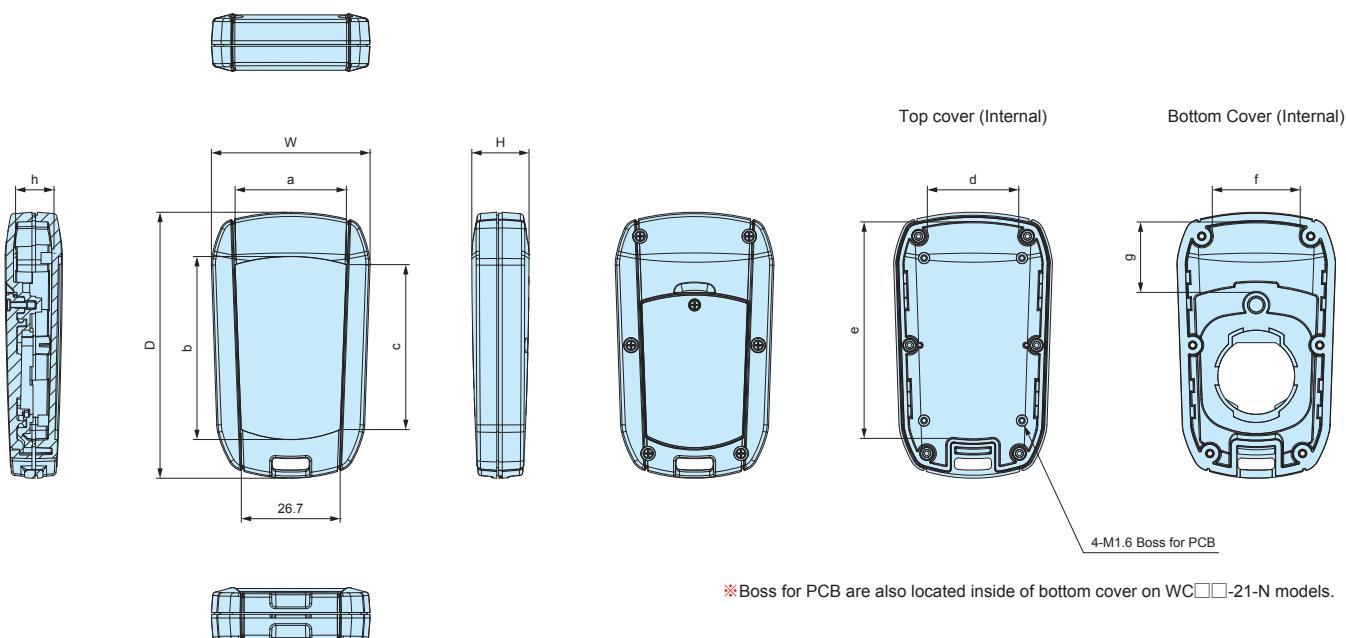
■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.

WC72-15-N / WC72-21-N  
WC90-15-N / WC90-21-N



※Boss for PCB are also located inside of bottom cover on WC□□-21-N models.

WC72-15-C / WC72-21-C  
WC90-15-C



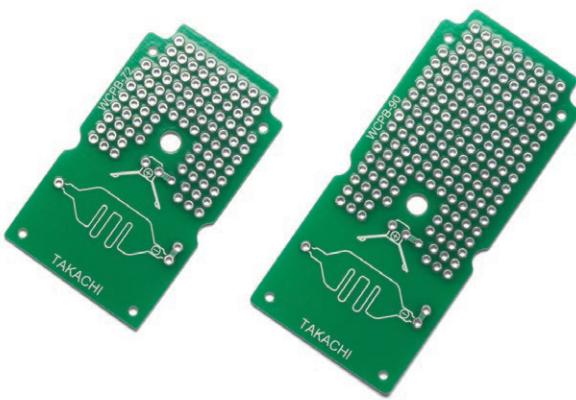
※Boss for PCB are also located inside of bottom cover on WC□□-21-N models.

Product no.	W	H	D	a	b	c	d	e	f	g	h
WC72-15-C-□□	43	15.5	72	30.1	49.5	44.7	24.7	58.6	23.8	19	10.4
WC72-21-C-□□	43	21.5	72	30.1	49.5	44.7	24.7	58.6	23	17.3	16.3
WC90-15-C-□□	44.2	15.7	90	31.4	67.5	62.7	26.1	76.6	25	36.9	10.4

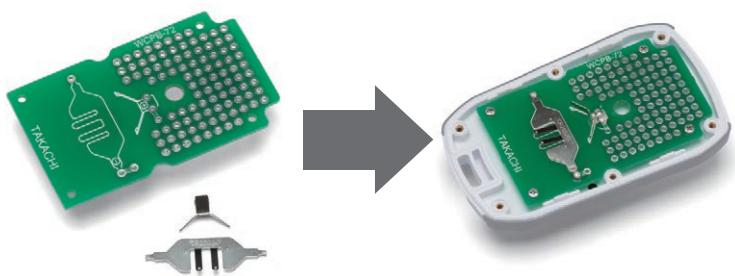
## WCPB SERIES

## EXCLUSIVE PCB for WC

- Exclusive PCB for WC series.
- Glass epoxy board (FR-4), through-holes on both sides, 2.54mm hole pitch.
- Designed with a battery contact hole. Battery contact position and direction are printed onto the pcb.

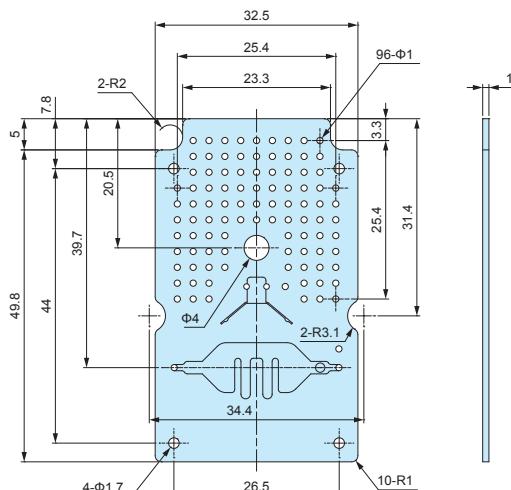


Please use battery contacts included with WC case.

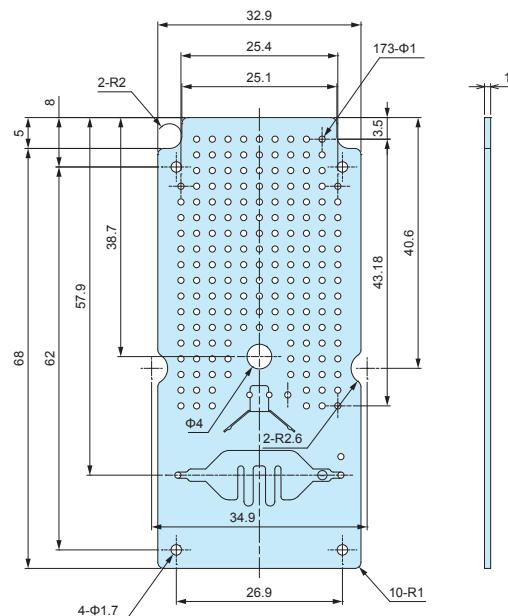


- DXF/DWG/PDF drawings available on our website.

WCPB-72



WCPB-90

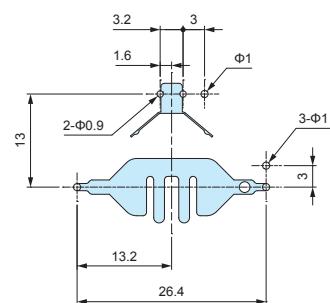


Note : Holes (4-Φ1.7) for PCB mounting bosses are un-soldered.

## Components

Part name	Pcs	Material	Color / Finish
PCB	1	Glass epoxy (FR-4) t=1.0	Through-hole • Lead-free solder • Solder resist
Screw	4	Steel (Tapping M1.6-4)	Trivalent chromate

## Battery contact position details



## Product no. / Dimensions

Product no.	Suitable case
WCPB- 72	WC72-15-C WC72-21-C
WCPB- 90	WC90-15-C

# CSS • CS SERIES

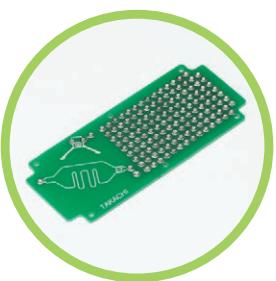
SMALL PLASTIC CASE WITH SILICONE COVER

Built-in CR2032 Coin Battery Compartment

Selectable in 3 sizes & 12 color combinations



Built-in CR2032  
battery compartment



Exclusive  
universal PCBs



## 6 Colors

# APPLICATION EXAMPLE

## MOTOR SPORT INFRARED LAPTIMER (BLUETOOTH 4.0 & ANDOROID APPLICATION)

Product by General Mechatronics (Hungary)



## BLUETOOTH TEMPERATURE DATA LOGGER

Product by Almendo Technologies (Germany)



## G TRIP-TRIP SENSOR for RELAY TESTER

Product by Musashi Intech (Japan)



## WIRELESS ROMOTE CONTROL SWITCH

Product by Herutu Electronics Corporation (Japan)



## HANDI QUILTER EASY-SET TENSION™ Kit

Product by Handi Quilter, Inc (USA)



## WIRELESS MICROPHONE for HEARING AID

Product by Audinor AS (Norway)



## CSS SERIES

## PORTABLE PLASTIC CASE with SILICONE COVER



## Technical Data

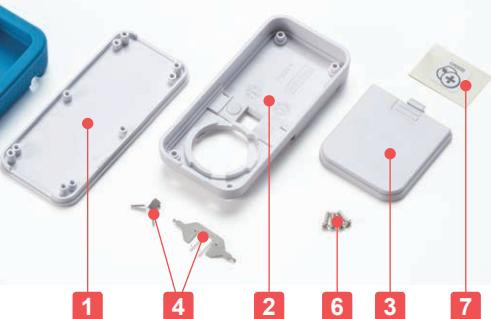
Protection class: IP40  
Operating temperature: -10°C ~ +60°C

- Small plastic case with silicone cover. Strong against drop impact while providing a secure grip.
- Smart phone sized CSS115 comes with 2 CR2032 battery compartment while smaller sized single battery and no battery compartment types are also available.
- Suitable for remote controller, wireless key fob, small tester/device and so on.
- Available in 3 sizes with 6 models and selectable in 12 different color combinations.
- 2 types of silicone cover available which have with (Open) and without (Closed) rectangular cutout on the front side.

CSS75N/CSS90N/CSS115N (No battery compartment type)



CSS75/CSS90/CSS115 (Battery compartment type)



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94HB	White • Black
2	Bottom cover	1	ABS UL94HB	White • Black
3	Battery cover	1	ABS UL94HB	White • Black
4	Battery contact	1 set / 2 set (CSS115)	Stainless steel	Nickel plated
5	Silicone cover	1	Silicone	Pink • Yellow • Green • Cyan • Light gray • Black
6	Self tapping screw	4	Steel M1.6	Nickel plated • Black trivalent chromate
7	CR2032 sticker	1	PP	—

## Accessories (Optional parts)



Exclusive PCB CSPB series  
See page 52



Strap STPS series  
See page 57



PCB mounting screw EM-1.6  
See page 115



TORX screw MR1.6-6S  
See page 115



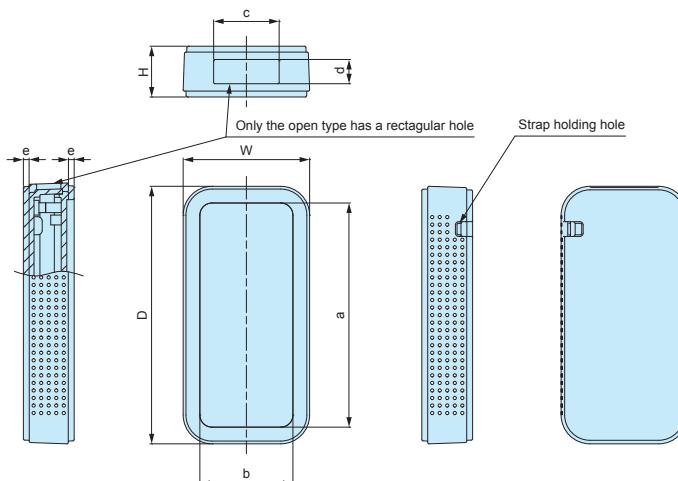
Neodymium magnet NMG series  
See page 108

**Silicone Cover Type**

Code	CL Closed	OP Open
Shape		

**Color Type**

Code	B P Black / Pink	B Y Black / Yellow	B G Black / Green	B C Black / Cyan	B L Black / Light gray	B B Black / Black
Color						
Code	W P White / Pink	W Y White / Yellow	W G White / Green	W C White / Cyan	W L White / Light gray	W B White / Black
Color						



Type	None CSS75N/90N/115N	CR2032 × 1 CSS75/CSS90	R2032 × 2 CSS115
Battery compartment			

- DXF/DWG/PDF drawings available on our website.
- Refer to drawings on page 52 for suitable PCB dimensions and screw hole layout.

**Product no. / Dimensions**

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

Product no.	W	H	D	a	b	c	d	e	Battery compartment	Weight (g)
CSS 75N-CL -□□	38.6(35)	15.5(12)	78.6 (75)	68.4	28.4	—	—	1.75	None	24
CSS 75N-OP-□□	38.6(35)	15.5(12)	78.6 (75)	68.4	28.4	20	7.4	1.75	None	24
CSS 75 -CL -□□	38.6(35)	15.5(12)	78.6 (75)	68.4	28.4	—	—	1.75	CR2032×1	25
CSS 75 -OP-□□	38.6(35)	15.5(12)	78.6 (75)	68.4	28.4	20	7.4	1.75	CR2032×1	25
CSS 90N-CL -□□	48.6(45)	15.5(12)	93.6 (90)	82.4	37.4	—	—	1.75	None	36
CSS 90N-OP-□□	48.6(45)	15.5(12)	93.6 (90)	82.4	37.4	30	7.4	1.75	None	35
CSS 90 -CL -□□	48.6(45)	15.5(12)	93.6 (90)	82.4	37.4	—	—	1.75	CR2032×1	38
CSS 90 -OP-□□	48.6(45)	15.5(12)	93.6 (90)	82.4	37.4	30	7.4	1.75	CR2032×1	37
CSS115N-CL -□□	67.1(63)	16 (12)	119.1(115)	107.4	55.4	—	—	2	None	62
CSS115N-OP-□□	67.1(63)	16 (12)	119.1(115)	107.4	55.4	45	7.4	2	None	61
CSS115 -CL -□□	67.1(63)	16 (12)	119.1(115)	107.4	55.4	—	—	2	CR2032×2	65
CSS115 -OP-□□	67.1(63)	16 (12)	119.1(115)	107.4	55.4	45	7.4	2	CR2032×2	64

■ ( ) value = enclosure dimension.

## CS SERIES

## PORTABLE PLASTIC CASE



- Easy replacement of batteries. Battery contact included in each case (except for N type).
- Suitable for remote controller, wireless key fob, or small tester/device, and so on.
- 3 sizes with 2 different color types available.

## Technical Data

Protection class: IP40  
Operating temperature: -10°C ~ +60°C

CS75N/CS90N/CS115N (No battery compartment type)



CS75/CS90/CS115 (Battery compartment type)



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94HB	White • Black
2	Bottom cover	1	ABS UL94HB	White • Black
3	Battery cover	1	ABS UL94HB	White • Black
4	Battery contact	1 set / 2 set (CS115)	Stainless steel	Nickel plated
5	Self tapping screw	4	Steel M1.6	Nickel plated • Black trivalent chromate
6	CR2032 sticker	1	PP	—

## Accessories (Optional parts)



Exclusive PCB CSPB series  
See page 52



Strap STPS series  
See page 57



PCB mounting screw EM-1.6  
See page 115



TORX screw MR1.6-6S  
See page 115



Suspension bracket WM series  
See page 107



Neodymium magnet NMG series  
See page 108

# Coin battery contact installation instructions

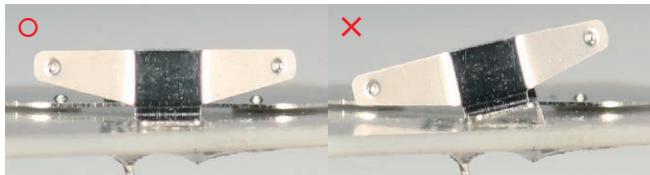


- Exclusive PCB is available as an optional part. See page 52 for more details.
- Refer to drawings on page 52 for suitable PCB dimensions and screw hole layout.

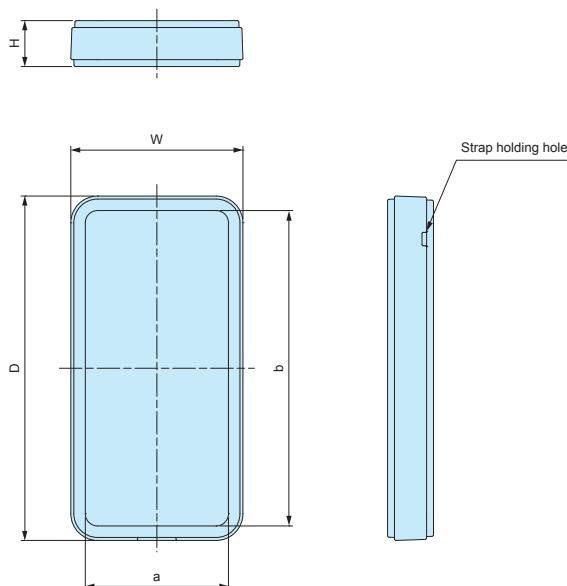


Stick the CR2032 sticker on the backside of the battery cover to avoid incorrect placement of the battery.

**NOTE** Take caution of the mount position of the battery contact.



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



Type	None CS75N/90N/115N	CR2032 × 1 CS75/CS90	CR2032 × 2 CS115
Battery compartment			

## Product no. / Dimensions

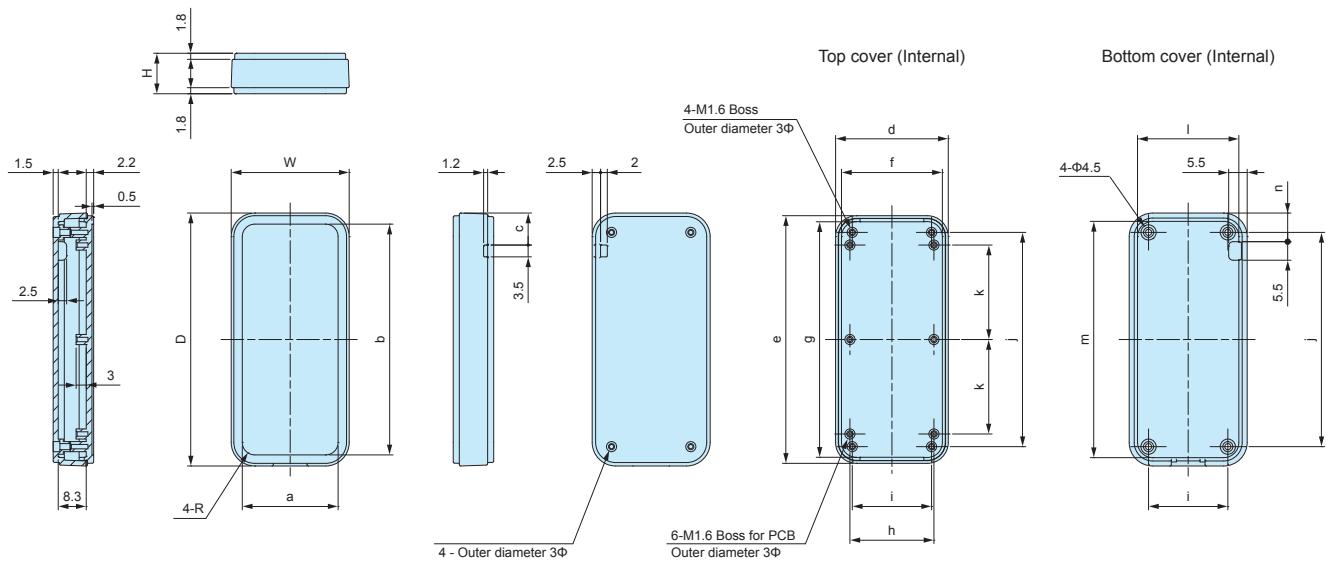
Please suffix color code at the end of the product number.

Product no.		W	H	D	a	b	Battery compartment	Weight (g)
● Black	● White							
CS 75N-B	CS 75N-W	35	12	75	28.4	68.4	None	12
CS 75 -B	CS 75 -W	35	12	75	28.4	68.4	CR2032 × 1	13
CS 90N-B	CS 90N-W	45	12	90	37.4	82.4	None	18
CS 90 -B	CS 90 -W	45	12	90	37.4	82.4	CR2032 × 1	20
CS115N-B	CS115N-W	63	12	115	55.4	107.4	None	30
CS115 -B	CS115 -W	63	12	115	55.4	107.4	CR2032 × 2	33

## CSS • CS dimensions

CS75N/CS90N/CS115N

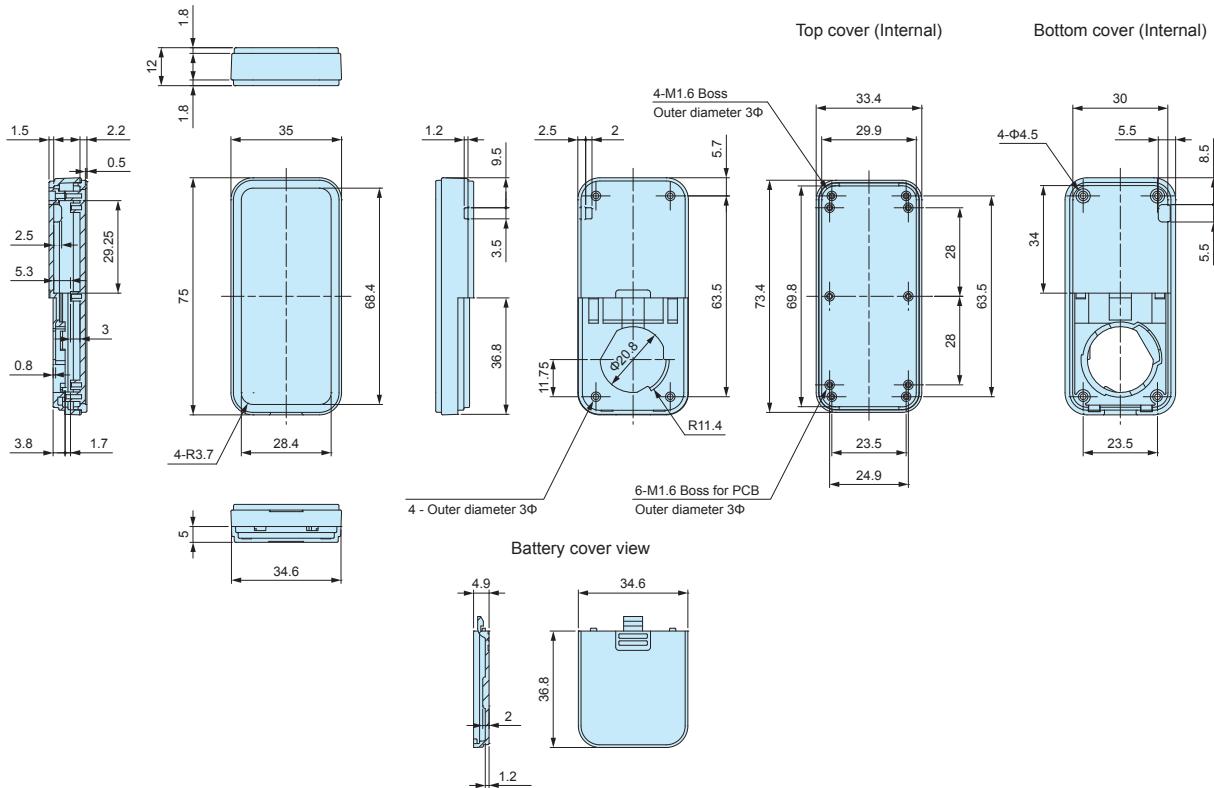
■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



Product no.	W	H	D	R	a	b	c	d	e	f	g	h	i	j	k	l	m	n
CS75 N-□	35	12	75	3.7	28.4	68.4	9.5	33.4	73.4	29.9	69.8	24.9	23.5	63.5	28	30	70	8.5
CS90 N-□	45	12	90	3.2	37.4	82.4	9.5	43.4	88.4	39.9	84.8	34.9	33.5	78.5	35.5	40	85	8.5
CS115N-□	63	12	115	4.7	55.4	107.4	10.5	61.4	113.4	57.9	109.8	52.9	50.5	102.5	47.5	58	110	9.5

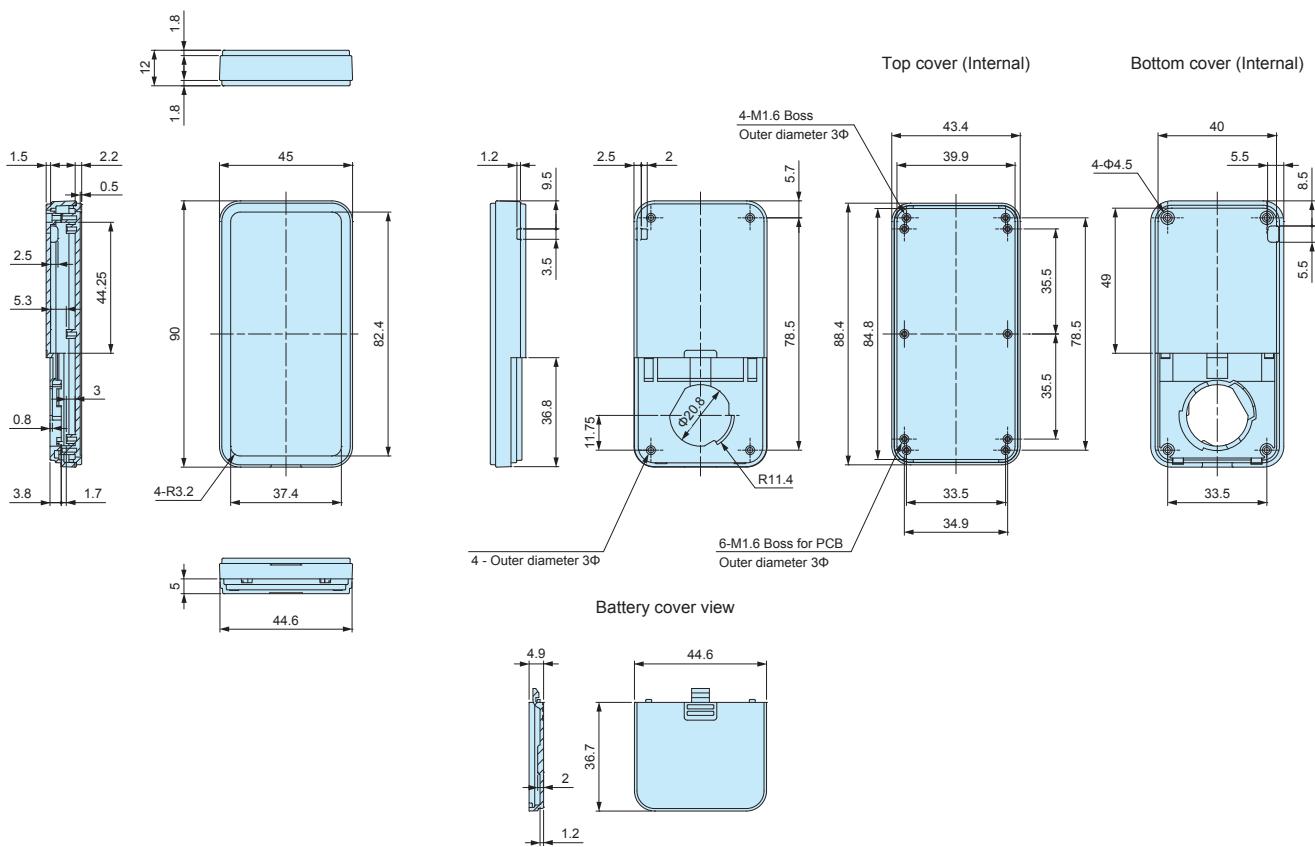
CS75

■ Refer to drawings on page 52 for suitable PCB dimension and screw hole layout.



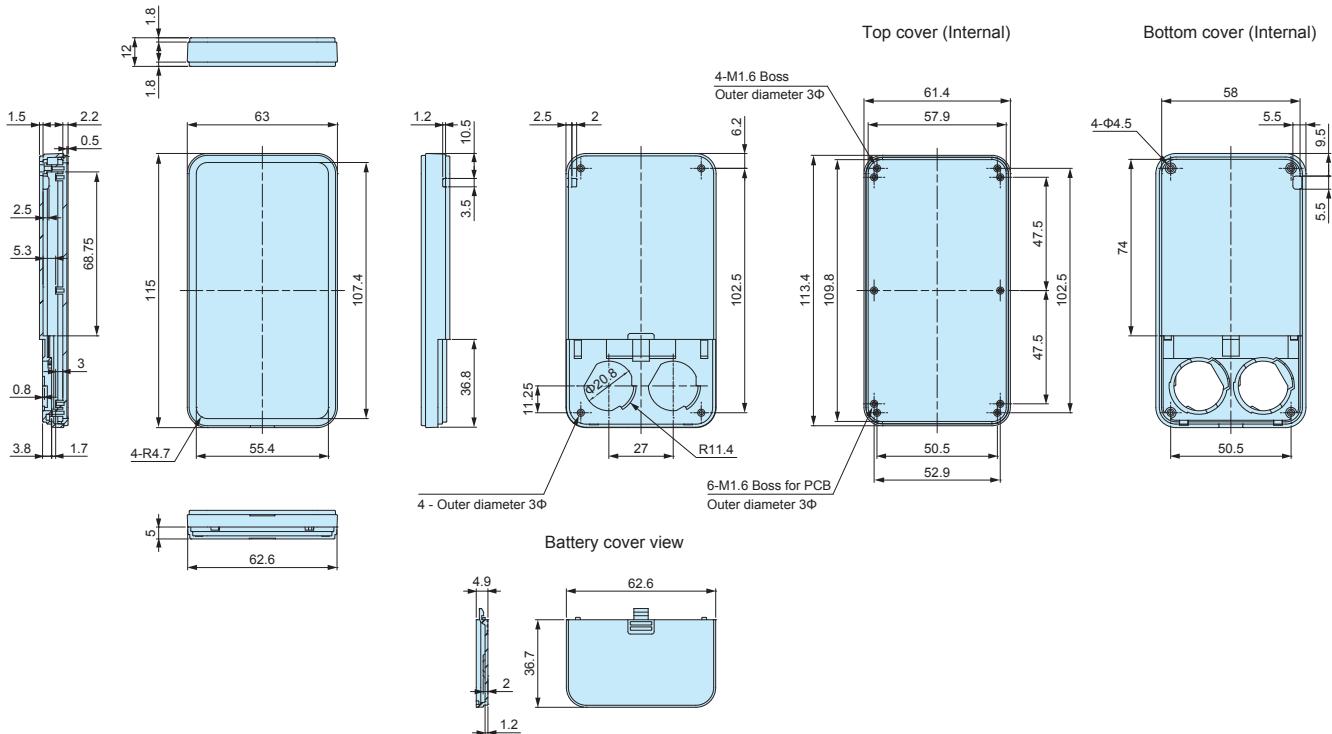
## CS90

■ Refer to drawings on page 52 for suitable PCB dimension and screw hole layout.



## CS115

■ Refer to drawings on page 52 for suitable PCB dimension and screw hole layout.



## CSSC SERIES

## SILICONE COVER

## Silicone Cover Type

Code	CL Closed	OP Open
Shape		

■ 2 types of silicone cover which have with (Open) and without (Closed) rectangular cutout on the front side; selectable in 6 different colors.

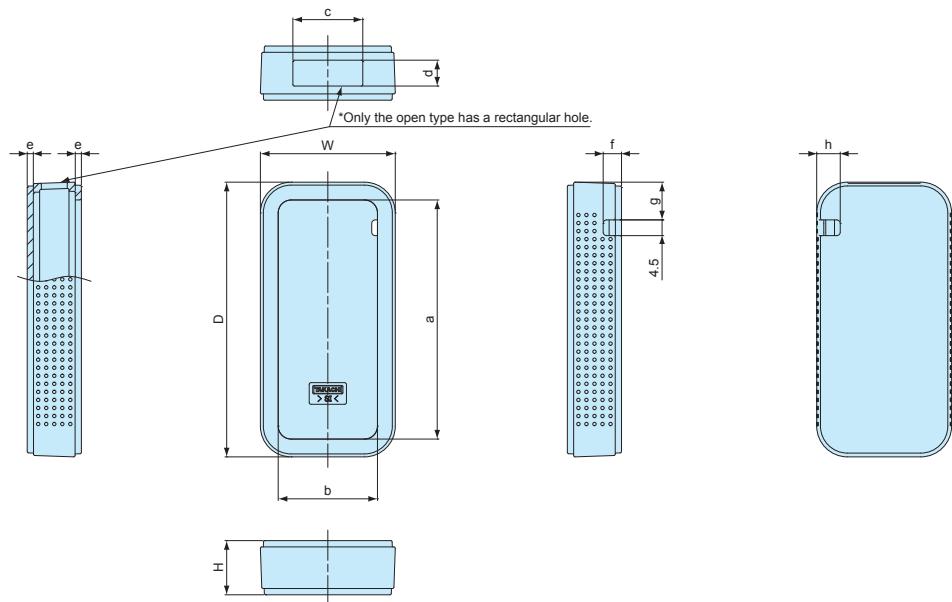
■ Custom color is available from 1,000pcs per order batch.

For custom color order, please specify PANTONE®, RGB color number, or provide your sample color.

## Color Type

Code	P Pink	Y Yellow	G Green	C Cyan	L Light gray	B Black
Color						

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



## Components

Part name	Material	Color
Silicone cover	Silicone	Pink • Yellow • Green • Cyan • Light gray • Black

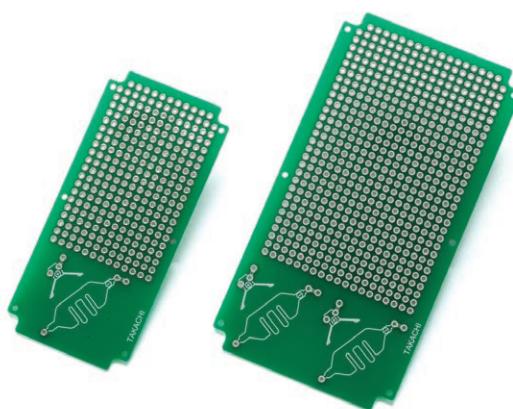
## Product no. / Dimensions

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

Product no.	W	H	D	a	b	c	d	e	f	g	h	Suitable case	Weight (g)
CSSC 75-CL-□	38.6	15.5	78.6	68.4	28.4	—	—	1.75	5.25	10.8	6.7	CS 75	12
CSSC 75-OP-□	38.6	15.5	78.6	68.4	28.4	20	7.4	1.75	5.25	10.8	6.7	CS 75	12
CSSC 90-CL-□	48.6	15.5	93.6	82.4	37.4	—	—	1.75	5.25	10.8	6.7	CS 90	18
CSSC 90-OP-□	48.6	15.5	93.6	82.4	37.4	30	7.4	1.75	5.25	10.8	6.7	CS 90	17
CSSC115-CL-□	67.1	16	119.1	107.4	55.4	—	—	2	5.5	12.1	7	CS115	32
CSSC115-OP-□	67.1	16	119.1	107.4	55.4	45	7.4	2	5.5	12.1	7	CS115	31

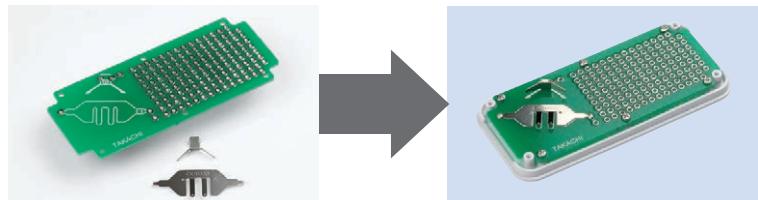
## CSPB SERIES

## EXCLUSIVE PCB for CS • CSS



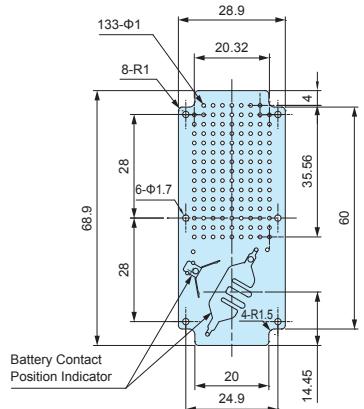
- Exclusive PCB for CS • CSS case.
- Glass epoxy board (FR-4), through-hole on both sides and 2.54mm hole distance.
- Prefabricated holes for battery contact use with CS • CSS case. The contact directions are printed on the PCB.

Soldering the battery contacts (included with each case) onto the PCB.

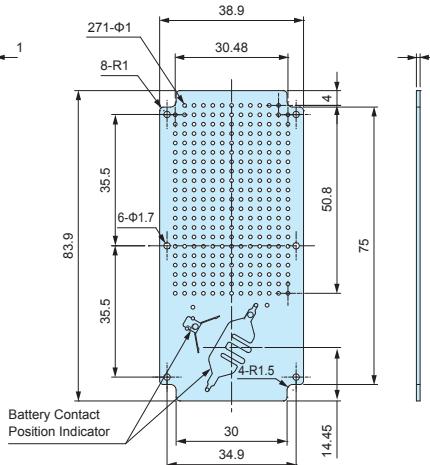


- DXF/DWG/PDF drawings available on our website.

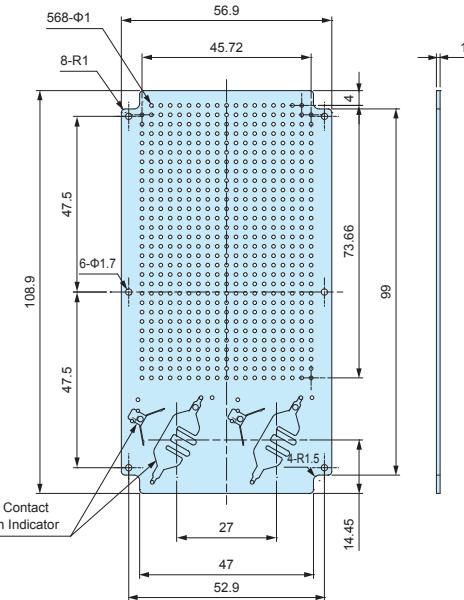
CSPB-75



CSPB-90



CSPB-115

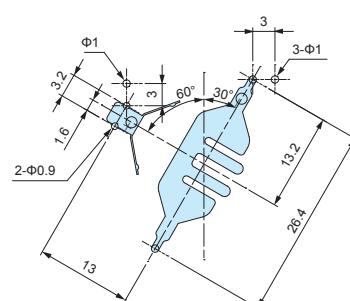


Note : Holes (6-Φ1.7) for PCB mount bosses are un-soldered.

## Components

Part name	Pcs	Material	Finish
PCB	1	Glass epoxy (FR-4) t=1.0	Through-hole • Lead-free solder • Solder resist
Self tapping screw	6	Steel M1.6	Trivalent chromate

## Battery Contact Position Indicator Details



## Product no.

Product no.	Suitable case
CSPB- 75	CS75, CSS75
CSPB- 90	CS90, CSS90
CSPB-115	CS115, CSS115

# PS SERIES PORTABLE PLASTIC CASE

Suitable for wireless device, remote controller, key fob, and so on.

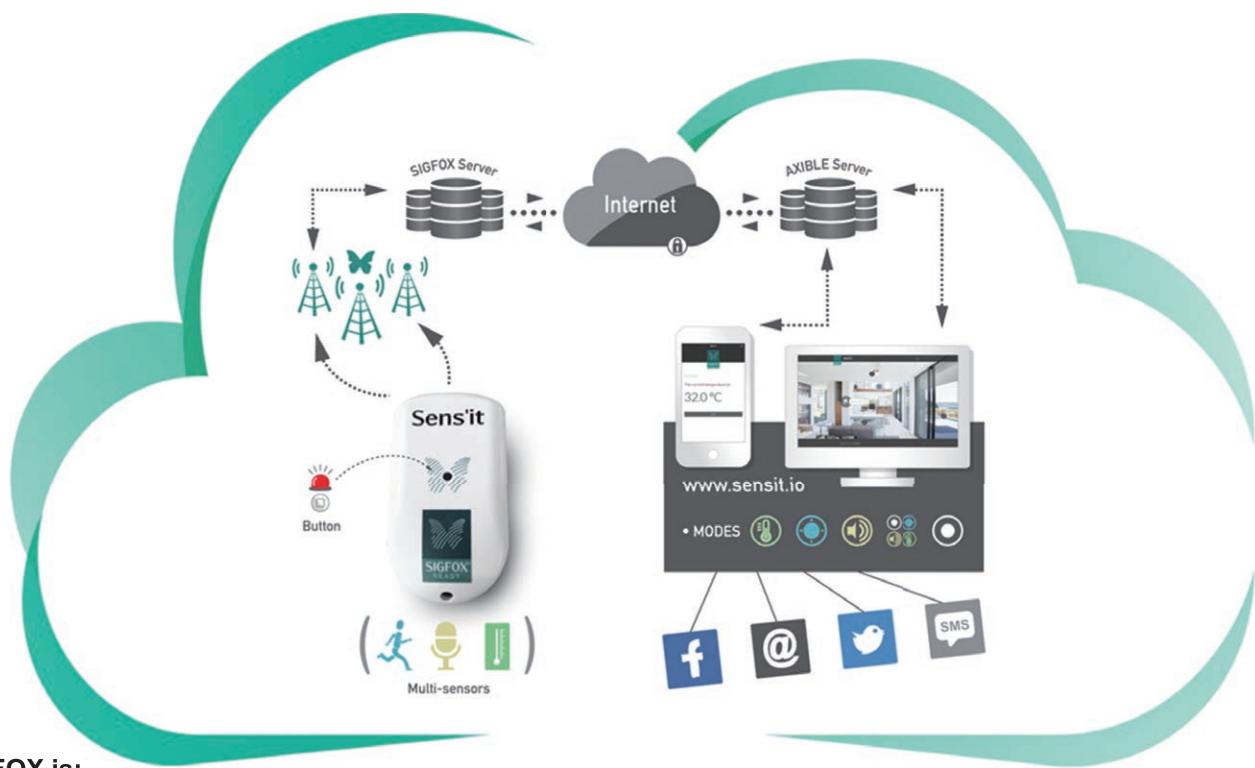
Available in 4 different sizes with 5 selectable colors.

## PORTRABLE MULTI-SENSOR SYSTEM

Product by Axible Technologies (France)



Multi-sensor system which detects motion, temperature, humidity and sound. Warnings are sent to the owner, or 3rd parties via SMS, Twitter or Facebook when events such as a home invasion, or when a fire occurs.

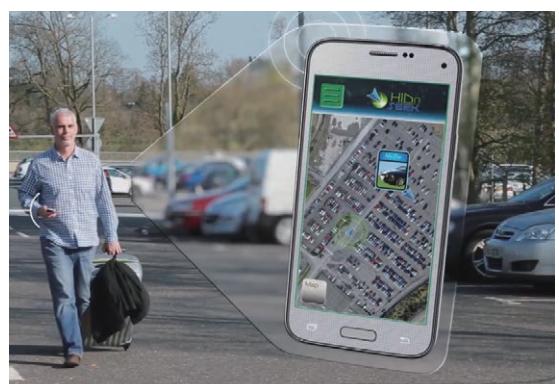


### SIGFOX is:

A French company that builds wireless ultra-narrow band (UNB) networks, for the connection of low-energy consumption devices such as electricity meters, smart-watches, and washing machines, which needs to be continuously on and emitting small amounts of data. This wireless network technology, which is aimed at the Internet of Things (IoT), is starting to gain popularity and rolling out in the fields such as housing, automobiles, transportation and logistics, smart city connectivity, healthcare, and so on.

## GPS TRACKER TAG (via SIGFOX NETWORK)

Product by HidnSeek (France)



Example: Locating your car in a large parking area

# APPLICATION EXAMPLE

## REMOTE CONTROLLER for UNDERCOVER INVESTIGATION

Product by CopTech (Germany)



## RE-MOTE SUITE-IOT DEVELOPMENT PLATFORM

Product by Zolertia (Spain)



## BEACON RECEIVER

Product by GP Shopper (USA)



## GPS TRACKER with TEMPERATURE DATA LOGGER

Product by HidnSeek (France)



## PORTABLE RADIATION CHECKER AND MONITOR

Product by Yamagata Kyodo (Japan)



## PORTABLE EMF PROTECTION DEVICE

Product by Blushield Inc. (New Zealand)



## LPWA RECEIVER



## PS SERIES

## PORTABLE PLASTIC CASE



Technical Data
Protection class: IP40
Operating temperature: -10°C ~ +60°C

- Simple snap-in case without screws.
- Comfortable shape and hold.
- 5 different colors are available for selection.
- Suitable for use as a wireless device, remote control, key fob etc.
- Designed with an easily accessible hole for strap attachment.

## Components

No.	Part name	Material	Color / Finish
1	Top cover	ABS UL94HB	White • Black • Cobalt • Green • Pink
2	Bottom cover	ABS UL94HB	White • Black • Cobalt • Green • Pink

## Product no. / Dimensions

Product no.					Dimensions			Weight (g)
● White	● Black	● Cobalt	● Green	● Pink	W	H	D	
PS- 50W	PS- 50B	PS- 50C	PS- 50G	PS- 50P	50	14	50	9
PS- 65W	PS- 65B	PS- 65C	PS- 65G	PS- 65P	35	11	65	9
PS- 85W	PS- 85B	PS- 85C	PS- 85G	PS- 85P	48	15	85	20
PS-100W	PS-100B	PS-100C	PS-100G	PS-100P	58	18	100	27

## Accessories (Optional parts)



PCB mounting screw EM-1.6  
See page 115



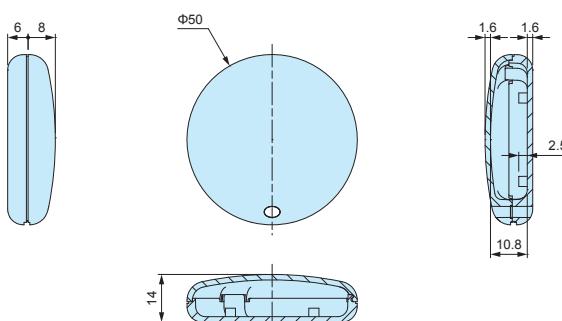
Strap STPS series  
See page 57



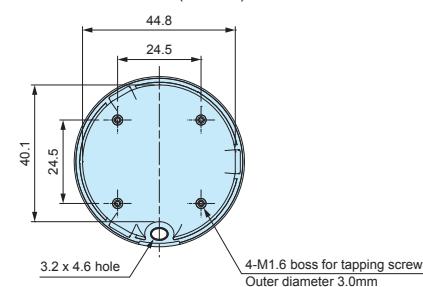
Neodymium magnet NMG series  
See page 108

## PS dimensions

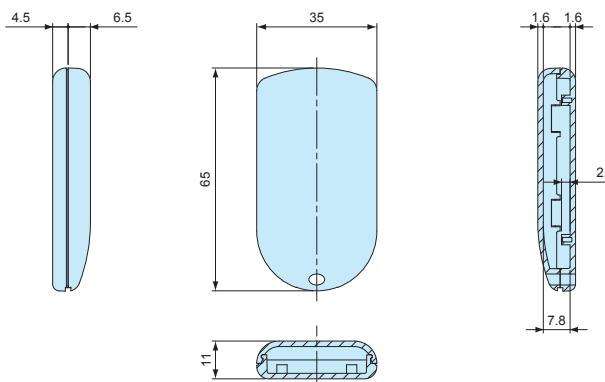
PS-50□



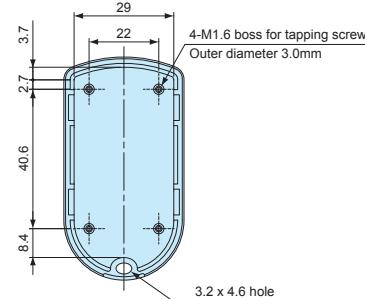
Bottom cover (Internal)



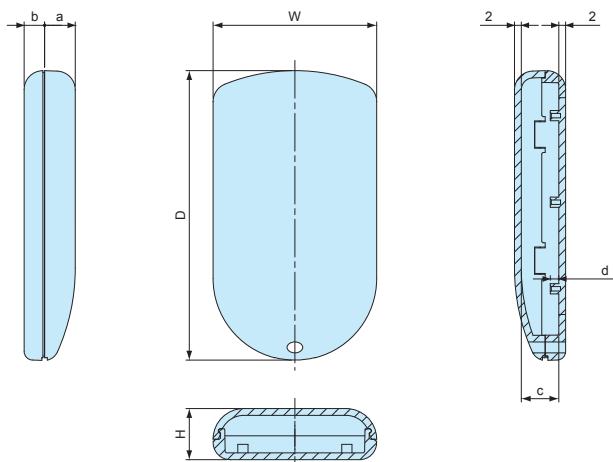
PS-65□



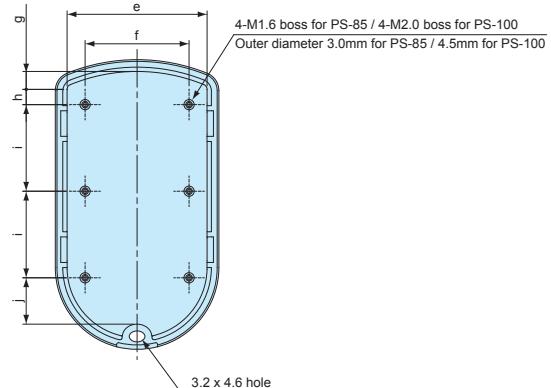
Bottom cover (Internal)



PS-85□ / PS-100□



Bottom cover (Internal)



Product no.	W	H	D	a	b	c	d	e	f	g	h	i	j
PS- 85□	48	11	85	9	6	11	2.5	41.1	33	5.3	4.5	25.4	13.6
PS-100□	58	18	100	11.5	6.5	14	4	51.2	40	6.4	4.2	29	20.4

### Application example (RFID Tag)



A variety of suitable coin battery holders are available.

See website for more details.

### Suitable coin battery holder chart

Suitable case	Coin battery holder product no.
PS- 50□	SMTU1220(G) / 1225 / 1632(G) / 2-2016 / 2032(G) PB-621 • SMTM1632 / 2032 BK-879 / 5091 / 885 / 890 / 868 / 869 / 5067 / 888
PS- 65□	BK-879 / 5091 / 885 / 890 / 868 / 869 / 5067 / 888 PB621 • SMTM1632 / 2032
PS- 85□	PB621 • SMTM1632 / 2032 BK-879 / 5091 / 885 / 890 / 868 / 869 / 5067 / 888 SMTU1220(G) / 1225 / 1632(G) / 2-2016 / 2032(G) / 2430
PS-100□	PB621 • SMTM1632 / 2032 BK-879 / 5091 / 885 / 890 / 868 / 869 / 5067 / 888 SMTU1220(G) / 1225 / 1632(G) / 2-2016 / 2032(G) / 2430 / 2450

## STPS SERIES

## STRAP



Wrist strap (STPS-140P)

Neck strap (STPS-450Y)



- Colorful and sturdy straps best used with CSS, CS and PS series.
- Wrist and Neck straps are available in 6 unique colors.
- Neck strap comes with a quick-release joint, making removal or attachment quick and easy.

## Color Type

Code	P Pink	Y Yellow	G Green	C Cyan	L Light gray	B Black
Color						

Quick-release joint  
(Neck strap only)

## Components

No.	Part name	Material	Color
1	String	Polyester	Black
2	Strap	Polyester	Pink • Yellow • Green • Cyan • Light gray • Black
3	Cap (wrist strap only)	Nylon	Black
4	Clamp (neck strap only)	Elastomer	Black
5	Joint (neck strap only)	Polyacetal	Black

## Product no. / Dimensions

Product no.						Strap width	Strap length
Pink	Yellow	Green	Cyan	Light gray	Black		
STPS-140P	STPS-140Y	STPS-140G	STPS-140C	STPS-140L	STPS-140B	8	140
STPS-450P	STPS-450Y	STPS-450G	STPS-450C	STPS-450L	STPS-450B	10	450

## Accessories (Optional parts)

## STP SERIES

## STRAP



Wrist strap (STP-200)



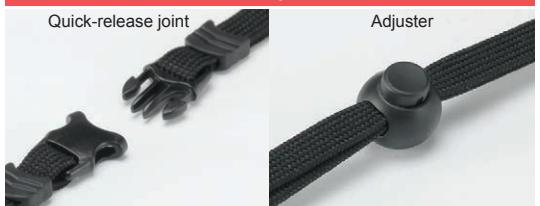
Neck strap (STP-450)



■ Strap with a metal hook

■ Recommended to be used with CR key ring.

## Neck strap detail



■ Only the neck strap has a joint and an adjuster.

## Components

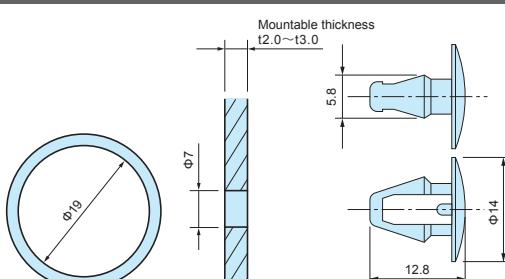
No.	Part name	Pcs	Material	Color / Finish
1	Metal hook	1	Diecast zinc & steel	Nickel plated
2	Strap	1	Nylon / Polyester	Black
3	Cap	1 / 2	Polyurethane / Elastomer	Black
4	Joint (Neck strap only)	1	Polyacetal	Black
5	Adjuster (Neck strap only)	1	Nylon	Black
6	Clamp (Neck strap only)	1	PE	Black

## Product no. / Dimensions

Product no.	Strap width	Strap length	Strap material	Cap material
STP-200	8	200	Nylon	Polyurethane x 1
STP-450	10	450	Polyester	Elastomer x 2

## CR-20

## KEY RING



## Components

Part name	Material	Color / Finish
Ring	SWRM 6 Steel	Nickel plated
Insert clip	Nylon	Black

■ Hole milling is required for case installation.

## Product no. / Dimensions

Product no.	Ring Ø	Installation hole	Mounting thickness
CR-20	Ø19	Ø7	t2.0 ~ t3.0

# IP67 UV-PROTECT NETWORK PLASTIC BOX

## WP SERIES



### Waterproofing ability by using silicone gasket

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



### Weather-resistant ASA material

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



### Waterproofing ability by using silicone gasket

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



### Waterproofing ability by using silicone gasket

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



## How to make buttons and switches waterproof

Utilize a waterproof membrane keypad, membrane switch or overlay.

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



Product by Arrow7 (Japan)

## How to make waterproof buttons and switches

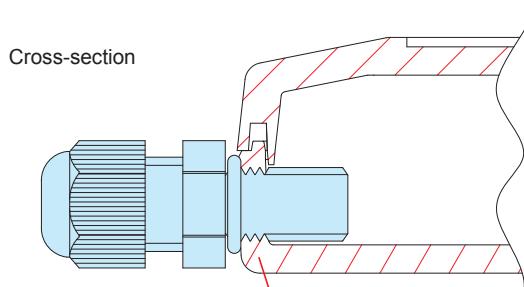
Please utilize a waterproof membrane keypad, membrane switch or overlay.

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

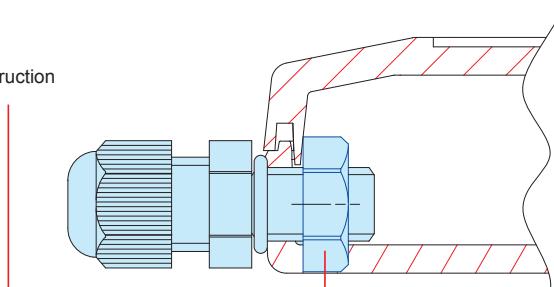


Please utilize a waterproof membrane keypad, membrane switch or overlay.

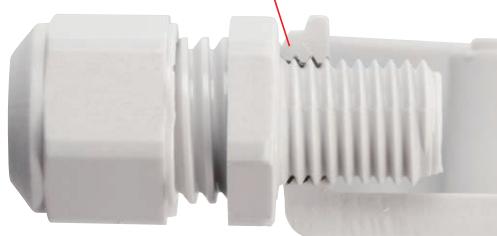
Note that the waterproof performance will be lost by drilling/milling holes or cutouts for buttons or switches on waterproof enclosures.



Cross-section



Obstruction



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



# WP SERIES

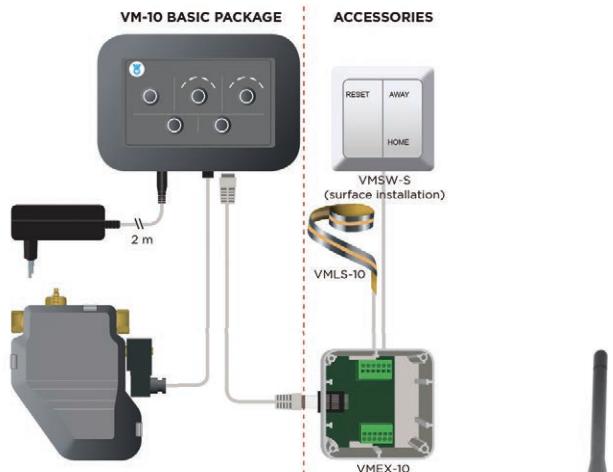
# APPLICATION EXAMPLE



## LeakLess Monitor - Industrial Pressure/Flow Data Logger



## Leak Guard - Home Water Leak Detector



## Wireless Temperature/Humidity Transmitter

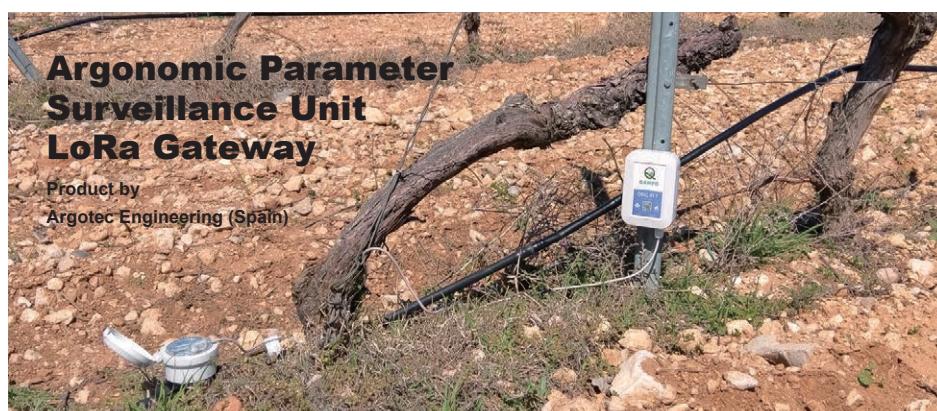


## LoRaWAN Network Air Pressure Sensor



## Sigfox Remote Surveillance Sensor





## WP SERIES

## IP67 NETWORK PLASTIC BOX



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



## Technical Data

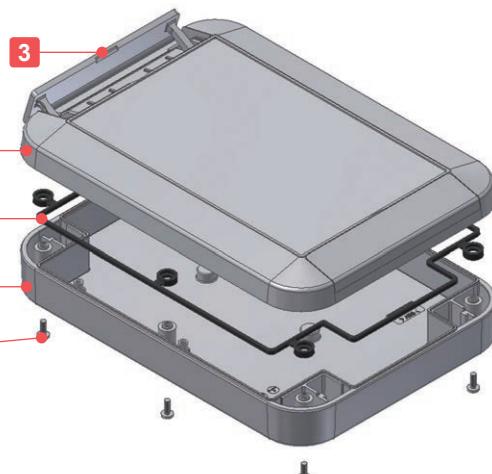
Protection class :	IP67
Operating temperature :	
ASA*	-30 ~ +60°C
ABS	-10 ~ +50°C

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

WP5-7-2 ~ WP13-18-5

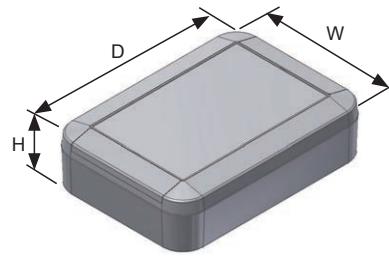


WP15-15-4 ~ WP20-28-7



## Components

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


**Product no. / Dimensions**

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

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

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

RAL7035



Munsell N8.75 or similar


**Accessories (Optional parts)**

 Pole mount bracket WPMB series  
 See page 67

 Rubber feet PFRF series  
 See page 68

 TORX screw MR series  
 See page 68

 PCB mounting screw EM series  
 See page 115

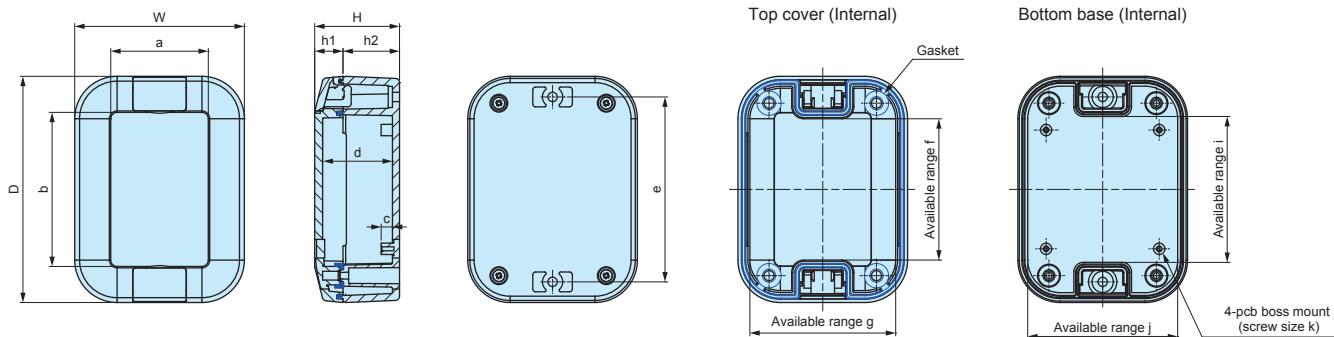
 Protective vent PMF series  
 See page 259 ~ 261

 Cable gland  
 See page 265 ~ 272

 Pole mounting belt PKB series  
 See page 258

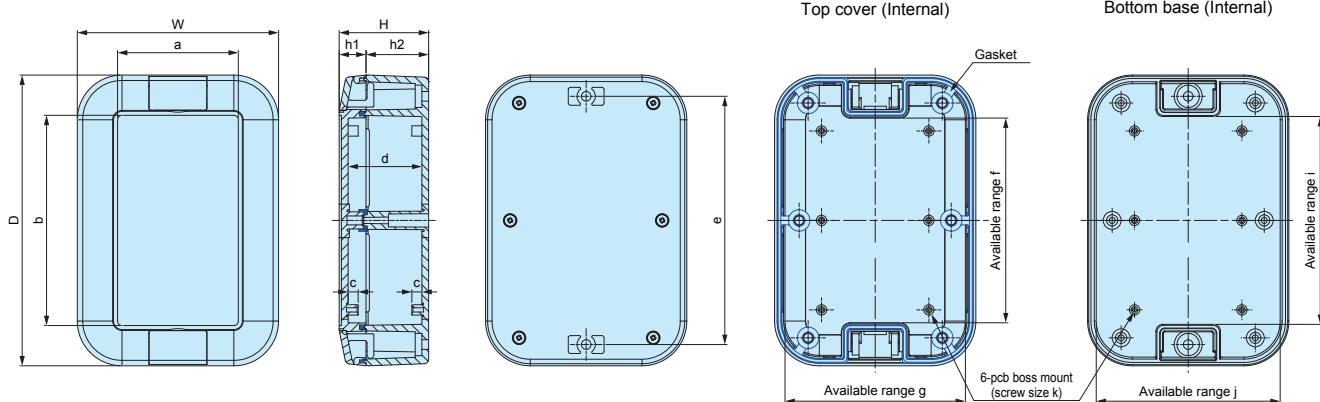
## WP dimensions

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

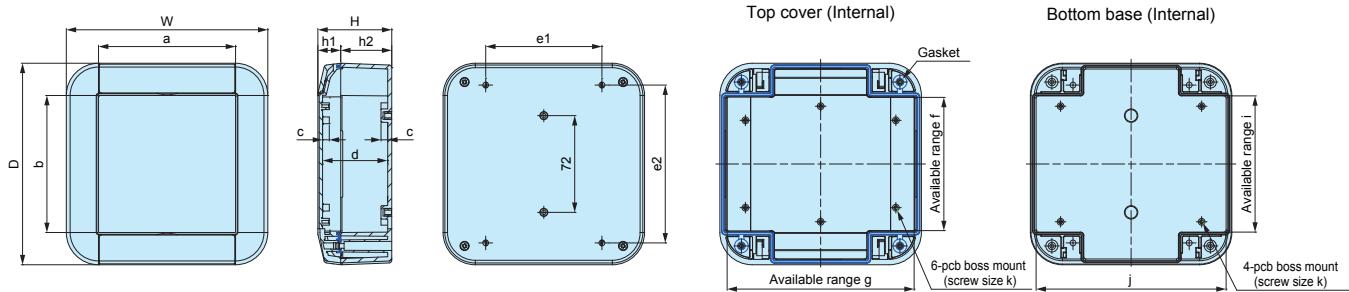


※Boss for PCB are located inside top covers of certain models. Detailed information available on DXF/DWG/PDF drawings.

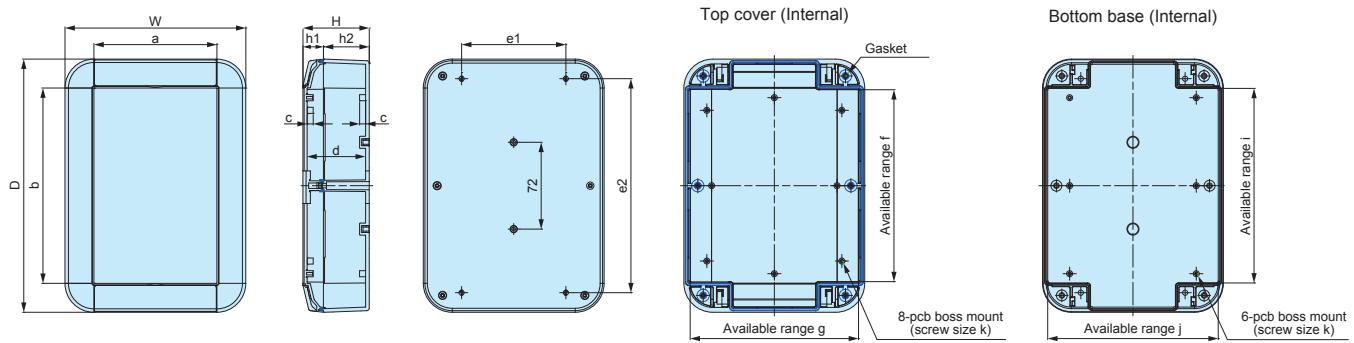
Product no.	W	D	H	h1	h2	a	b	c	d	e	f	g	i	j	k
WP 5- 7-2	52	65	18	10	8	26.5	38.8	4	13	50.6	34.5	43.5	37	46	M2
WP 5- 7-3	52	65	27	10	17	26.5	38.8	4	22	50.8	34.5	43.5	36.5	45	M2
WP 6- 8-2	60	80	20	10	10	34.5	53.8	4	14.7	65.8	50	51.5	52	53.5	M2
WP 6- 8-3	60	80	30	10	20	34.5	53.8	4	24.7	65.4	50	51.5	51	53	M2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



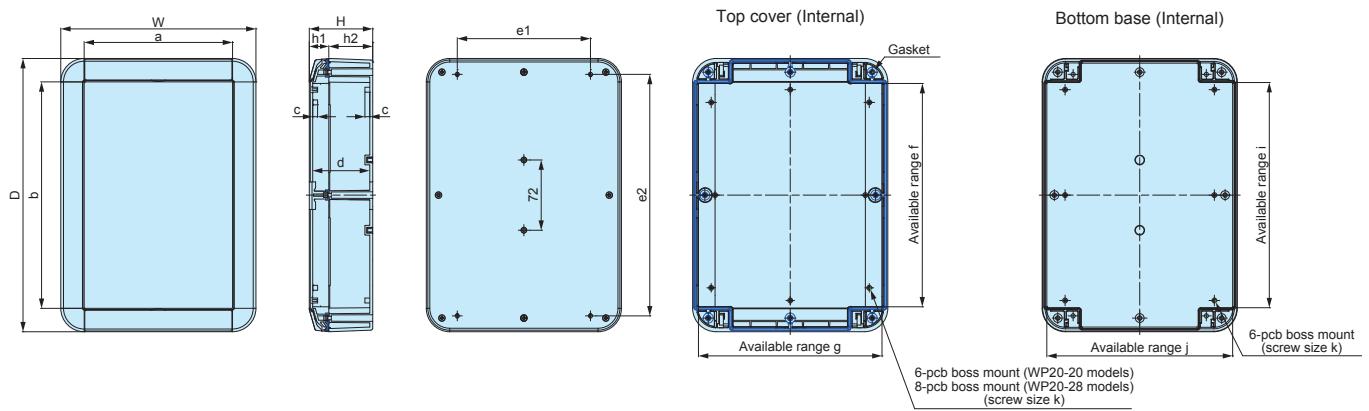
Product no.	W	D	H	h1	h2	a	b	c	d	e	f	g	i	j	k
WP 9-13-3	90	130	25	12	13	53.8	93.7	4.5	18	111.2	90	79	91	81	M2.3
WP 9-13-4	90	130	40	12	28	53.8	93.7	4.5	33	111	90	79	91	81	M2.3
WP11-15-3	110	150	27	12	15	73.7	113.5	4.5	20	131.2	110	99	110	100	M2.3
WP11-15-4	110	150	40	12	28	73.7	113.5	4.5	33	131	110	99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



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



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



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

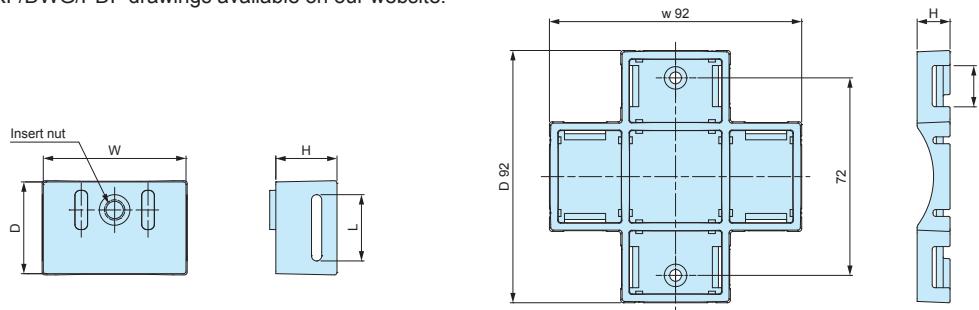
## WPMB SERIES

## POLE MOUNT BRACKET

NEW SIZE



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



WPMB-M3□WPMB-M4

WPMB-M4-2

## Color Type

Code	Color
G	White gray
D	Dark Gray

## Product no. / Dimensions

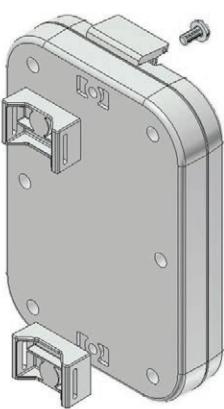
■ Please suffix color code at the end of the product number.

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

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

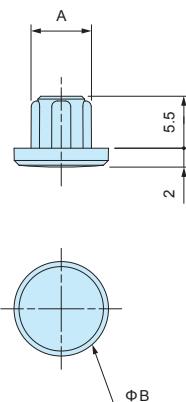
WPMB-M3/WPMB-M4

WPMB-M4-2



## PFRF SERIES

## RUBBER FEET



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

## Product no. / Dimensions

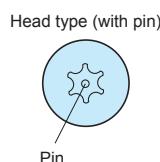
■ UL94HB

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

## MR SERIES

## TORX SCREW for WP

NEW SIZE



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

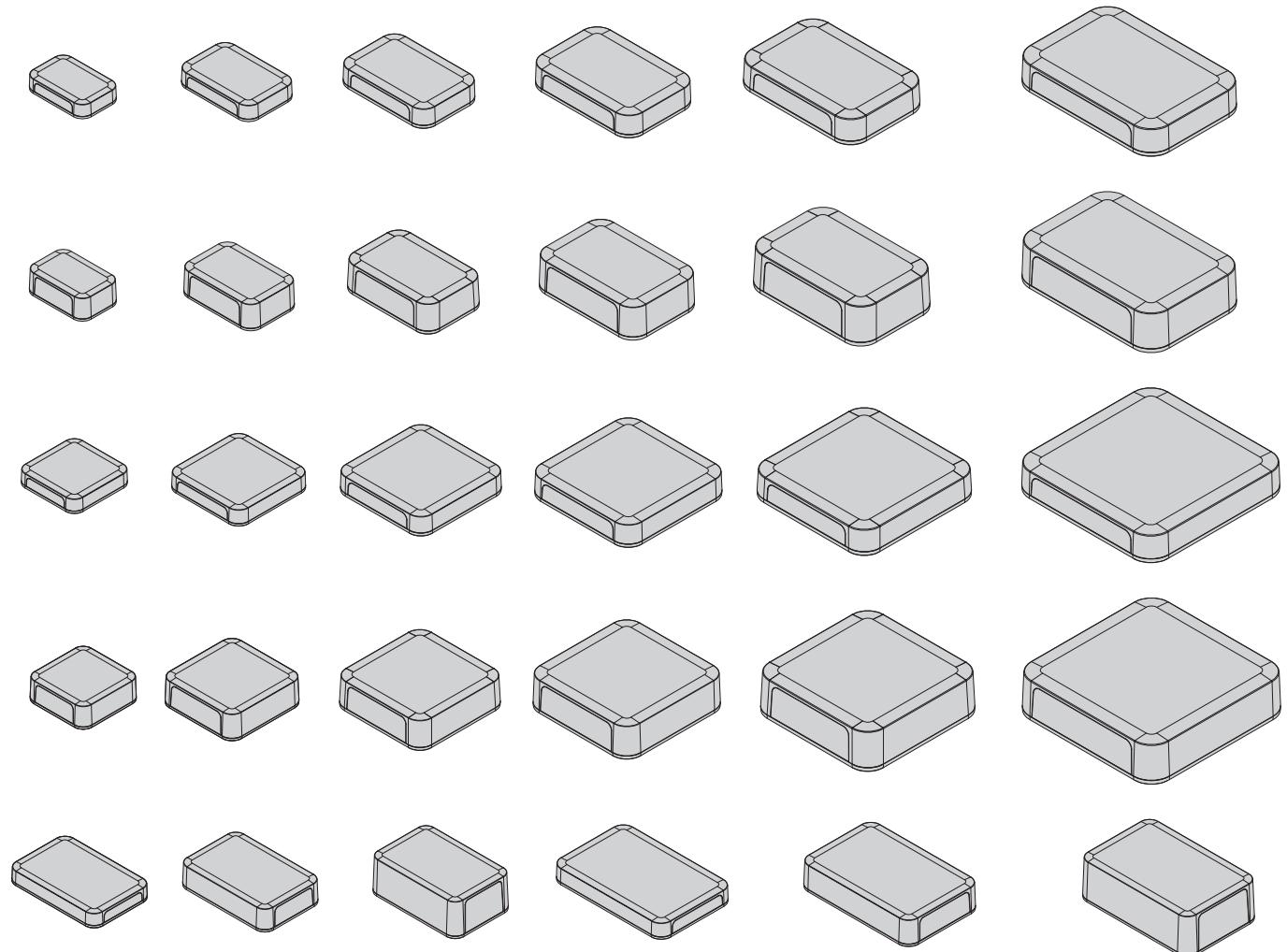
## Product no. / Dimensions

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

# PF SERIES FLAT NETWORK CASE

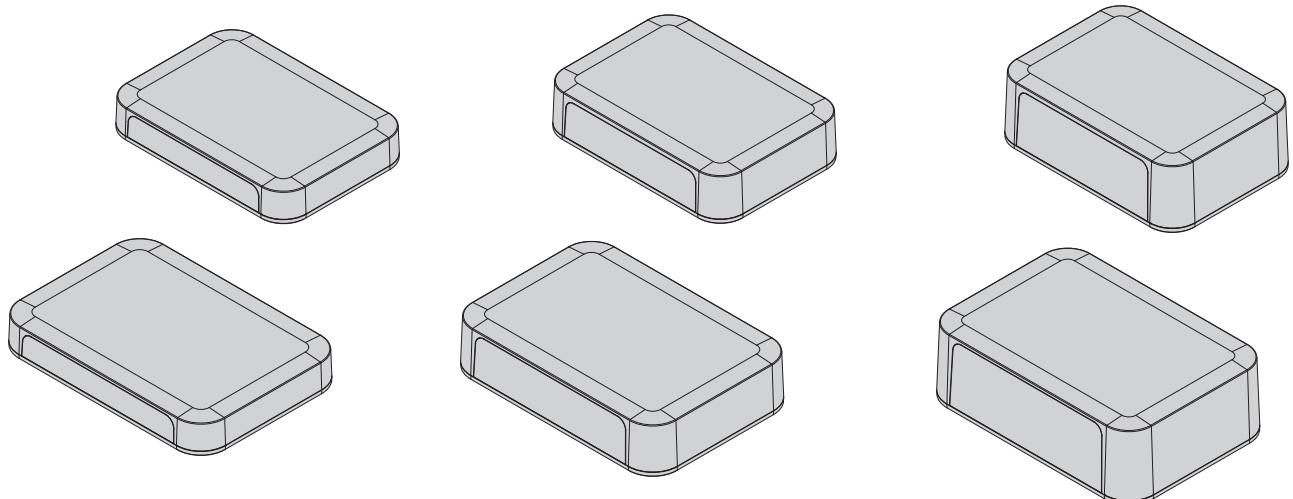
**Huge selection, 36 different sizes are now available.  
Suitable for IOT device, Data transmitter and receiver, access point.**

From 100 x 67 x 22.5 to 320 x 225 x 100mm.



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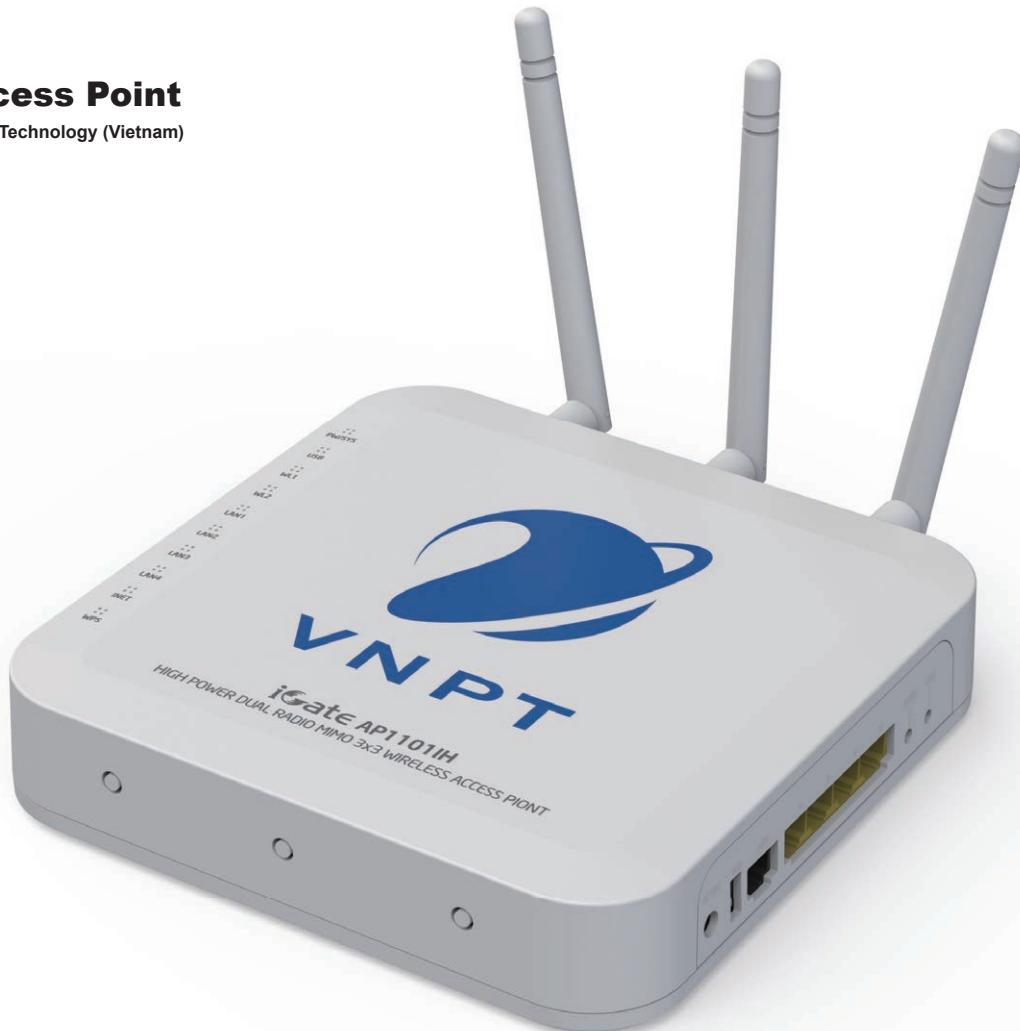
## New sizes



# APPLICATION EXAMPLE

## WiFi Access Point

Product by VNPT Technology (Vietnam)



## USB Power Charging Hub + Data Hub

Product by MtT-planning (Japan)



## USB HEMODYNAMIC RESEARCH DEVICE

Product by Cardiovascular Engineering (USA)



## WIRELESS HOME ELECTRONICS CONTROLLER

Product by AR SMART (Colombia)



## GSM MODULE

Product by Elmar Electronic (Croatia)



## ADVANCED TRIGGER STATION

Product by BrainTrends (Italy)



## G4 FLIGHT TRACKER

Product by Guardian Mobility (Canada)



## iCONSE-T IOT and SENSOR NETWORK TRAINING SYSTEM

Product by Benchmark Electronic Systems (India)

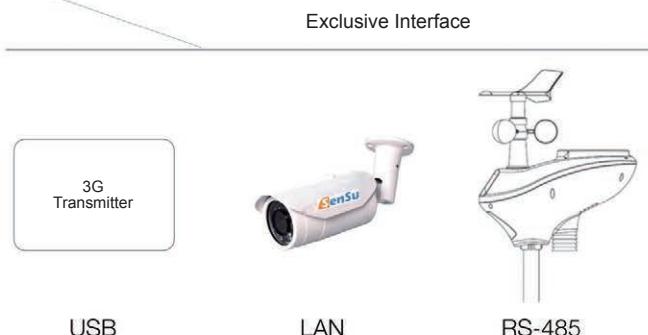
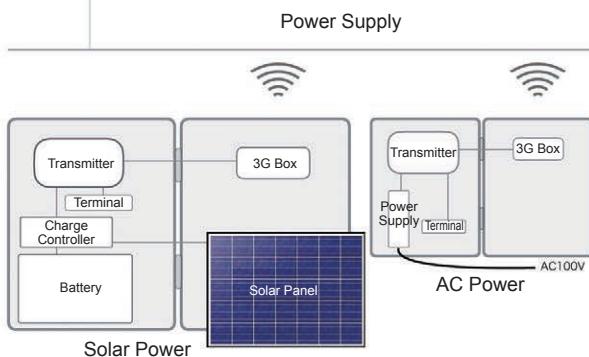


## "SenSu" COMMUNICATION UNIT with SENSOR

Product by DATA TECHNOLOGY (Japan)



Application Example for Agriculture  
Outdoor application with BCPC series Polycarbonate box.



## WIRELESS NETWORK DATA LOGGER

Product by SensingWinTech (Japan)



## SensorViewer 21

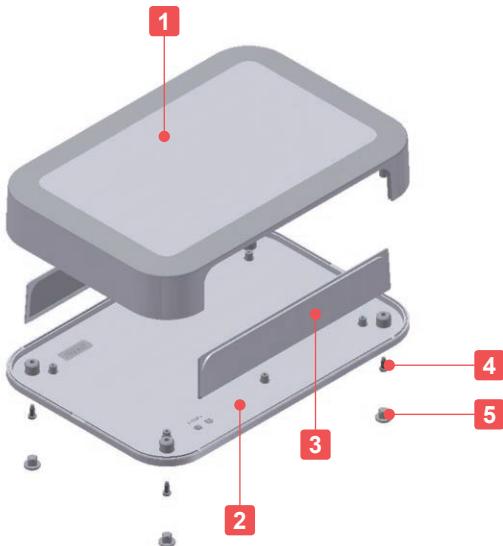
Wireless Network Logger - Model A1

- データロガー
- 3G/WIFI/820M 無線通信
- 遠隔制御
- クラウドサービス連携

920M WLAN RUN

## PF SERIES

## NETWORK PLASTIC BOX



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94V-0	Off-white • Dark gray
2	Bottom base	1	ABS UL94V-0	Off-white • Dark gray
3	Panel	2	ABS UL94V-0	Off-white • Dark gray
4	Self-tapping screw	4	Steel	Nickel plated
5	Rubber feet	4	Elastomer	Dark gray

Technical Data
Protection class: IP40
Operating temperature: -10°C ~ +60°C

- Flat designed plastic case with detachable panels.
- Made of flame-resistant ABS UL94V-0, and available in off-white and dark gray color.
- 6 new sizes added for a total of 36 different sizes available for selection.
- Equipped with built-in bosses for PCB mounting.
- Suitable for Wi-Fi access point, measuring equipment, controller or various other applications for desktop, wall mounting use and so on.

## Accessories (Optional parts)



Tapping standoff TPS series  
See page 111



PCB mounting screw EM series  
See page 115



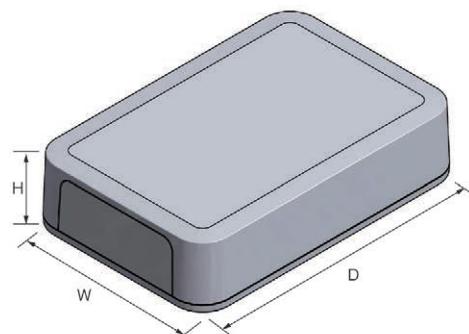
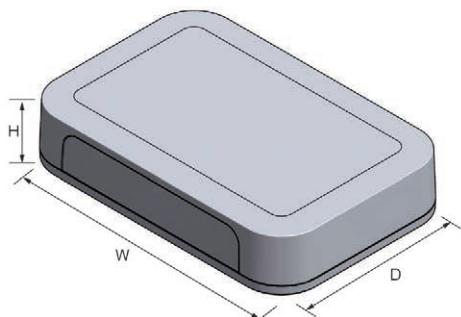
TORX screw MR series  
See page 115



Suspension bracket WM series  
See page 107



Neodymium magnet NMG series  
See page 108



Tilt leg TLW series  
See page 154

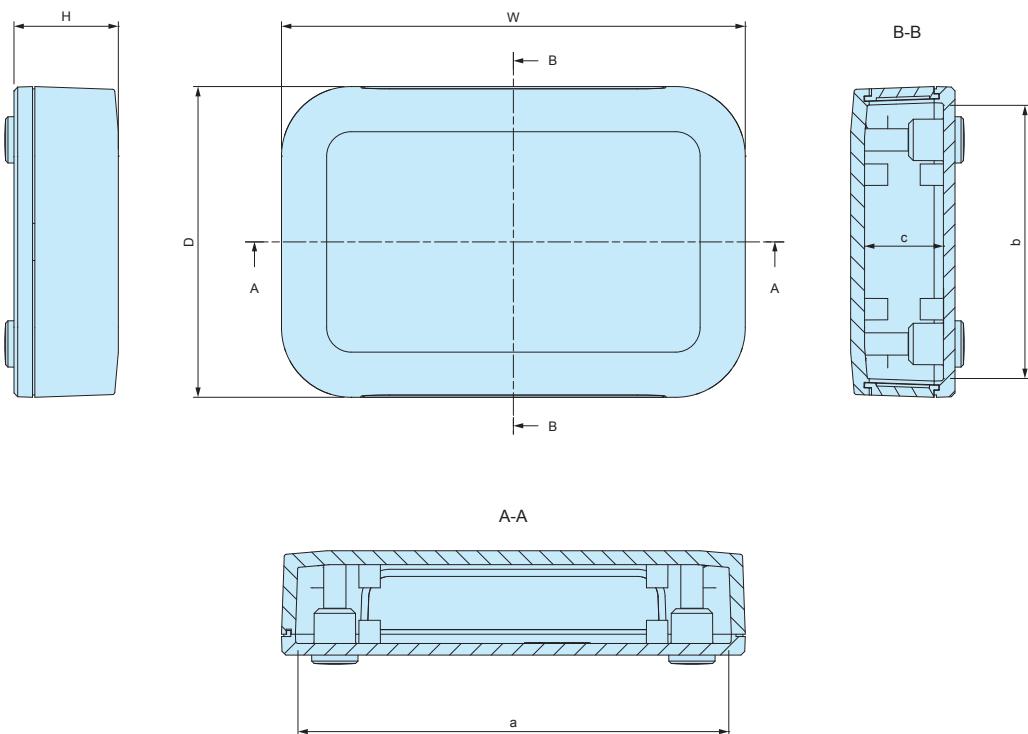
## Product no. / Dimensions

※ H dimension is not inclusive of rubber feet. (Rubber feet height = 2mm)

Product no.		Dimensions			Screw	Weight (g)
● Off-white	● Dark gray	W	H	D		
PF10- 2- 7W	PF10- 2- 7D	100	22.5	67	M2.5-8 x 4 pcs	60
PF10- 2-10W	PF10- 2-10D	100	22.5	100	M2.5-8 x 4 pcs	82.9
PF10- 2-15W	PF10- 2-15D	100	22.5	150	M2.5-8 x 4 pcs	120.2
PF10- 4- 7W	PF10- 4- 7D	100	35	67	M2.5-8 x 4 pcs	65
PF10- 4-10W	PF10- 4-10D	100	35	100	M2.5-8 x 4 pcs	97.1
PF10- 4-15W	PF10- 4-15D	100	35	150	M2.5-8 x 4 pcs	132.6
PF10- 6-15W	PF10- 6-15D	100	55	150	M2.5-8 x 4 pcs	169.1
PF13- 3- 9W	PF13- 3- 9D	125	25	85	M2.5-8 x 4 pcs	90.8
PF13- 3-13W	PF13- 3-13D	125	25	125	M2.5-8 x 4 pcs	127.5
PF13- 3-19W	PF13- 3-19D	125	25	190	M2.5-8 x 4 pcs	186.8
PF13- 4- 9W	PF13- 4- 9D	125	40	85	M2.5-8 x 4 pcs	108.4
PF13- 4-13W	PF13- 4-13D	125	40	125	M2.5-8 x 4 pcs	151.4
PF13- 4-19W	PF13- 4-19D	125	40	190	M2.5-8 x 4 pcs	214.9
PF13- 6-19W	PF13- 6-19D	125	60	190	M2.5-8 x 4 pcs	250.4
PF15- 3-10W	PF15- 3-10D	150	30	100	M2.5-8 x 4 pcs	145.5
PF15- 3-15W	PF15- 3-15D	150	30	150	M2.5-8 x 4 pcs	207.5
PF15- 5-10W	PF15- 5-10D	150	45	100	M2.5-8 x 4 pcs	166
PF15- 5-15W	PF15- 5-15D	150	45	150	M2.5-8 x 4 pcs	233.5
PF18- 4-12W	PF18- 4-12D	175	35	120	M2.5-8 x 4 pcs	188.7
PF18- 4-18W	PF18- 4-18D	175	35	175	M2.5-8 x 4 pcs	266.8
PF18- 5-12W	PF18- 5-12D	175	50	120	M2.5-8 x 4 pcs	213.6
PF18- 5-18W	PF18- 5-18D	175	50	175	M2.5-8 x 4 pcs	302.1
PF20- 4-13W	PF20- 4-13D	200	40	135	M3-8 x 4 pcs	264
PF20- 4-20W	PF20- 4-20D	200	40	200	M3-8 x 4 pcs	368.5
PF20- 6-13W	PF20- 6-13D	200	60	135	M3-8 x 4 pcs	302.5
PF20- 6-20W	PF20- 6-20D	200	60	200	M3-8 x 4 pcs	417
PF24- 4-17W	PF24- 4-17D	240	42.5	165	M3-8 x 4 pcs	370.4
PF24- 4-24W	PF24- 4-24D	240	42.5	240	M3-8 x 4 pcs	521.4
PF24- 6-17W	PF24- 6-17D	240	60	165	M3-8 x 4 pcs	408.8
PF24- 6-24W	PF24- 6-24D	240	60	240	M3-8 x 4 pcs	568.7
<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF28- 5-20W	<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF28- 5-20D	280	45	200	M3-8 x 4 pcs	564.1
<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF28- 7-20W	<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF28- 7-20D	280	65	200	M3-8 x 4 pcs	618.4
<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF28- 9-20W	<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF28- 9-20D	280	90	200	M3-8 x 4 pcs	709.2
<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF32- 5-23W	<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF32- 5-23D	320	45	225	M3-8 x 4 pcs	697.1
<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF32- 7-23W	<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF32- 7-23D	320	70	225	M3-8 x 4 pcs	782.1
<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF32-10-23W	<span style="background-color: #ff0000; color: white; padding: 2px 5px;">NEW</span> PF32-10-23D	320	100	225	M3-8 x 4 pcs	899.8

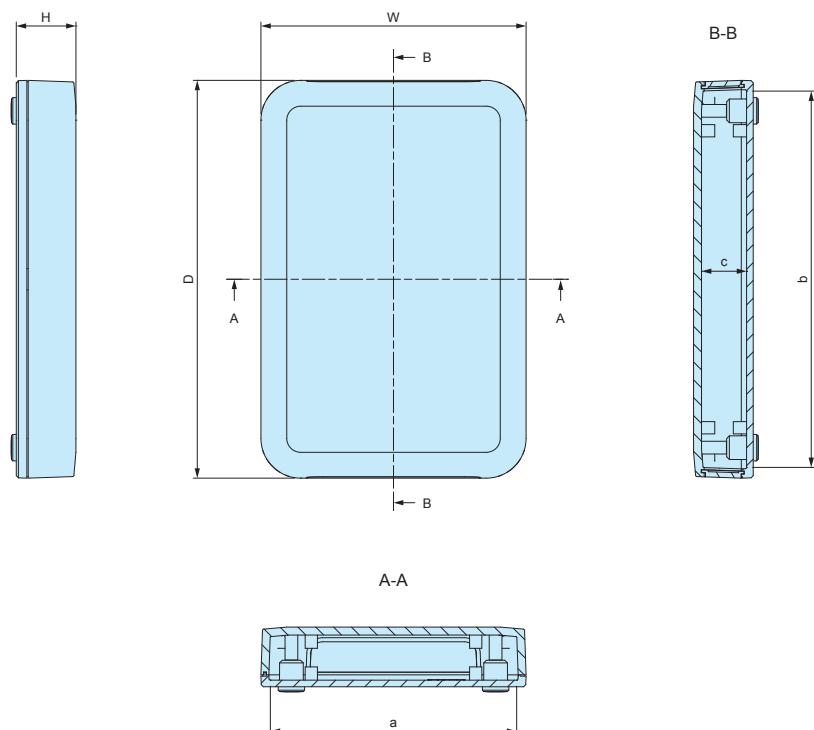
## PF dimensions

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



※Refer to DXF/DWG/PDF drawings for the numbers of  
PCB bosses on each size of enclosures.

Product no.	W	H	D	a	b	c
PF10- 2- 7□	100	22.5	67	92	58	17
PF10- 2-10□	100	22.5	100	92	91	17
PF10- 4- 7□	100	35	67	91	57	29.5
PF10- 4-10□	100	35	100	91	90	29.5
PF13- 3- 9□	125	25	85	117	76	19.5
PF13- 3-13□	125	25	125	117	116	19.5
PF13- 4- 9□	125	40	85	116	75	34.5
PF13- 4-13□	125	40	125	116	115	34.5
PF15- 3-10□	150	30	100	142	90	24
PF15- 3-15□	150	30	150	142	140	24
PF15- 5-10□	150	45	100	141	89	39
PF15- 5-15□	150	45	150	141	139	39
PF18- 4-12□	175	35	120	166	110	29
PF18- 4-18□	175	35	175	166	165	29
PF18- 5-12□	175	50	120	165	109	44
PF18- 5-18□	175	50	175	165	164	44
PF20- 4-13□	200	40	135	191.5	124.5	34
PF20- 4-20□	200	40	200	191.5	189.5	34
PF20- 6-13□	200	60	135	190	123	54
PF20- 6-20□	200	60	200	190	188	54
PF24- 4-17□	240	42.5	165	230	154	36.5
PF24- 4-24□	240	42.5	240	230	229	36.5
PF24- 6-17□	240	60	165	229	153	54
PF24- 6-24□	240	60	240	229	228	54
PF28- 5-20□	280	45	200	269.5	189	38.5
PF28- 7-20□	280	65	200	268.5	187.5	58.5
PF28- 9-20□	280	90	200	266.5	185.5	83.5
PF32- 5-23□	320	45	225	309.5	214	38.5
PF32- 7-23□	320	70	225	308	212	63.5
PF32-10-23□	320	100	225	306	210	93.5



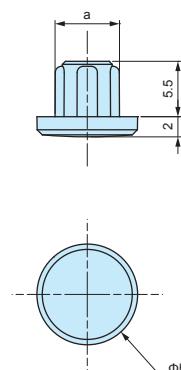
Product no.	W	H	D	a	b	c
PF10-2-15□	100	22.5	150	92	141	17
PF10-4-15□	100	35	150	91	140	29.5
PF10-6-15□	100	55	150	90	139	49.5
PF13-3-19□	125	25	190	117	181	19.5
PF13-4-19□	125	40	190	116	180	34.5
PF13-6-19□	125	60	190	115	179	54.5

## PFRF SERIES

## RUBBER FEET for PF



- Rubber feet for PF series.
- Inserted into the screw holes on the underside of box.
- Elastomer material is resistant against color migration.



### Product no. / Dimensions

Product no.	Dimensions		Suitable box	Material	Color	Pack of
	a	b				
PFRF-M2.5D	6.4	10	PF10-2-7,10-2-10,10-2-15,10-4-7,10-4-10,10-4-15 PF10-6-15,13-3-9,13-3-13,13-3-19,13-4-9,13-4-13 PF13-4-19,13-6-19,15-3-10,15-3-15,15-5-10,15-5-15 PF18-4-12,18-4-18,18-5-12,18-5-18	Elastomer	Dark gray	4
PFRF-M3D	7.2	11	PF20-4-13,20-4-20,20-6-13,20-6-20,24-4-17 PF24-4-24,24-6-17,24-6-24,28-5-20,28-7-20 PF28-9-20,32-5-23,32-7-23,32-10-23	Elastomer	Dark gray	4

## PFE SERIES

## EMC SHIELDED PLASTIC BOX



- PFE series is an EMC shielded version of the PF series network plastic box coated internally with DOTITE conductive paint (acrylic paint mixed with nickel filler).
- Flat designed plastic case with detachable panels.
- Made of flame-resistant ABS UL94V-0.
- Equipped with built-in bosses for PCB mounting.
- Suitable for Wi-Fi access point, measuring equipment, controller or various other applications for desktop, wall mounting use and so on.

Technical Data
Protection class: IP40 Operating temperature: -10°C ~ +60°C
Included screws PFE20-4-13 model : M3-8 x 4 pcs PFE other models : M2.5-8 x 4 pcs

## Components

No.	Part name	Pcs	Material	Color / Finish	Conductive paint
1	Top cover	1	ABS UL94V-0	Off-white	DOTITE
2	Bottom base	1	ABS UL94V-0	Off-white	DOTITE
3	Panel	2	ABS UL94V-0	Off-white	DOTITE
4	Self-tapping screw	4	Steel	Nickel plated	—
5	Rubber feet	4	Elastomer	Dark gray	—

## Accessories (Optional parts)



Tapping standoff TPS series  
See page 111



PCB mounting screw EM series  
See page 115



TORX screw MR series  
See page 115



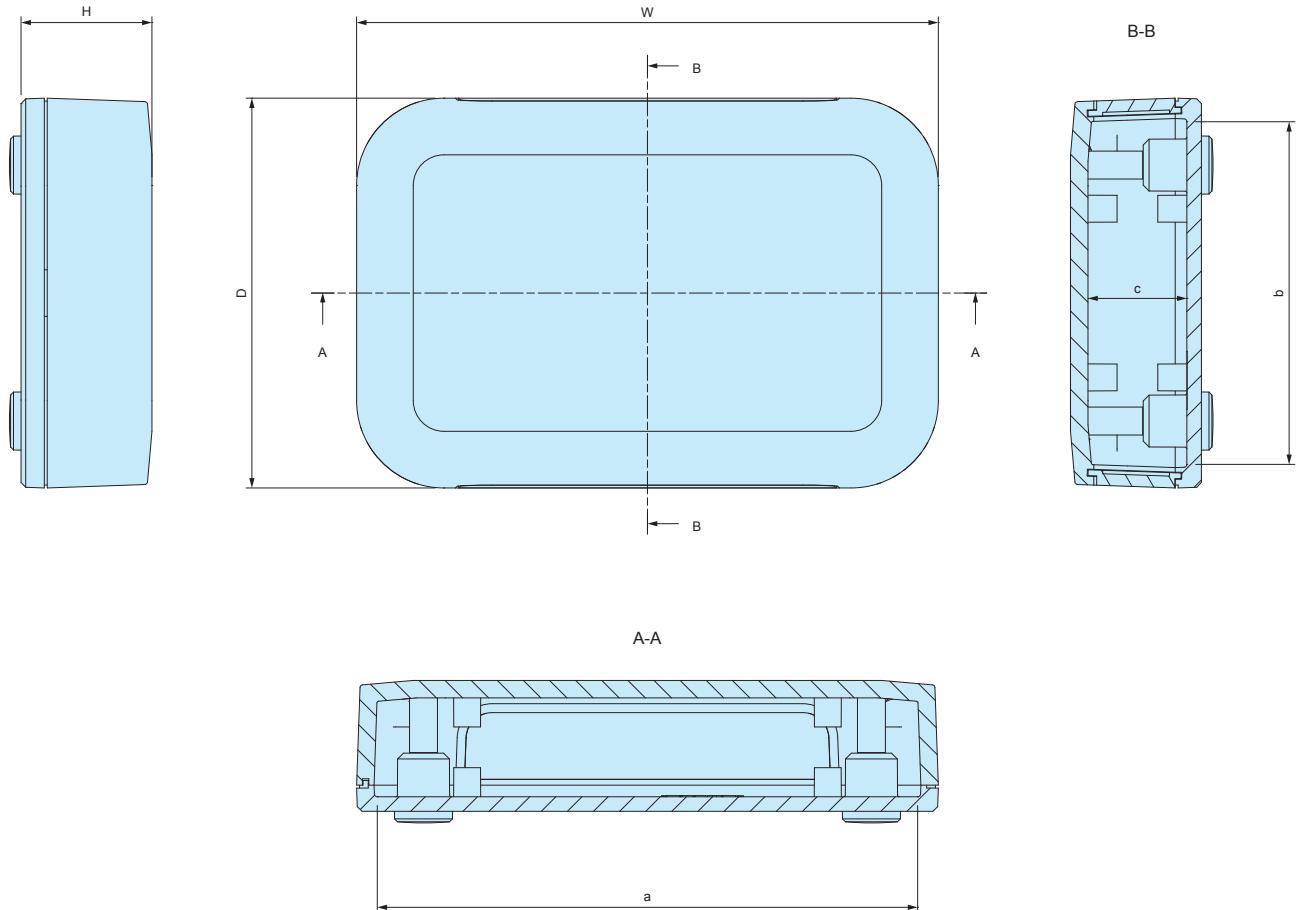
Suspension bracket WM series  
See page 107



Tilt leg TLW series  
See page 154

## PFE dimensions

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



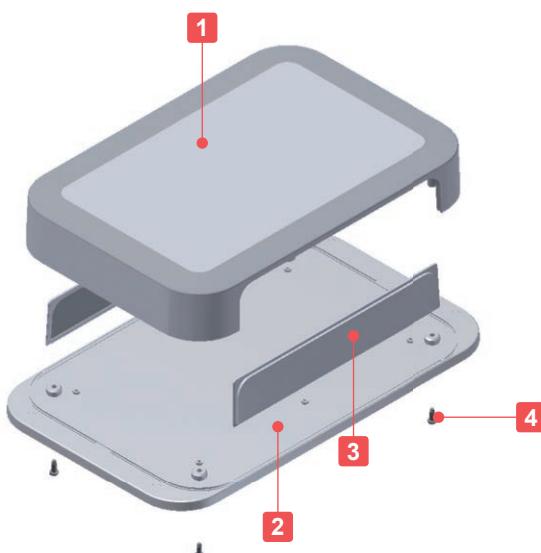
※Refer to DXF/DWG/PDF drawings for the numbers of  
PCB bosses on each size of enclosures.

### Product no. / Dimensions

Product no.	Dimensions						Screw	Weight (g)
	W	H	D	a	b	c		
NEW PFE13-4- 9W	125	40	85	116	75	34.5	M2.5-8 x 4 pcs	114
NEW PFE15-3-10W	150	30	100	142	90	24	M2.5-8 x 4 pcs	152
NEW PFE15-5-15W	150	45	150	141	139	39	M2.5-8 x 4 pcs	244.5
NEW PFE20-4-13W	200	40	135	191.5	124.5	34	M3-8 x 4 pcs	274.5

## PFF SERIES

## FLANGED NETWORK PLASTIC BOX

  
NEW SIZE


## Technical Data

Protection class: IP40  
Operating temperature: -10°C ~ +60°C

- PF plastic case with wall mounting flange bottom design.
- Made of flame-resistant ABS UL94V-0 and available in off-white color.
- 6 new sizes added for a total of 30 different sizes available for selection.
- Equipped with built-in bosses for PCB mounting.
- Suitable for Wi-Fi access point, wireless LAN, HUB, controller or other applications.

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94V-0	Off-white
2	Flanged base	1	ABS UL94V-0	Off-white
3	Panel	2	ABS UL94V-0	Off-white
4	Self-tapping screw	4	Steel	Nickel plated

## Accessories (Optional parts)



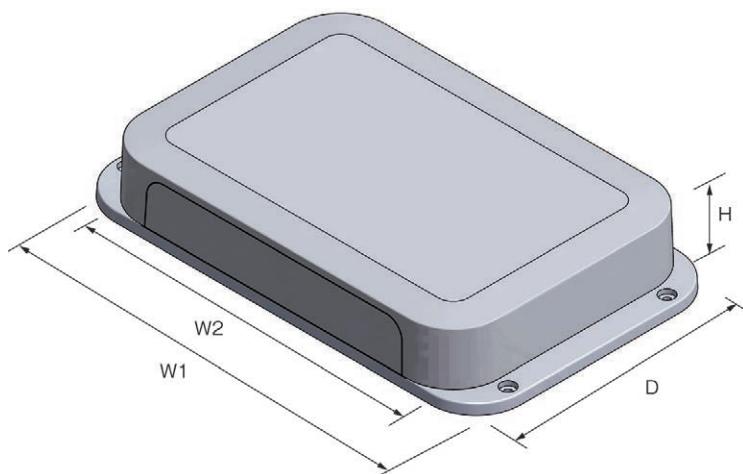
Tapping standoff TPS series  
See page 111



PCB mounting screw EM series  
See page 115



TORX screw MR series  
See page 115

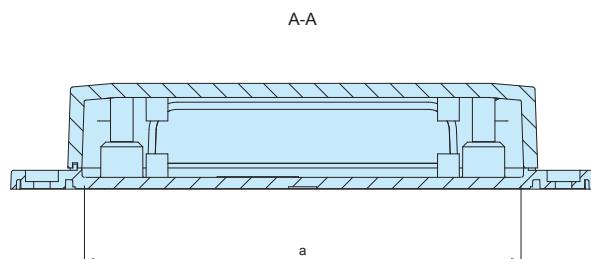
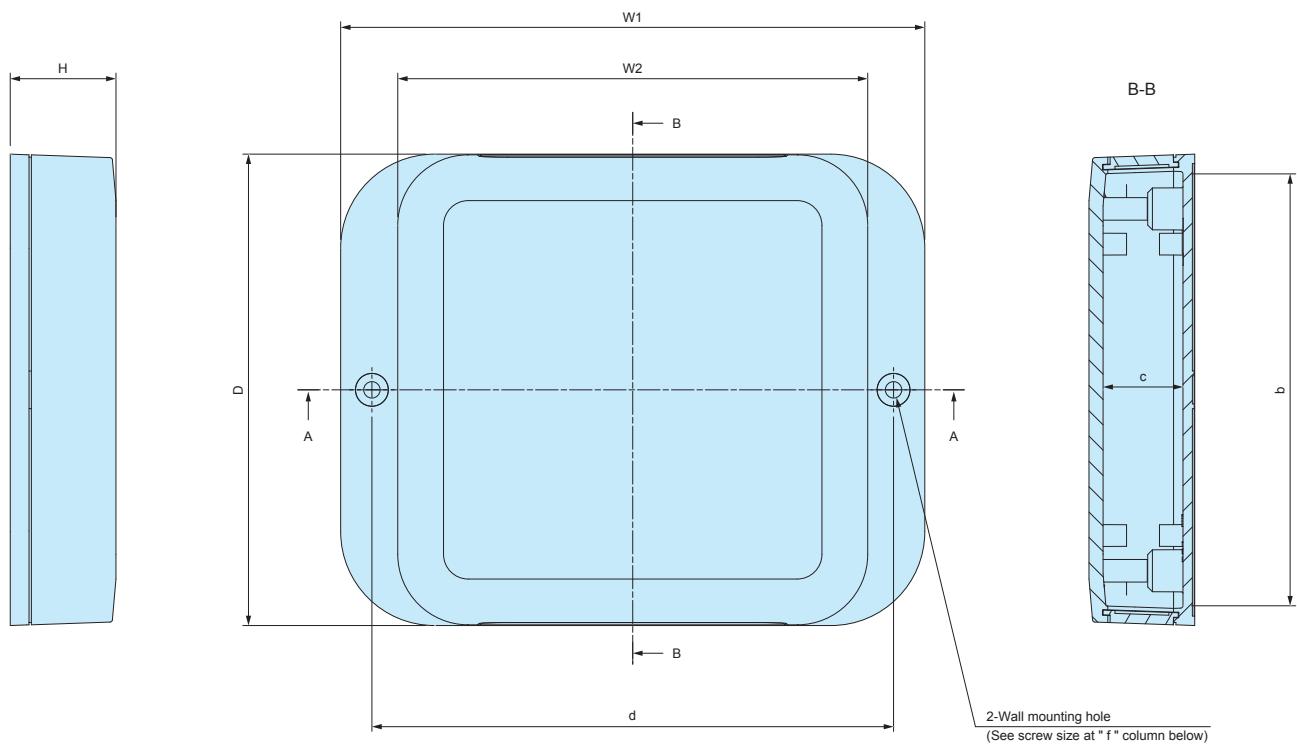


### Product no. / Dimensions

Product no.	Dimensions				Screw	Weight (g)
	W1	W2	H	D		
PFF10- 2- 7W	124.3	100	22.5	67.3	M2.5-8 x 4 pcs	60.8
PFF10- 2-10W	124.3	100	22.5	100.3	M2.5-8 x 4 pcs	84.6
PFF10- 4- 7W	124.3	100	35	67.3	M2.5-8 x 4 pcs	72
PFF10- 4-10W	124.3	100	35	100.3	M2.5-8 x 4 pcs	99.1
PFF13- 3- 9W	149.3	125	25	85.3	M2.5-8 x 4 pcs	90.8
PFF13- 3-13W	155.3	125	25	125.3	M2.5-8 x 4 pcs	128.6
PFF13- 4- 9W	149.3	125	40	85.3	M2.5-8 x 4 pcs	108.4
PFF13- 4-13W	155.3	125	40	125.3	M2.5-8 x 4 pcs	152.3
PFF15- 3-10W	180.4	150	30	100.4	M2.5-8 x 4 pcs	145.2
PFF15- 3-15W	180.4	150	30	150.4	M2.5-8 x 4 pcs	211.3
PFF15- 5-10W	180.4	150	45	100.4	M2.5-8 x 4 pcs	168.6
PFF15- 5-15W	180.4	150	45	150.4	M2.5-8 x 4 pcs	235
PFF18- 4-12W	205.4	175	35	120.4	M2.5-8 x 4 pcs	192.1
PFF18- 4-18W	205.4	175	35	175.4	M2.5-8 x 4 pcs	209.8
PFF18- 5-12W	205.4	175	50	120.4	M2.5-8 x 4 pcs	215.8
PFF18- 5-18W	205.4	175	50	175.4	M2.5-8 x 4 pcs	299.7
PFF20- 4-13W	230.5	200	40	135.5	M3-8 x 4 pcs	267.7
PFF20- 4-20W	230.5	200	40	200.5	M3-8 x 4 pcs	376
PFF20- 6-13W	230.5	200	60	135.5	M3-8 x 4 pcs	309.7
PFF20- 6-20W	230.5	200	60	200.5	M3-8 x 4 pcs	422.9
PFF24- 4-17W	270.5	240	42.5	165.5	M3-8 x 4 pcs	366.9
PFF24- 4-24W	270.5	240	42.5	240.5	M3-8 x 4 pcs	513.5
PFF24- 6-17W	270.5	240	60	165.5	M3-8 x 4 pcs	403.8
PFF24- 6-24W	270.5	240	60	240.5	M3-8 x 4 pcs	560.8
<b>NEW</b> PFF28- 5-20W	310.5	280	45	200.5	M3-8 x 4 pcs	547.5
<b>NEW</b> PFF28- 7-20W	310.5	280	65	200.5	M3-8 x 4 pcs	606.6
<b>NEW</b> PFF28- 9-20W	310.5	280	90	200.5	M3-8 x 4 pcs	694.1
<b>NEW</b> PFF32- 5-23W	350.5	320	45	225.5	M3-8 x 4 pcs	679.9
<b>NEW</b> PFF32- 7-23W	350.5	320	70	225.5	M3-8 x 4 pcs	767.4
<b>NEW</b> PFF32-10-23W	350.5	320	100	225.5	M3-8 x 4 pcs	887.4

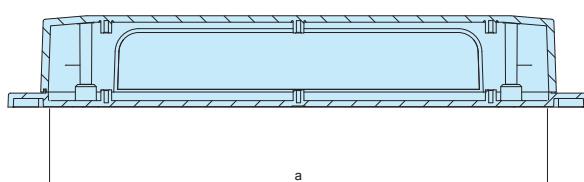
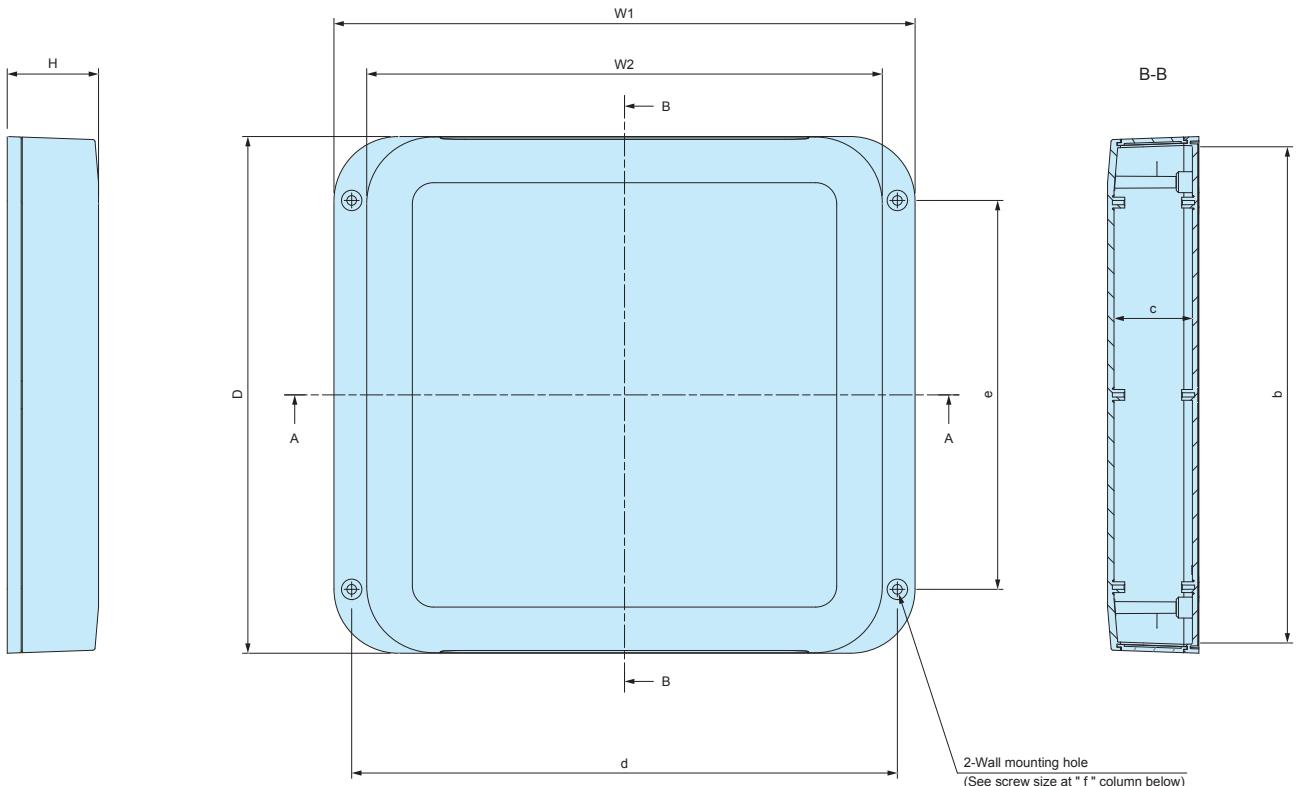
## PFF dimensions

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



※Refer to DXF/DWG/PDF drawings for the numbers of  
PCB bosses on each size of enclosures.

Product no.	W1	W2	H	D	a	b	c	d	f
PFF10-2- 7W	124.3	100	22.5	67.3	92	58	17	111	M3
PFF10-2-10W	124.3	100	22.5	100.3	92	91	17	111	M3
PFF10-4- 7W	124.3	100	35	67.3	91	57	29.5	111	M3
PFF10-4-10W	124.3	100	35	100.3	91	90	29.5	111	M3
PFF13-3- 9W	149.3	125	25	85.3	117	76	19.5	136	M3
PFF13-3-13W	155.3	125	25	125.3	117	116	19.5	138.9	M4
PFF13-4- 9W	149.3	125	40	85.3	116	75	34.5	136	M3
PFF13-4-13W	155.3	125	40	125.3	116	115	34.5	138.9	M4
PFF15-3-10W	180.4	150	30	100.4	142	90	24	164	M4
PFF15-3-15W	180.4	150	30	150.4	142	140	24	164	M4
PFF15-5-10W	180.4	150	45	100.4	141	89	39	164	M4
PFF15-5-15W	180.4	150	45	150.4	141	139	39	164	M4
PFF18-4-12W	205.4	175	35	120.4	166	110	29	189	M4
PFF18-5-12W	205.4	175	50	120.4	165	109	44	189	M4
PFF20-4-13W	230.5	200	40	135.5	191.5	124.5	34	214	M4
PFF20-6-13W	230.5	200	60	135.5	190	123	54	214	M4



※Refer to DXF/DWG/PDF drawings for the numbers of PCB bosses on each size of enclosures.

Product no.	W1	W2	H	D	a	b	c	d	e	f
PFF18- 4-18W	205.4	175	35	175.4	166	165	29	189	130	M4
PFF18- 5-18W	205.4	175	50	175.4	165	164	44	189	130	M4
PFF20- 4-20W	230.5	200	40	200.5	191.5	189.5	34	214	145	M4
PFF20- 6-20W	230.5	200	60	200.5	190	188	54	214	145	M4
PFF24- 4-17W	270.5	240	42.5	165.5	230	154	36.5	254	106	M4
PFF24- 6-17W	270.5	240	60	165.5	229	153	54	254	106	M4
PFF24- 4-24W	270.5	240	42.5	240.5	230	229	36.5	254	181	M4
PFF24- 6-24W	270.5	240	60	240.5	229	228	54	254	181	M4
PFF28- 5-20W	310.5	280	45	200.5	269.5	189	38.5	293.5	137	M4
PFF28- 7-20W	310.5	280	65	200.5	268.5	187.5	58.5	293.5	137	M4
PFF28- 9-20W	310.5	280	90	200.5	266.5	185.5	83.5	293.5	137	M4
PFF32- 5-23W	350.5	320	45	225.5	309.5	214	38.5	333.5	152	M4
PFF32- 7-23W	350.5	320	70	225.5	308	212	63.5	333.5	152	M4
PFF32-10-23W	350.5	320	100	225.5	306	210	93.5	333.5	152	M4

# **TWF SERIES**

## **PLASTIC ENCLOSURE with WALL MOUNTING FLANGE**

Multi-purpose flanged enclosure designed for use as a wall-mounted device/terminal.

23 different sizes in 2 colors available.

Recommended to be used as measurement instruments, wireless communication gadgets, controller devices and so on.

## **APPLICATION EXAMPLE**

### **SOLAR POWER SYSTEM REMOTE MONITOR**

Product by Wave Energy Inc. (Japan)



### **SOLAR PANEL CHARGE CONTROLLER**

Product by SunWorks Inc. (UK)



### **WIRELESS RFID TAG SEARCH DEVICE**

Product by MULTILUX (Slovenia)



### **RFID TAG**

Utilization of TAKACHI PS-65W portable plastic case.



### **CO<sub>2</sub> SENSOR**



### **TEMPERATURE · HUMIDITY SENSOR**



Product by HANERON (Japan)

## REMOTE POWER CONTROL UNIT



## COMMUNICATION CONVERTER



Product by M.C.S (Japan)

## ROOF SPRINKLER CONTROLLER

Product by ES·Waternet (Japan)



## WiFi ACCESS POINT



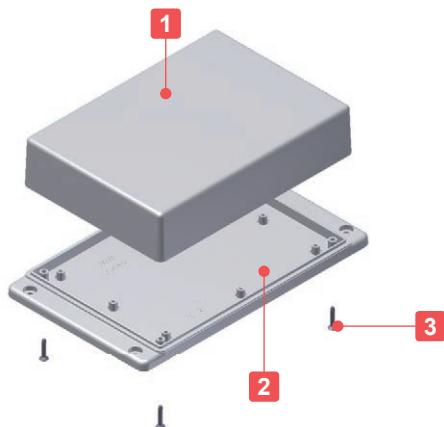
## ANALOG CAMERA M2M SOLUTION

Product by ADVARY SYSTEM (Japan)



## TWF SERIES

## PLASTIC ENCLOSURE with WALL MOUNTING FLANGE



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	ABS UL94V-0 : UL94-V1	Off-white • Dark gray
2	Flanged base	1	ABS UL94V-0 : UL94-V1	Off-white • Dark gray
3	Self tapping screw	2/4	Steel	Nickel plated • Black trivalent chromate

## Accessories (Optional parts)



Tapping standoff TPS series  
See page 111



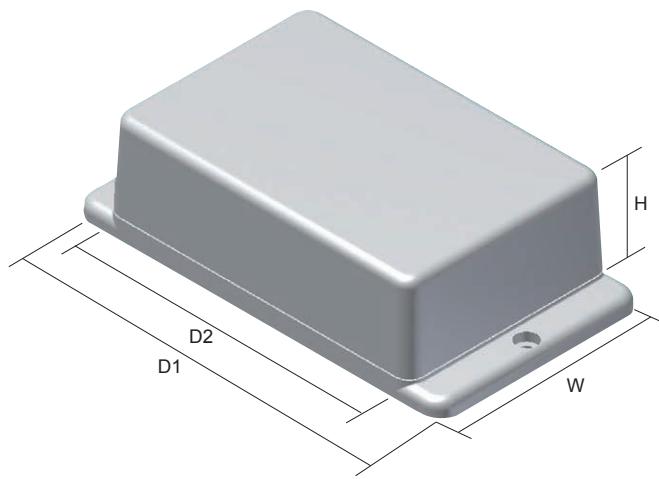
PCB mounting screw EM-2.3  
See page 115



TORX screw MR series  
See page 115

Technical Data
Protection class: IP40
Operating temperature: -10°C ~ +60°C

- Multi-purpose flanged enclosure designed for use as a wall-mounted device/ terminal.
- 23 different sizes in 2 colors. Made of ABS UL94V-0 : UL94V-1.
- Equipped with screwing bosses for PCB.
- Recommended to be used as measurement instruments, wireless communication gadgets, controller devices and so on.

**Color Type**

Code	Cover	Flanged base	Screw
W	Off-white	Off-white	Nickel plated
D	Dark gray	Dark gray	Black trivalent chromate

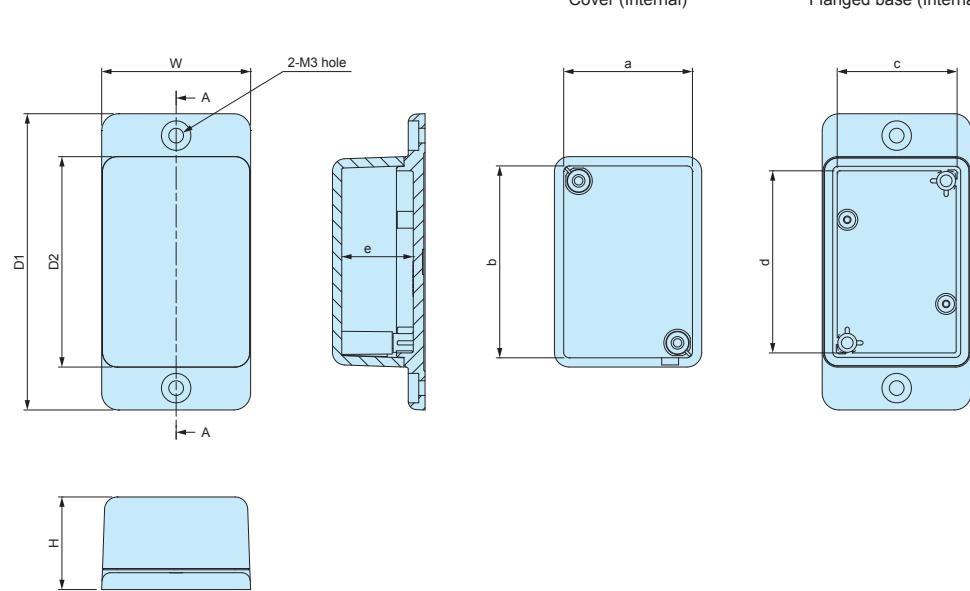
**Product no. / Dimensions**

Product no.		Dimensions				UL class	Screw	Weight (g)
● Off-white	● Dark gray	W	H	D1 (Flanged base)	D2 (Cover)			
TWF 4-2- 5W	TWF 4-2- 5D	35.4	22	70.4	50	UL94V-0	M 2.6×12 2 pcs	19.7
TWF 5-2- 5W	TWF 5-2- 5D	50.4	17	70.4	50	UL94V-1	M 2.6×12 4 pcs	21.5
TWF 5-2- 7W	TWF 5-2- 7D	50.4	17	90.4	70	UL94V-1	M 2.6×12 4 pcs	29
TWF 5-3- 5W	TWF 5-3- 5D	50.4	27	70.4	50	UL94V-1	M 2.6×12 4 pcs	26.5
TWF 5-3- 7W	TWF 5-3- 7D	50.4	29.5	90.4	70	UL94V-1	M 2.6×12 4 pcs	36
TWF 5-3- 9W	TWF 5-3- 9D	45.6	27.5	111	90	UL94V-1	M 2.6×12 4 pcs	43
TWF 5-4- 7W	TWF 5-4- 7D	50.4	42	90.4	70	UL94V-0	M 2.6×12 4 pcs	43.5
TWF 7-2-11W	TWF 7-2-11D	70.6	20.5	127	105	UL94V-0	M 2.6×14 4 pcs	66.5
TWF 7-3-13W	TWF 7-3-13D	65.5	25.5	150	130	UL94V-0	M 3×16 4 pcs	87
TWF 7-4-11W	TWF 7-4-11D	70.6	35.5	127	105	UL94V-0	M 2.6×14 4 pcs	82
TWF 7-5-11W	TWF 7-5-11D	70.6	50.5	127	105	UL94V-0	M 2.6×14 4 pcs	96.5
TWF 7-5-13W	TWF 7-5-13D	65.5	50	150	130	UL94V-0	M 3×16 4 pcs	114
TWF 8-2- 8W	TWF 8-2- 8D	80.6	23.5	100.6	80	UL94V-0	M 2.6×14 4 pcs	62
TWF 8-4- 8W	TWF 8-4- 8D	80.6	43.5	100.6	80	UL94V-0	M 2.6×14 4 pcs	82
TWF 9-4-17W	TWF 9-4-17D	86	35	190	170	UL94V-0	M 3×16 4 pcs	150
TWF 9-6-17W	TWF 9-6-17D	86	60	190	170	UL94V-0	M 3×16 4 pcs	184
TWF11-5-22W	TWF11-5-22D	110.3	45	250.6	220	UL94V-0	M 3×16 4 pcs	250
TWF11-8-22W	TWF11-8-22D	110.3	75	250.6	220	UL94V-0	M 3×16 4 pcs	303
TWF13-3-13W	TWF13-3-13D	125.6	25	155.6	125	UL94V-0	M 3×16 4 pcs	155
TWF13-3-18W	TWF13-3-18D	125.6	25	205.6	175	UL94V-0	M 3×16 4 pcs	199
TWF13-5-13W	TWF13-5-13D	125.6	45	155.6	125	UL94V-0	M 3×16 4 pcs	189
TWF13-5-18W	TWF13-5-18D	125.6	45	205.6	175	UL94V-0	M 3×16 4 pcs	242
TWF13-7-18W	TWF13-7-18D	125.6	65	205.6	175	UL94V-0	M 3×16 4 pcs	281

**TWF dimensions**

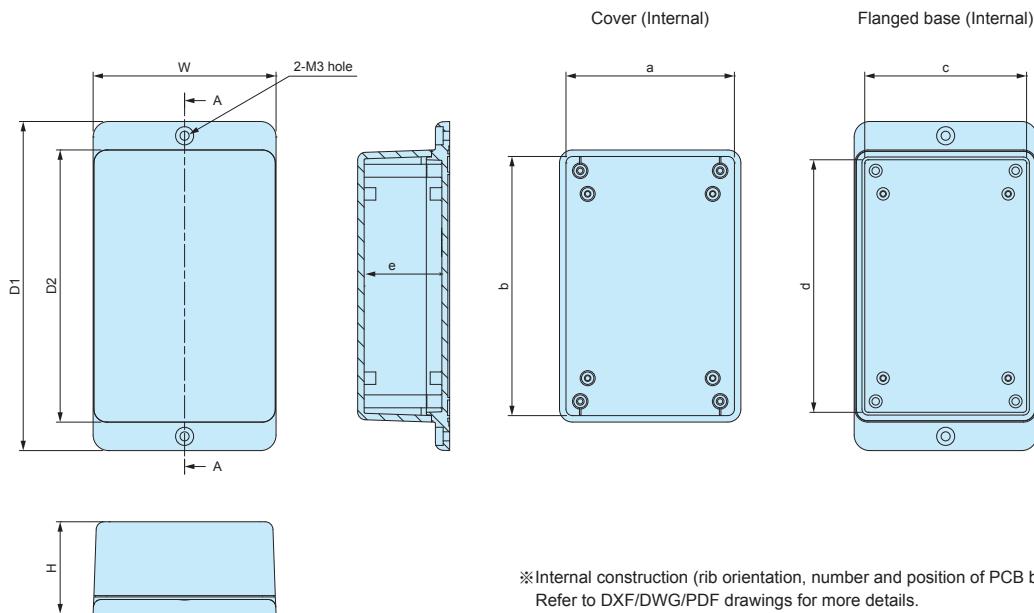
TWF4-2-5

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



Product no.	W	H	D1	D2	a	b	c	d	e
TWF4-2-5□	35.4	22	70.4	50	28.9	43.9	27.2	42.2	17

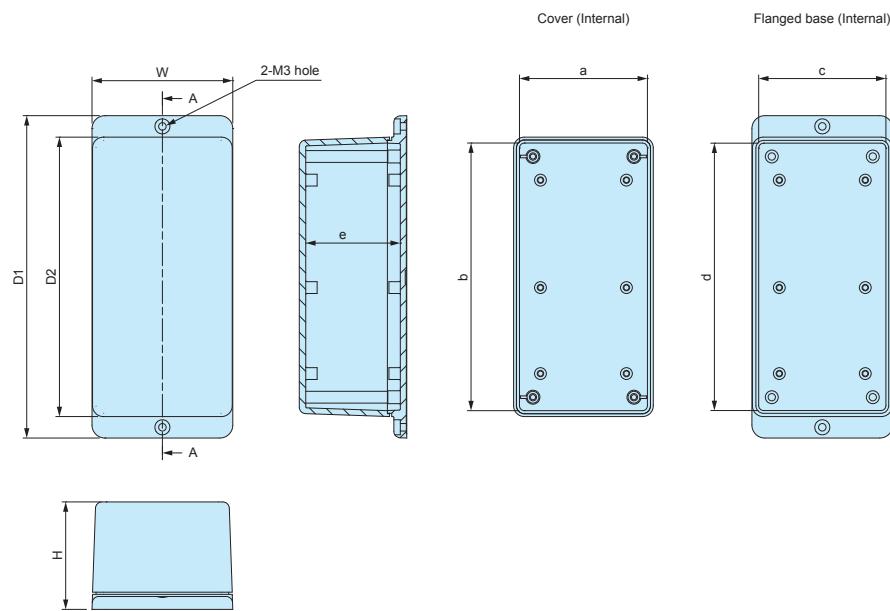
TWF5-2-5 • TWF5-3-5 • TWF5-2-7 • TWF5-3-7 • TWF5-4-7 • TWF5-3-9  
TWF7-2-11 • TWF7-4-11 • TWF7-5-11 • TWF8-2-8 • TWF8-4-8



※ Internal construction (rib orientation, number and position of PCB bosses) vary by model.  
Refer to DXF/DWG/PDF drawings for more details.

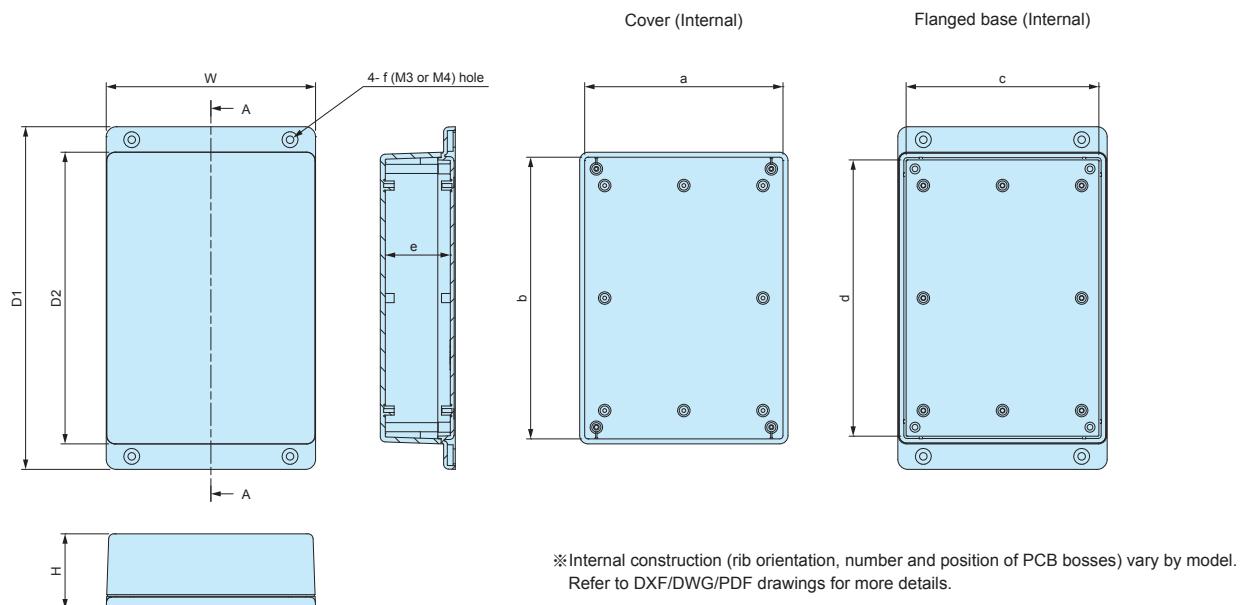
Product no.	W	H	D1	D2	a	b	c	d	e
TWF5-2- 5□	50.4	17	70.4	50	44.3	44.3	42.7	42.7	12
TWF5-3- 5□	50.4	27	70.4	50	43.6	43.6	42.7	42.7	22
TWF5-2- 7□	50.4	17	90.4	70	44.3	64.3	43.1	63.1	12
TWF5-3- 7□	50.4	29.5	90.4	70	43.4	63.4	43.1	63.1	24.5
TWF5-4- 7□	50.4	42	90.4	70	42.5	62.5	43.1	63.1	37
TWF5-3- 9□	45.6	27.5	111	90	37.3	82.3	37.2	82.2	22.5
TWF7-2-11□	70.6	20.5	127	105	63.2	98.2	61.4	96.4	15
TWF7-4-11□	70.6	35.5	127	105	62.2	97.2	61.4	96.4	30
TWF7-5-11□	70.6	50.5	127	105	61.1	96.1	61.4	96.4	45
TWF8-2- 8□	80.6	23.5	100.6	80	73	73	71.5	71.5	18
TWF8-4- 8□	80.6	43.5	100.6	80	71.6	71.6	71.5	71.5	38

TWF7-3-13  
TWF7-5-13



Product no.	W	H	D1	D2	a	b	c	d	e
TWF7-3-13□	65.5	25.5	150	130	57.7	122.7	59.2	124.4	19.5
TWF7-5-13□	65.5	50	150	130	55.9	120.9	59.2	124.4	44

TWF9-4-17 • TWF9-6-17 • TWF11-5-22 • TWF11-8-22  
TWF13-3-13 • TWF13-5-13 • TWF13-3-18 • TWF13-5-18 • TWF13-7-18



Product no.	W	H	D1	D2	a	b	c	d	e	f
TWF 9-4-17□	86	35	190	170	77.1	162	78.2	162.7	29	M3
TWF 9-6-17□	86	60	190	170	75.7	160.2	78.2	162.7	54	M3
TWF11-5-22□	110.3	45	250.6	220	101.4	211.4	103	213	39	M4
TWF11-8-22□	110.3	75	250.6	220	99.3	209.3	103	213	69	M4
TWF13-3-13□	125.6	25	155.6	125	117.2	117.2	114.5	114.5	19	M4
TWF13-5-13□	125.6	45	155.6	125	115.8	115.8	114.5	114.5	39	M4
TWF13-3-18□	125.6	25	205.6	175	117	167	114.5	164.6	19	M4
TWF13-5-18□	125.6	45	205.6	175	115.6	165.6	114.5	164.6	39	M4
TWF13-7-18□	125.6	65	205.6	175	114.2	164.2	114.5	164.6	59	M4

# TWS SERIES PLASTIC ENCLOSURE with SILICONE PROTECTOR

Universal plastic enclosure with protective silicone protectors which functions both as an anti-slip grip and impact protection. Available in 11 sizes and selectable in 18 different color combinations. Suitable for measuring instruments, wireless communication devices, portable controller, data logger, and so on.

## APPLICATION EXAMPLE

### DIGITAL POWER AMPLIFIER Product by Dream Co., Ltd. (Japan)



### GPS DATA LOGGER Product by Reds Fixit Shop (USA)



### 6 CHANNEL DATA LOGGER Product by Irisense Limited (UK)



### WIRELESS GATEWAY

Product by Bresimar Automação (Portugal)



**SOLAR ARRAY TESTER**

Product by System JD (Japan)

**SOLAR CELL BYPASS DIODE CHECKER**

Product by Nippon Kernel System (japan)

**SOLAR PANEL PV RESISTANCE CHECKER**

Product by Shin-ei Electronic Measuring (Japan)

**VIBROMETER**

Product by Sigma Electronics (Japan)



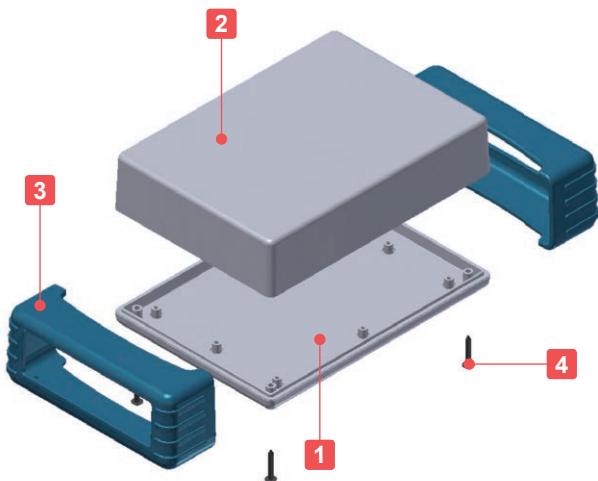
## TWS SERIES

## PLASTIC ENCLOSURE with SILICONE PROTECTOR



## Technical Data

Protection class: IP40  
Operating temperature: -10°C ~ +60°C



## Components

No.	Part name	Pcs	Material : Color / Finish
1	Cover	1	ABS UL94HB : Black • Light gray - ABS UL94V-0 : Off-white
2	Bottom base	1	ABS UL94HB : Black • Light gray - ABS UL94V-0 : Off-white
3	Silicone protector	2	Silicone : Pink • Yellow • Green • Navy • Light gray • Black
4	Self tapping screw	4	Steel M3-20 / Black trivalent chromate

## Accessories (Optional parts)



Snap-in battery box LD • LDN series  
See page 101 ~ 102



Tapping standoff TPS series  
See page 111



PCB mounting screw EM series  
See page 115

## Color Type

Code	<b>B P</b> Black / Pink	<b>B Y</b> Black / Yellow	<b>B G</b> Black / Green	<b>B N</b> Black / Navy	<b>B L</b> Black / Light gray	<b>B B</b> Black / Black
Color						
Code	<b>G P</b> Light gray / Pink	<b>G Y</b> Light gray / Yellow	<b>G G</b> Light gray / Green	<b>G N</b> Light gray / Navy	<b>G L</b> Light gray / Light gray	<b>G B</b> Light gray / Black
Color						
Code	<b>W P</b> Off-white / Pink	<b>W Y</b> Off-white / Yellow	<b>W G</b> Off-white / Green	<b>W N</b> Off-white / Navy	<b>W L</b> Off-white / Light gray	<b>W B</b> Off-white / Black
Color						

■ Note: Enclosure material varies depending on color. Black and Light gray are ABS UL94HB; Off-white is ABS UL94V-0.

## ABS UL94HB (Black • Light gray enclosure)

## Product no. / Dimensions

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

Product no.	W	H	D	Plastic case material	Weight (g)
TWS 7-3-13□□	71(65)	32(25.6)	136(130)	ABS UL94HB	117
TWS 7-5-13□□	71(65)	56(50.1)	136(130)	ABS UL94HB	147.5
TWS 9-4-17□□	91.5(85.5)	41.5(35.5)	176(170)	ABS UL94HB	193
TWS 9-6-17□□	91.5(85.5)	66.5(60.5)	176(170)	ABS UL94HB	243
TWS11-5-22□□	116(110)	51.5(45.3)	226(220)	ABS UL94HB	325.5
TWS11-8-22□□	116(110)	81.5(75.3)	226(220)	ABS UL94HB	399
TWS13-3-13□□	131(125)	31(25)	131(125)	ABS UL94HB	222
TWS13-5-13□□	131(125)	51(45)	131(125)	ABS UL94HB	269.5
TWS13-3-18□□	131(125)	31(25)	181(175)	ABS UL94HB	271.5
TWS13-5-18□□	131(125)	51(45)	181(175)	ABS UL94HB	322
TWS13-7-18□□	131(125)	71(65)	181(175)	ABS UL94HB	371

■ ( ) value = enclosure dimension.

## ABS UL94V-0 (Off-white enclosure)

## Product no. / Dimensions

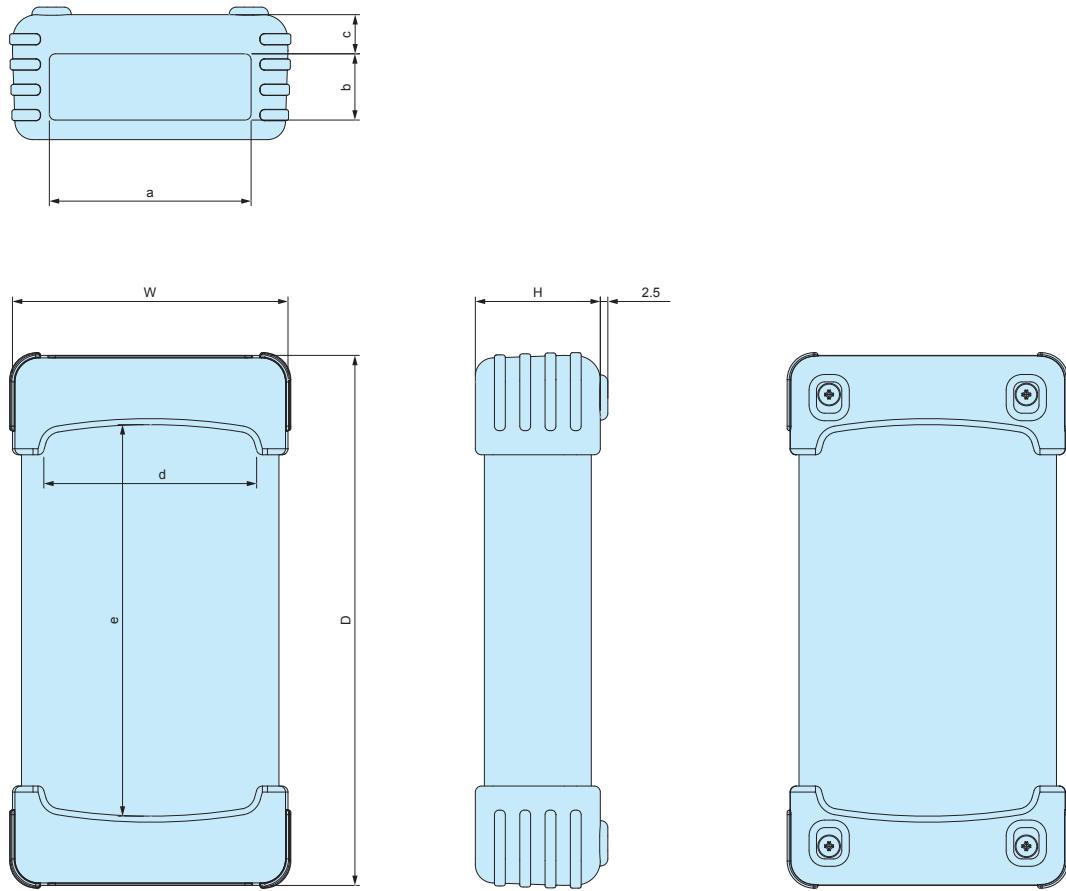
■ Please suffix color code at the end of the product number.

Product no.	W	H	D	Plastic case material	Weight (g)
TWS 7-3-13W□	71(65)	32(25.6)	136(130)	ABS UL94V-0	126
TWS 7-5-13W□	71(65)	56(50.1)	136(130)	ABS UL94V-0	163
TWS 9-4-17W□	91.5(85.5)	41.5(35.5)	176(170)	ABS UL94V-0	211
TWS 9-6-17W□	91.5(85.5)	66.5(60.5)	176(170)	ABS UL94V-0	266
TWS11-5-22W□	116(110)	51.5(45.3)	226(220)	ABS UL94V-0	356.5
TWS11-8-22W□	116(110)	81.5(75.3)	226(220)	ABS UL94V-0	438
TWS13-3-13W□	131(125)	31(25)	131(125)	ABS UL94V-0	243.5
TWS13-5-13W□	131(125)	51(45)	131(125)	ABS UL94V-0	294
TWS13-3-18W□	131(125)	31(25)	181(175)	ABS UL94V-0	293.5
TWS13-5-18W□	131(125)	51(45)	181(175)	ABS UL94V-0	353
TWS13-7-18W□	131(125)	71(65)	181(175)	ABS UL94V-0	407.5

■ ( ) value = enclosure dimension.

## TWS dimensions

- Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.
- Refer to page 98 for detailed internal enclosure dimensions.

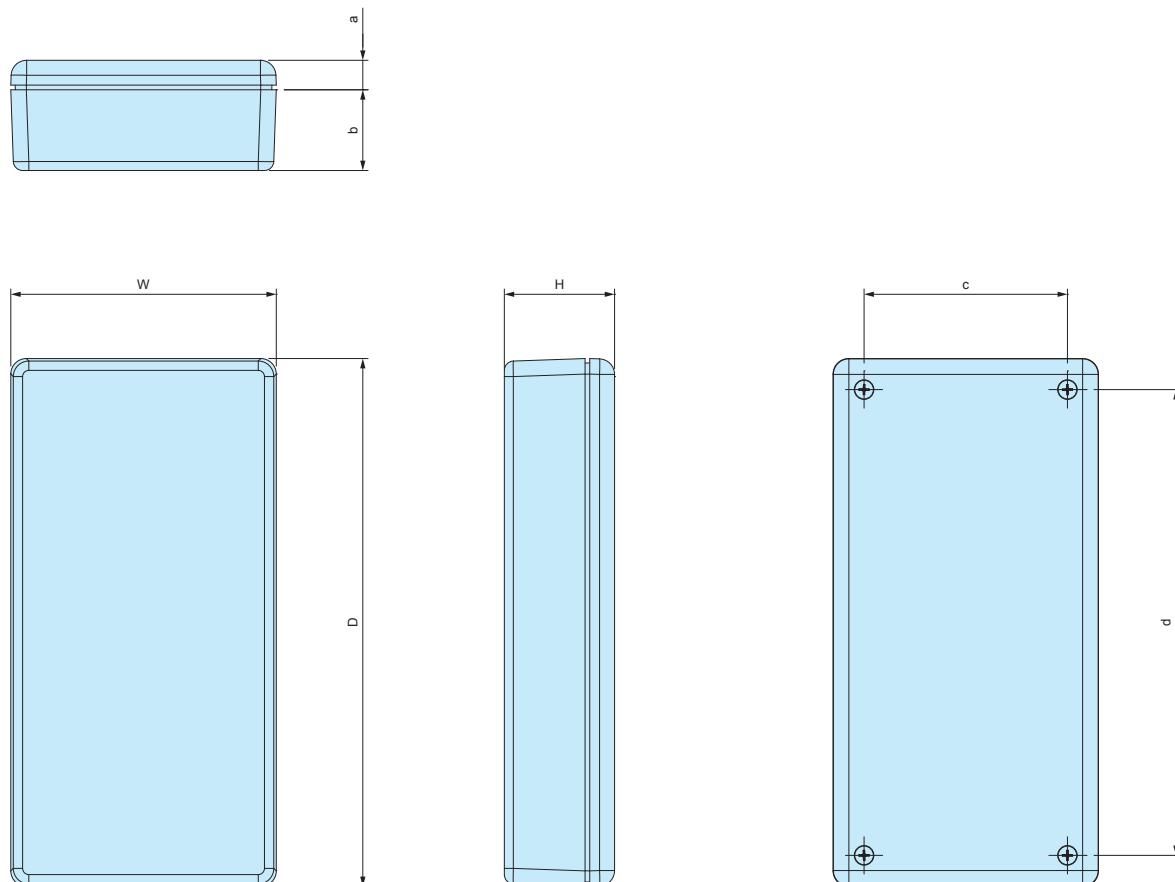


■ Please suffix color code at the end of the product number.

Product no.	W	H	D	a	b	c	d	e
TWS 7-3-13□□	71	32	136	52	13.5	11.8	54	98
TWS 7-5-13□□	71	56	136	52	37.5	11.9	54	98
TWS 9-4-17□□	91.5	41.5	176	67	22	13	71	130
TWS 9-6-17□□	91.5	66.5	176	67	46.5	13.3	71	130
TWS11-5-22□□	116	51.5	226	80	29	14.3	89	166
TWS11-8-22□□	116	81.5	226	80	58	14.5	89	166
TWS13-3-13□□	131	31	131	101	13	12	104	76
TWS13-5-13□□	131	51	131	101	29.5	13.5	104	76
TWS13-3-18□□	131	31	181	101	13	12	104	126
TWS13-5-18□□	131	51	181	101	29.5	13.5	104	126
TWS13-7-18□□	131	71	181	101	48.5	14	104	126

## Enclosure dimensions

■ Refer to page 98 for detailed enclosure dimensions.



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

Product no.	W	H	D	a	b	c	d
TWS 7-3-13□□	65	25.6	130	8.1	17.5	47	112
TWS 7-5-13□□	65	50.1	130	8.1	42	47	112
TWS 9-4-17□□	85.5	35.5	170	9.5	26	65.5	150
TWS 9-6-17□□	85.5	60.5	170	9.5	51	65.5	150
TWS11-5-22□□	110	45.3	220	10.3	35	88	198
TWS11-8-22□□	110	75.3	220	10.3	65	88	198
TWS13-3-13□□	125	25	125	8.5	16.5	107	107
TWS13-5-13□□	125	45	125	8.5	36.5	107	107
TWS13-3-18□□	125	25	175	8.5	16.5	105	155
TWS13-5-18□□	125	45	175	8.5	36.5	105	155
TWS13-7-18□□	125	65	175	8.5	56.5	105	155

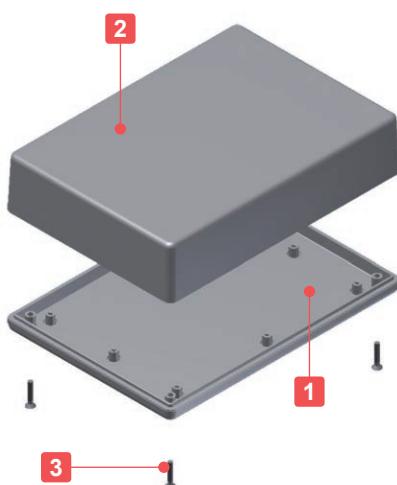
## TW・TWN SERIES

## MULTIPURPOSE PLASTIC ENCLOSURE



## Technical Data

Protection class: IP40  
Operating temperature: -10°C ~ +60°C



- Universal plastic enclosure with screw fastening.
- Selectable in 26 sizes in 3 colors ; Light gray, Black and Off-white.
- Suitable for measuring instruments, testing devices, wireless communication devices, medical devices, and so on.

## Components

No.	Part name	Pcs	Material : Color / Finish
1	Cover	1	TW : ABS UL94HB / Light gray • Black TWN : ABS UL94V-1 • UL94V-0 / Off-white
2	Bottom base	1	TW : ABS UL94HB / Light gray • Black TWN : ABS UL94V-1 • UL94V-0 / Off-white
3	Self tapping screw	2/4	TW : Steel / Trivalent chromate • Black trivalent chromate TWN : Steel / Nickel plated

## APPLICATION EXAMPLE

## Accessories (Optional parts)



Silicone band SIB series  
See page 100



Suspension bracket WM series  
See page 107



Neodymium magnet NMG series  
See page 108



## SERIAL FLASH PROGRAMMER

Product by Minato Holdings (Japan)



Snap-in battery box LD・LDN series  
See page 101 ~ 102



PCB mounting screw EM-2.3  
See page 115



Tapping standoff TPS series  
See page 111

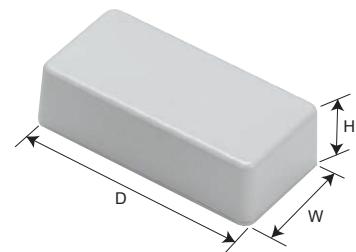


## SURGE PROTECTION DEVICE CHECKER

Product by OTOWA Electric (Japan)

**Color Type**

Series	Code	Top cover	Bottom cover	Screw
TW	G	Light gray	Light gray	Trivalent chromate
	B	Black	Black	Black trivalent chromate
TWN	W	Off-white	Off-white	Nickel plated

**TW series (ABS UL94HB)****Product no. / Dimensions**

Product no.		Dimensions			Screw	Weight (g)
● Light gray	● Black	W	H	D		
TW 4-2- 5G	TW 4-2- 5B	35	20	50	M2.6-12 × 2 pcs	13.5
TW 4-2- 6G	TW 4-2- 6B	35	20	60	M2.6-12 × 2 pcs	15.5
TW 4-2- 8G	TW 4-2- 8B	40.3	20	80.3	M2.6-12 × 2 pcs	22
TW 5-2- 5G	TW 5-2- 5B	50	15	50	M2.6-12 × 4 pcs	18
TW 5-3- 5G	TW 5-3- 5B	50	25	50	M2.6-12 × 4 pcs	22
TW 5-2- 7G	TW 5-2- 7B	50	15	70	M2.6-12 × 4 pcs	22
TW 5-3- 7G	TW 5-3- 7B	50	27.5	70	M2.6-12 × 4 pcs	29
TW 5-4- 7G	TW 5-4- 7B	50	40	70	M2.6-12 × 4 pcs	35
TW 5-3- 9G	TW 5-3- 9B	45	25	90	M3-12 × 4 pcs	30.5
TW 5-3-10G	TW 5-3-10B	50	30	100	M3-12 × 4 pcs	45.5
TW 7-2-11G	TW 7-2-11B	70	20	105	M2.6-14 × 4 pcs	56.5
TW 7-4-11G	TW 7-4-11B	70	35	105	M2.6-14 × 4 pcs	70
TW 7-5-11G	TW 7-5-11B	70	50	105	M2.6-14 × 4 pcs	83
TW 7-3-13G	TW 7-3-13B	65	25.6	130	M3-16 × 4 pcs	76
TW 7-5-13G	TW 7-5-13B	65	50.1	130	M3-16 × 4 pcs	100
TW 8-2- 8G	TW 8-2- 8B	80	20	80	M2.6-12 × 4 pcs	49
TW 8-4- 8G	TW 8-4- 8B	80	40	80	M2.6-12 × 4 pcs	65
TW 9-4-17G	TW 9-4-17B	85.5	35.5	170	M3-16 × 4 pcs	133
TW 9-6-17G	TW 9-6-17B	85.5	60.5	170	M3-16 × 4 pcs	168
TW11-5-22G	TW11-5-22B	110	45.3	220	M3-16 × 4 pcs	223
TW11-8-22G	TW11-8-22B	110	75.3	220	M3-16 × 4 pcs	277
TW13-3-13G	TW13-3-13B	125	25	125	M3-16 × 4 pcs	135
TW13-5-13G	TW13-5-13B	125	45	125	M3-16 × 4 pcs	165.5
TW13-3-18G	TW13-3-18B	125	25	175	M3-16 × 4 pcs	184.5
TW13-5-18G	TW13-5-18B	125	45	175	M3-16 × 4 pcs	218
TW13-7-18G	TW13-7-18B	125	65	175	M3-16 × 4 pcs	254

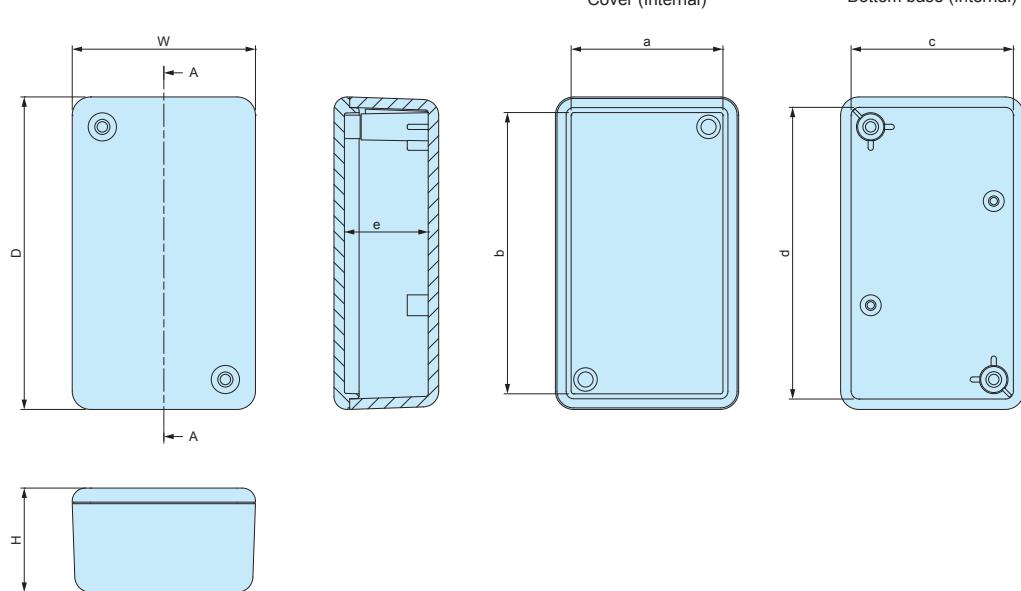
**TWN series (ABS UL94V-1 • UL94V-0)****Product no. / Dimensions**

Product no.	W	H	D	Screw	UL class	Weight (g)
TWN 4-2- 5W	35	20	50	M2.6-12 × 2 pcs	UL94V-1	16.5
TWN 4-2- 6W	35	20	60	M2.6-12 × 2 pcs	UL94V-1	18
TWN 4-2- 8W	40.3	20	80.3	M2.6-12 × 2 pcs	UL94V-1	26
TWN 5-2- 7W	50	15	70	M2.6-12 × 4 pcs	UL94V-1	24.5
TWN 5-3- 7W	50	27.5	70	M2.6-12 × 4 pcs	UL94V-1	33
TWN 5-4- 7W	50	40	70	M2.6-12 × 4 pcs	UL94V-1	39.5
TWN 5-3- 9W	45	25	90	M3-16 × 4 pcs	UL94V-1	35
TWN 7-2-11W	70	20	105	M2.6-14 × 4 pcs	UL94V-0	64.5
TWN 7-4-11W	70	35	105	M2.6-14 × 4 pcs	UL94V-0	80
TWN 7-5-11W	70	50	105	M2.6-14 × 4 pcs	UL94V-0	94.5
TWN 7-3-13W	65	25.6	130	M3-16 × 4 pcs	UL94V-0	85
TWN 7-5-13W	65	50.1	130	M3-16 × 4 pcs	UL94V-0	115.5
TWN 8-2- 8W	80	20	80	M2.6-12 × 4 pcs	UL94V-0	55.5
TWN 8-4- 8W	80	40	80	M2.6-12 × 4 pcs	UL94V-0	75
TWN 9-4-17W	85.5	35.5	170	M3-16 × 4 pcs	UL94V-0	151
TWN 9-6-17W	85.5	60.5	170	M3-16 × 4 pcs	UL94V-0	191
TWN11-5-22W	110	45.3	220	M3-16 × 4 pcs	UL94V-0	254
TWN11-8-22W	110	75.3	220	M3-16 × 4 pcs	UL94V-0	316
TWN13-3-13W	125	25	125	M3-16 × 4 pcs	UL94V-0	156.5
TWN13-5-13W	125	45	125	M3-16 × 4 pcs	UL94V-0	190
TWN13-3-18W	125	25	175	M3-16 × 4 pcs	UL94V-0	206.5
TWN13-5-18W	125	45	175	M3-16 × 4 pcs	UL94V-0	249
TWN13-7-18W	125	65	175	M3-16 × 4 pcs	UL94V-0	290.5

## TW / TWN • TWS dimensions

TW / TWN4-2-5 • TW / TWN4-2-6 • TW / TWN4-2-8

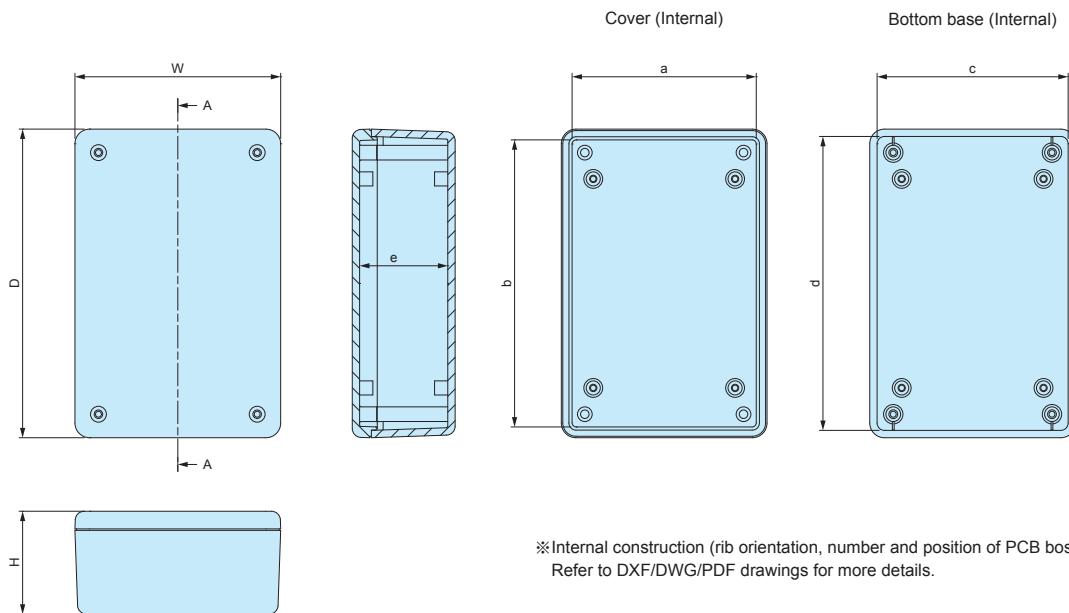
■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



Product no.	W	H	D	a	b	c	d	e
TW • TWN4-2-5□	35	20	50	28.2	43.2	28.9	43.9	16
TW • TWN4-2-6□	35	20	60	28.2	53.2	28.9	53.9	16
TW • TWN4-2-8□	40.3	20	80.3	33.5	73.5	34.2	74.2	16

TW5-2-5 • TW5-3-5 • TW / TWN5-2-7 • TW / TWN5-3-7 • TW / TWN5-4-7

TW / TWN7-2-11 • TW / TWN7-4-11 • TW / TWN7-5-11 • TW / TWN8-2-8 • TW / TWN8-4-8



※ Internal construction (rib orientation, number and position of PCB bosses) vary by model.  
Refer to DXF/DWG/PDF drawings for more details.

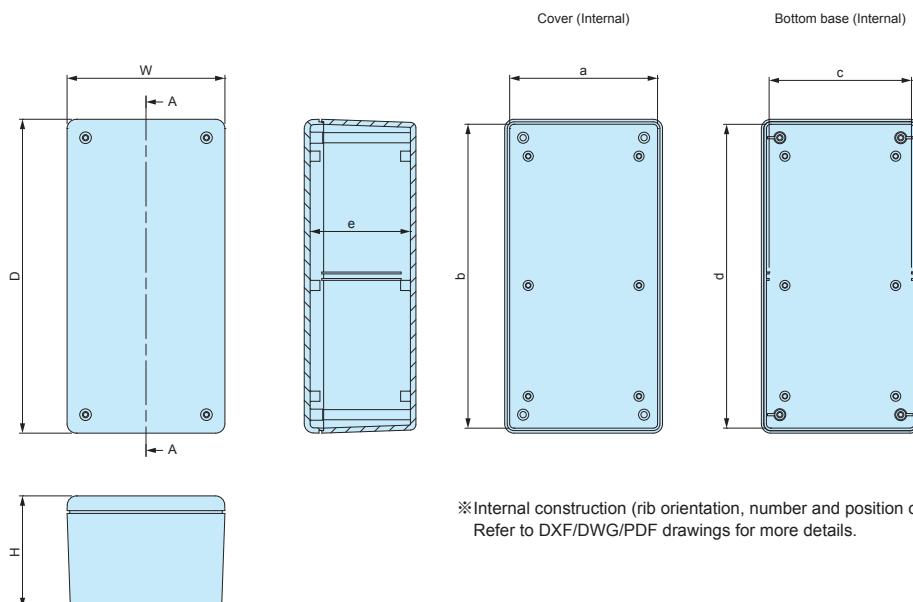
Product no.	W	H	D	a	b	c	d	e
TW 5-2- 5□	50	15	50	42.8	42.8	44.3	44.3	11
TW 5-3- 5□	50	25	50	42.8	42.8	43.6	43.6	21
TW • TWN5-2- 7□	50	15	70	43.2	63.2	44.3	64.3	11
TW • TWN5-3- 7□	50	27.5	70	43.2	63.2	43.4	63.4	23.5
TW • TWN5-4- 7□	50	40	70	43.2	63.2	42.5	62.5	36
TW • TWN7-2-11□	70	20	105	61.2	96.2	63.2	98.2	15
TW • TWN7-4-11□	70	35	105	61.2	96.2	62.2	97.2	30
TW • TWN7-5-11□	70	50	105	61.2	96.2	61.1	96.1	45
TW • TWN8-2- 8□	80	20	80	71.6	71.6	73	73	15
TW • TWN8-4- 8□	80	40	80	71.6	71.6	71.6	71.6	35

TW / TWN5-3-9 • TW5-3-10

TW / TWN7-3-13 / TWS7-3-13 (Internal enclosure) • TW / TWN7-5-13 / TWS7-5-13 (Internal enclosure)

TW / TWN9-4-17 / TWS9-4-17 (Internal enclosure) • TW / TWN9-6-17 / TWS9-6-17 (Internal enclosure)

TW / TWN11-5-22 / TWS11-5-22 (Internal enclosure) • TW / TWN11-8-22 / TWS11-8-22 (Internal enclosure)

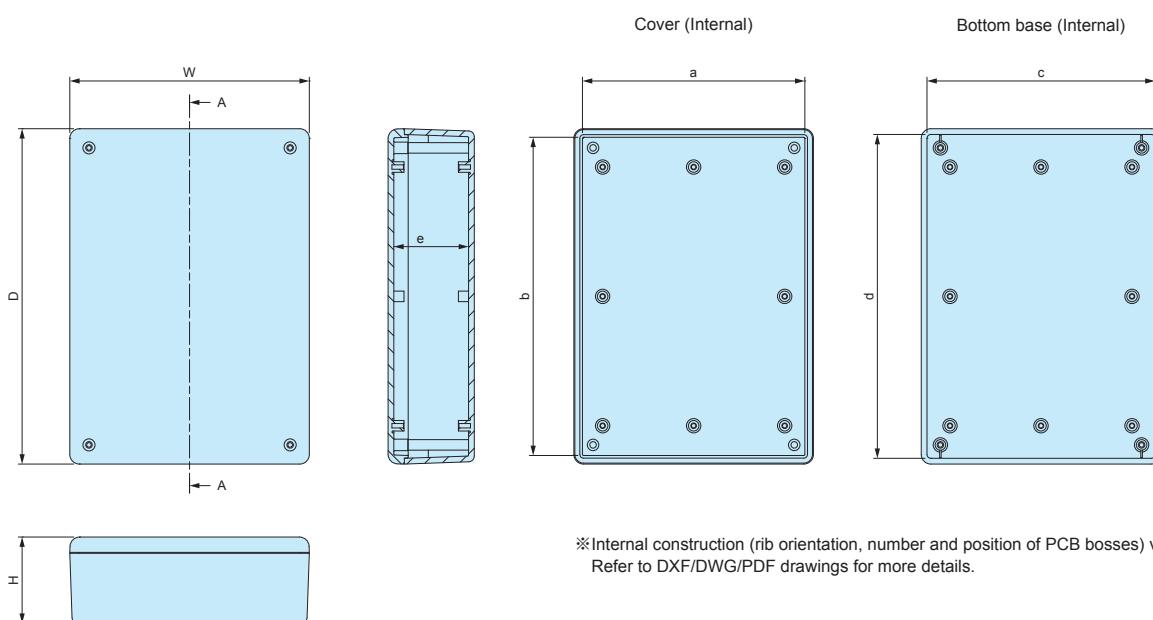


Product no.	W	H	D	a	b	c	d	e
TW • TWN 5-3- 9□	45	25	90	37.8	82.8	37.7	82.7	21
TW 5-3-10□	50	30	100	42.6	92.6	42.3	92.3	26
TW • TWN 7-3-13□	65	25.6	130	55.3	120.3	57.7	122.7	19.6
TW • TWN 7-5-13□	65	50.1	130	55.3	120.3	55.9	120.9	44.1
TW • TWN 9-4-17□	85.5	35.5	170	75.7	160.2	77.1	162	29.3
TW • TWN 9-6-17□	85.5	60.5	170	75.7	160.2	75.7	160.2	54.3
TW • TWN11-5-22□	110	45.3	220	100.1	210.1	101.4	211.4	39.1
TW • TWN11-8-22□	110	75.3	220	100.1	210.1	99.3	209.3	69.1

TW / TWN13-3-13 / TWS13-3-13 (Internal enclosure) • TW / TWN13-5-13 / TWS13-5-13 (Internal enclosure)

TW / TWN13-3-18 / TWS13-3-18 (Internal enclosure) • TW / TWN13-5-18 / TWS13-5-18 (Internal enclosure)

TW / TWN13-7-18 / TWS13-7-18 (Internal enclosure)



Product no.	W	H	D	a	b	c	d	e
TW • TWN13-3-13□	125	25	125	114.5	114.5	117.2	117.2	19
TW • TWN13-5-13□	125	45	125	114.5	114.5	115.8	115.8	39
TW • TWN13-3-18□	125	25	175	114.5	164.5	117	167	19
TW • TWN13-5-18□	125	45	175	114.5	164.5	115.6	165.6	39
TW • TWN13-7-18□	125	65	175	114.5	164.5	114.2	164.2	59

## TWSC SERIES

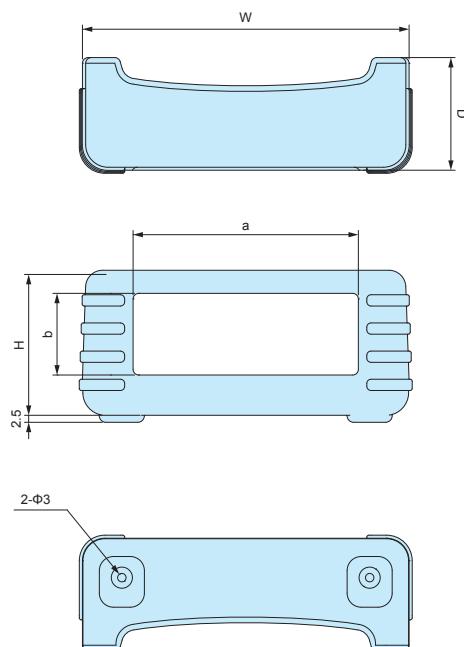
## SILICONE PROTECTOR for TW•TWN

## Color Type

Code	P Pink	Y Yellow	G Green	N Navy	L Light gray	B Black
Color						

- Silicone Protector for TW • TWN series. Selectable in 6 colors.
- Please select a model based on the suitable plastic case as listed below. The silicone protector is a set of 2 pcs.
- Custom color is available from 500 pairs per order. Please specify the **PANTONE®** color number or provide your sample color.

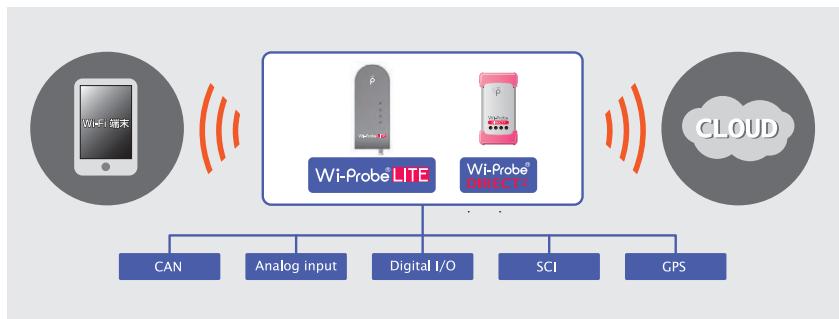
■ DXF/DWG/PDF drawings available on our website.



## APPLICATION EXAMPLE

## Wi-Fi DIRECT DATA LOGGER

Product by Tkcc (Japan)



## Components

Part name	Pcs	Material	Color / Finish
Silicone protector	1 set (2 pcs)	Silicone	Pink • Yellow • Green • Navy • Light gray • Black
Self tapping screw	4	Steel M3-20	Black trivalent chromate

## Product no. / Dimensions

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

Product no.	W	H	D	a	b	c	d	e	f	g	h	Suitable case	Weight (g)
TWSC 7-3□	71	32	27	52	13.5	3.2	3.3	12	47	12	15	TW / TWN 7-3-13	41
TWSC 7-5□	71	56	27	52	37.5	3.15	3.1	12	47	12	15	TW / TWN 7-5-13	47.5
TWSC 9-4□	91.5	41.5	33	67	22	3.1	3.15	13	65.5	13	20	TW / TWN 9-4-17	60
TWSC 9-6□	91.5	66.5	33	67	46.5	3.2	3.3	13	65.5	13	20	TW / TWN 9-6-17	75
TWSC11-5□	116	51.5	40	80	29	3.25	3.3	14	88	14	26	TW / TWN11-5-22	102.5
TWSC11-8□	116	81.5	40	80	58	3.2	3.3	14	88	14	26	TW / TWN11-8-22	122
TWSC13-3□	131	31	38	101	13	3.15	3.2	13	105	13	25	TW / TWN13-3-13 TW / TWN13-3-18	87
TWSC13-5□	131	51	38	101	29.5	3.3	3.3	13	105	13	25	TW / TWN13-5-13 TW / TWN13-5-18	104
TWSC13-7□	131	71	38	101	48.5	3.3	3.3	13	105	13	25	TW / TWN13-7-18	117

SIB SERIES

SILICONE BAND

★★ NEW



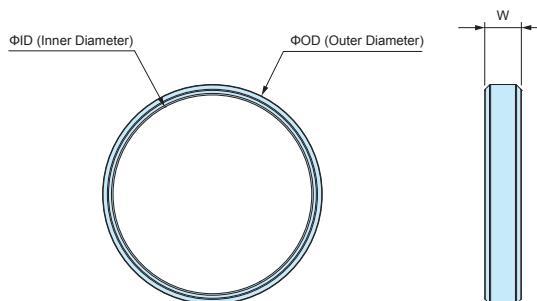
Application example



- Silicone band designed to fit TW & TWN series.  
Refer to the table below for size suitability.
- Silicone band provides both shock resistance and non-slip grips for the TW & TWN enclosure.

**Color Type**

Code	<input checked="" type="checkbox"/> Red	<input type="checkbox"/> Orange	<input type="checkbox"/> Yellow	<input type="checkbox"/> Green	<input type="checkbox"/> Cyan	<input type="checkbox"/> Navy	<input type="checkbox"/> Light gray	<input type="checkbox"/> Black
Color								

**SIB dimensions****Components**

Part name	Pcs	Material	Color
Silicone band	Pair (2 pcs)	Silicone	Red • Orange • Yellow • Green • Cyan • Navy • Light gray • Black

**Product no. / Dimensions**

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

Product no.	W	ID	OD	Suitable enclosures	Weight (g)
<b>NEW</b> SIB-21□	6	21	25	TW/TWN4-2-5 • 4-2-6 • 4-2-8 • 5-2-5 • 5-2-7 • 5-3-9	2
<b>NEW</b> SIB-38□	7	38	42	TW/TWN5-3-5 • 5-3-7 • 5-4-7 • 5-3-10 • 7-2-11 • 7-4-11 7-3-13 • 8-2-8	4
<b>NEW</b> SIB-58□	8	58	63	TW/TWN7-5-11 • 7-5-13 • 8-4-8 • 9-4-17	10
<b>NEW</b> SIB-72□	10	72	77	TW/TWN 9-6-17 • 11-5-22 • 11-8-22 • 13-3-13 • 13-5-13 13-3-18 • 13-5-18 • 13-7-18	14

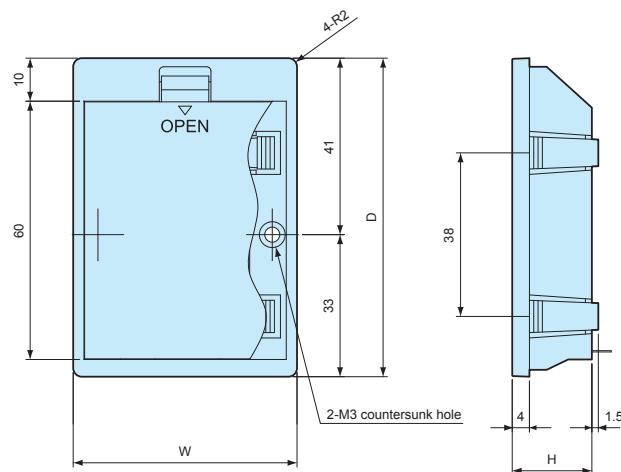
## LD・LDN SERIES

## SNAP-IN BATTERY BOX

Snap-in battery holders are available for installation onto TWS • TW • TWN series.  
Hole milling is required for installation of battery holder.



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



## Color Type

Code	Color	Material
G	Light gray	ABS UL94HB
B	Black	ABS UL94HB
W	White	PC+ABS UL94V-0

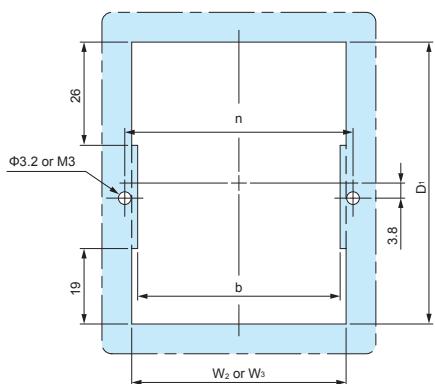
\* See website for more details

## Product no. / Dimensions

Product no.			Battery compartment	Dimensions		TWS • TW • TWN suitable models
● Light gray	● Black	● White		W	H	
LD-006PG LDN-006PG	LD-006PB LDN-006PB	LD-006PW LDN-006PW	9V x 1	52	21.5	7-5-11, 7-5-13, 8-4-8, 9-4-17, 9-6-17, 11-5-22, 11-8-22, 13-3-13, 13-5-13, 13-3-18, 13-5-18, 13-7-18
LD-2G LDN-2G	LD-2B LDN-2B	LD-2W LDN-2W	AA x 2	52	18.5	7-4-11, 7-5-11, 7-3-13, 7-5-13, 8-2-8, 8-4-8, 9-4-17, 9-6-17, 11-5-22, 11-8-22, 13-3-13, 13-5-13, 13-3-18, 13-5-18, 13-7-18
LD-3G LDN-3G	LD-3B LDN-3B	LD-3W LDN-3W	AA x 3	64.5	18.5	7-4-11, 7-5-11, 9-4-17, 9-6-17, 11-5-22, 11-8-22, 13-3-13, 13-5-13, 13-3-18, 13-5-18, 13-7-18
LD-4G LDN-4G	LD-4B LDN-4B	LD-4W LDN-4W	AA x 4	82	18.5	9-4-17, 9-6-17, 11-5-22, 11-8-22, 13-3-13, 13-5-13, 13-3-18, 13-5-18, 13-7-18

LD : without Lead-wire version LDN : with Lead-wire (140mm) version

## LD • LDN mounting hole



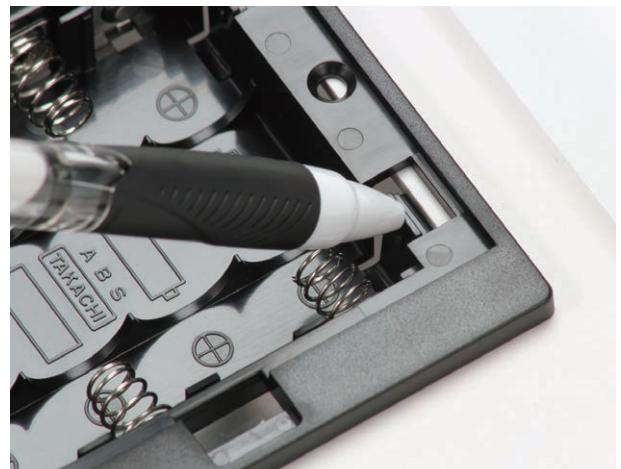
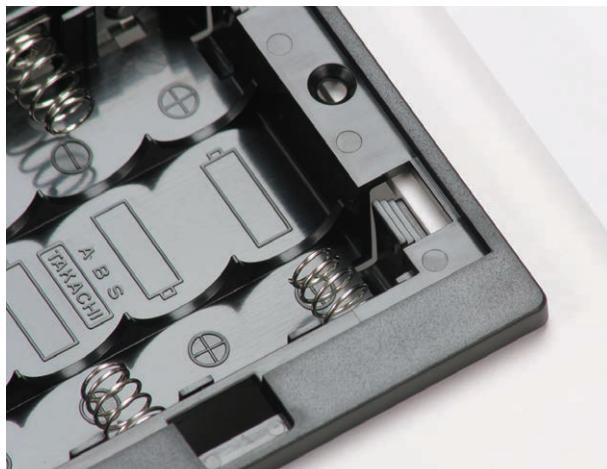
### Mounting hole dimension

Product no.	$W_2$ (thickness=2.5mm)	$W_3$ (thickness=3.0mm)	$D_1$	$b$	$n$
LD / LDN-2 • 006P	38.5	40.5	70.6	34.5	40.5
LD / LDN-3	52.5	54	70.4	49	53
LD / LDN-4	68.5	70.5	70.6	64.5	70.1

■  $W_2$  or  $W_3$  size depends on the thickness of the enclosure wall used for mounting.

## How to mount the battery box on the enclosure

Please push the hook using a thin stick when mounting the battery box on the enclosure.  
Please use minimal force when pushing to avoid breaking it.



## Customization available

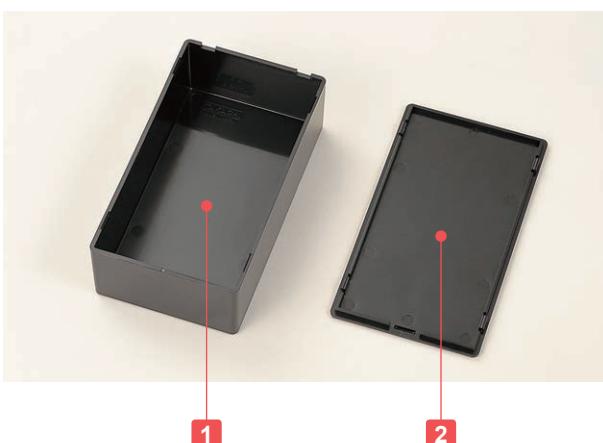


Contact us with your drawings.

E-mail : sales@takachi-el.co.jp



# SW・SW-N・SW-T COMPACT SNAP-IN PLASTIC CASE



## Technical Data

Protection class: IP40  
 Operating temperature:  
 SW-SW-N: -10°C ~ +60°C  
 SW-T: -10°C ~ +100°C

- No screws required; simple snap on / off cover.
- General purpose compact type case.
- Ample interior space.
- Exclusive PCB is available.
- 3 different material types (standard, flame-resistant, and heat-resistant) are available.

## Components

No.	Part name	Material / Color
1	Base	SW : ABS UL94HB / Light gray • Black
		SW-N : ABS UL94V-1 : UL94V-0 / Gray
		SW-T : ABS flame-resistant / Black
2	Cover	SW : ABS UL94HB / Light gray • Black
		SW-N : ABS UL94V-1 : UL94V-0 / Gray
		SW-T : ABS flame-resistant / Black

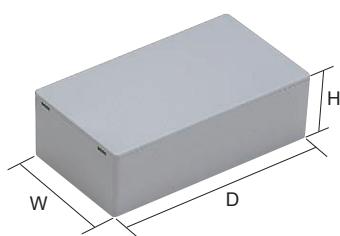
## Accessories (Optional parts)



Adhesive standoff T-600, 700, ASR  
See page 112



Neodymium magnet NMG series  
See page 108

**SW-SW-N-SW-T dimensions**

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

**Color Type**

Series	Code	Color
SW	S	Light gray
	B	Black
SW-N	G	Gray
SW-T	B	Black

**SW standard (ABS UL94HB)****Product no. / Dimensions**

Product no.		Dimensions			Weight (g)
● Light gray	● Black	W	H	D	
SW- 15S	SW- 15B	10	10	15	1
SW- 20S	SW- 20B	15	15	20	2
SW- 30S	SW- 30B	20	18	30	4
SW- 40S	SW- 40B	30	20	40	10
SW- 50S	SW- 50B	35	25	50	14
SW- 53S	SW- 53B	36	11	53	10
SW- 55S	SW- 55B	40	20	55	17
SW- 60S	SW- 60B	18	17	60	9
SW- 65S	SW- 65B	45	25	65	21
SW- 75S	SW- 75B	50	30	75	32
SW- 85S	SW- 85B	60	40	85	43
SW- 90S	SW- 90B	25	21	90	17
SW- 95S	SW- 95B	58	18	95	34
SW-100S	SW-100B	65	35	100	55
SW-120S	SW-120B	60	24	120	50
SW-125S	SW-125B	70	40	125	77
SW-130S	SW-130B	40	25	130	43

**SW-N flame-resistant (ABS UL94V-1 : UL94V-0)****Product no. / Dimensions**

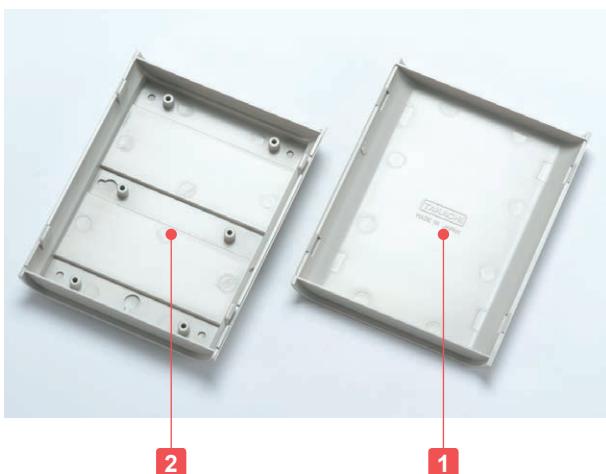
Product no.	W	H	D	UL class	Weight (g)
SW-N 20G	15	15	20	UL94V-1	3
SW-N 30G	20	18	30	UL94V-1	5
SW-N 40G	30	20	40	UL94V-0	11
SW-N 50G	35	25	50	UL94V-0	17
SW-N 55G	40	20	55	UL94V-0	19
SW-N 65G	45	25	65	UL94V-0	23
SW-N 75G	50	30	75	UL94V-0	35
SW-N 85G	60	40	85	UL94V-0	50
SW-N 95G	58	18	95	UL94V-0	37
SW-N100G	65	35	100	UL94V-0	60
SW-N120G	60	24	120	UL94V-0	56
SW-N125G	70	40	125	UL94V-0	85
SW-N130G	40	25	130	UL94V-0	48

**SW-T heat-resistant (ABS heat distortion temperature 100°C)****Product no. / Dimensions**

Product no.	W	H	D	Weight (g)
SW-T 20B	15	15	20	2
SW-T 40B	30	20	40	9
SW-T 55B	40	20	55	16
SW-T 75B	50	30	75	30
SW-T 95B	58	18	95	31
SW-T100B	65	35	100	50

## SU SERIES

## NETWORK PLASTIC CASE



## Components

No.	Part name	Material	Color / Finish
1	Cover	ABS UL94HB	Light gray • White
2	Base	ABS UL94HB	Light gray • White

## Accessories (Optional parts)



Tapping standoff TPS series  
See page 111



PCB mounting screw EM series  
See page 115

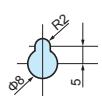
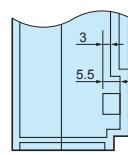
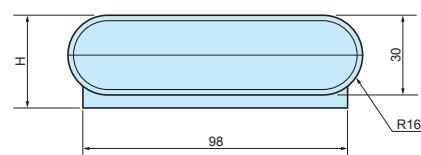
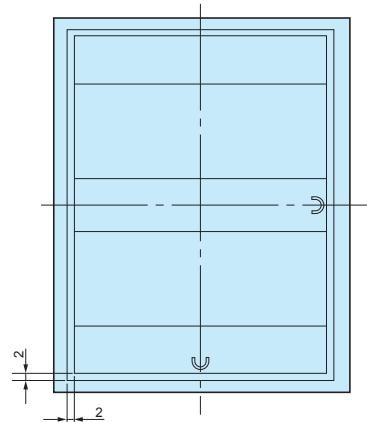
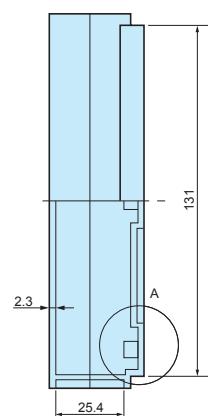
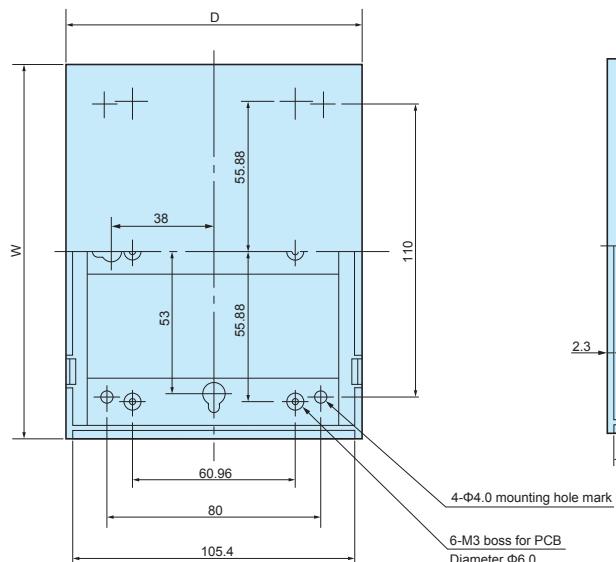
Technical Data
Protection class: IP40 Operating temperature: -10°C ~ +60°C

- Rounded shape design.
- Suitable for wall-mount communication device usage.
- Snap on / off cover. No screws are required.

**SU dimensions**

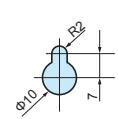
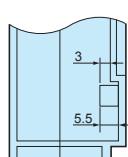
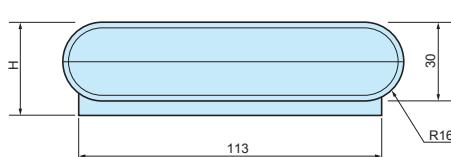
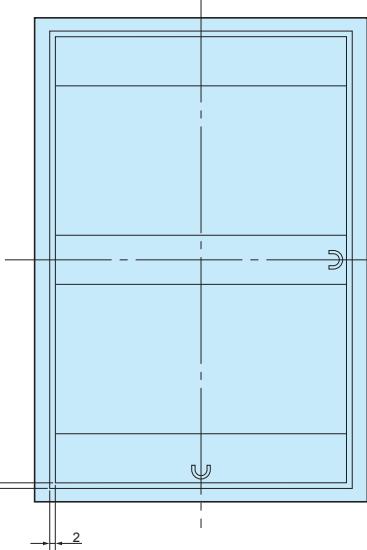
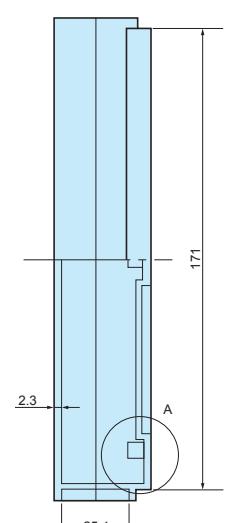
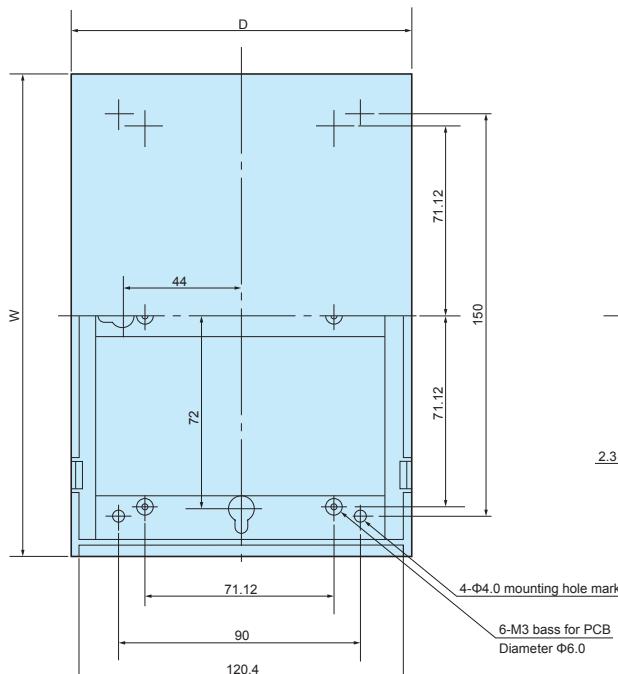
■ DXF/DWG/PDF drawings available on our website.

SU-140



Detail: Hanging hole mark

SU-180



Detail: hanging hole mark

**Product no. / Dimensions**

Product no.		Dimensions			Weight (g)
● Light gray	● White	W	H	D	
SU-140G	SU-140W	140	35	110	100
SU-180G	SU-180W	180	35	125	140

## WM SERIES

## SUSPENSION BRACKET

How to install

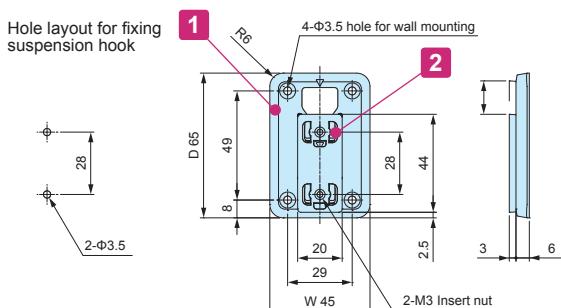


- Plastic wall mounting bracket. Easy attachment and removal.
- Large and small brackets are available.
- Applicable not only for the PF series, but also other plastic/metal enclosures with a panel thickness of 0.8 ~ 3.5mm.
- To attach the suspension hook onto the enclosure, hole milling is required.
  
- The max load values listed are static load values only. Use caution when handling.
- Please be aware of the insertion direction of the suspension hook against the mounting base when attaching.

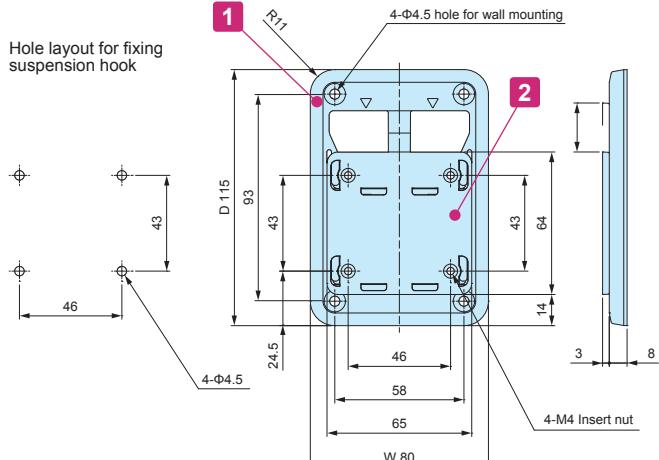
## Technical Data

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

WM-1



WM-2



■ DXF/DWG/PDF 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
-	Insert nut	2 / 4	Brass	Unfinished
-	Screw	2	M3-8 Steel binding = WM-1	Nickel plated
-	Screw	4	M4-8 Steel binding = WM-2	Nickel plated

## Product no. / Dimensions

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

## NMG SERIES

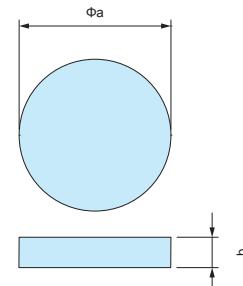
## NEODYMIUM MAGNET

NEW

## Round magnet



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



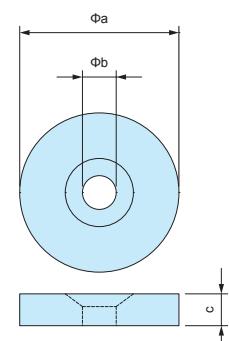
## Components

Product no.	a	b	Weight (g)	Flux Density	Adsorption
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

## Round magnet with countersunk hole



- Please fasten with a screw.



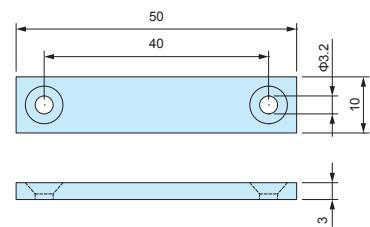
## Components

Product no.	a	b	c	Countersunk size	Weight (g)	Flux Density	Adsorption
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



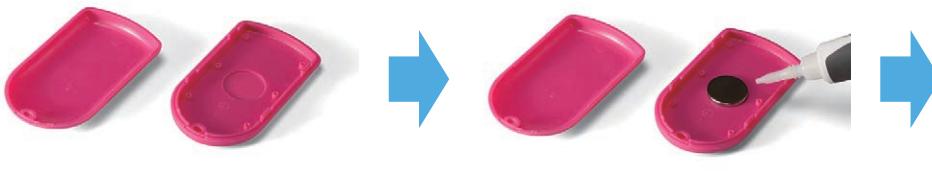
- Please fasten with a screw.



## Components

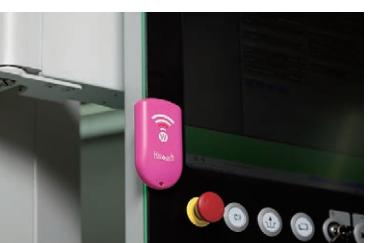
Product no.	a	b	c	Countersunk size	Weight (g)	Flux Density	Adsorption
NMG3-50M3	50	10	3	M3	11.3	210.0 mT	9.1 kgf

## 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.

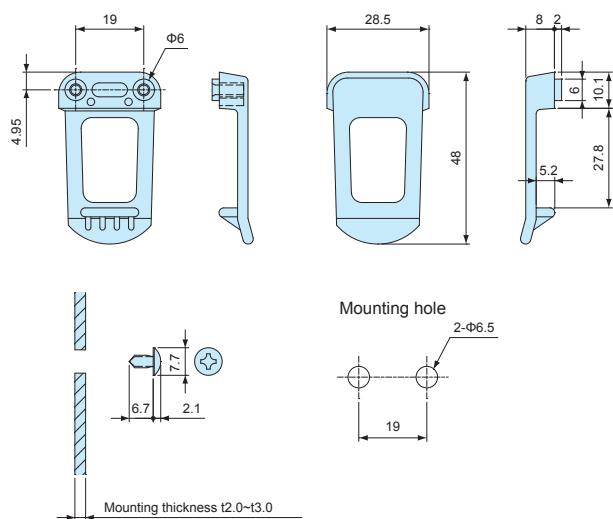
Attach onto a metallic surface.

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

## GDH SERIES

## PLASTIC BELT CLIP

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



## Components

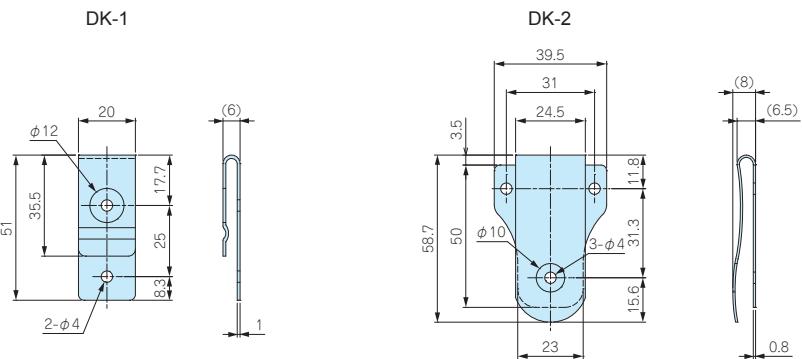
No.	Part name	Pcs	Material	Color / Finish
1	Clip	1	ABS UL94HB	White gray • Black
2	Screw	2	Steel M3.5-6	Zinc plated

## Product no. / Dimensions

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

## DK SERIES

## STEEL BELT CLIP



## 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

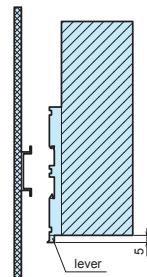
## DRA SERIES

## DIN-RAIL MOUNTING BASE



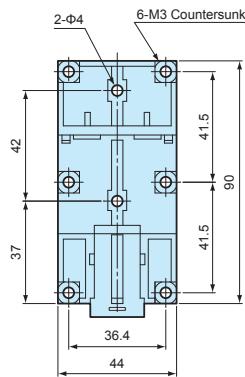
## ■ NOTE

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

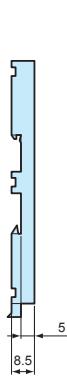


- For installation of enclosures, PCB and other parts onto a DIN rail.
- Simple installation and removal via the pull lever.

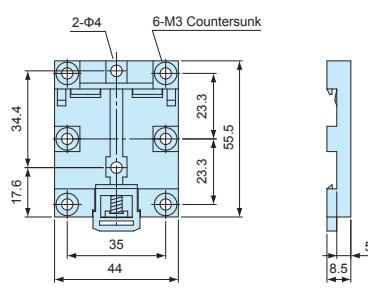
DRA-1



DRA-2



DRA-3

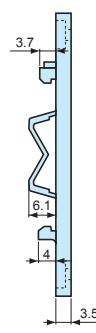
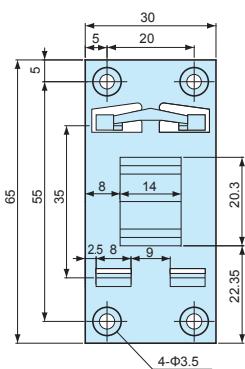


Product no. / Dimensions

Product no.	Material (body)	Material (lever)	Color	Max load (kg)
DRA-1	PPE : SB UL94V-1	Nylon 66 UL94V-2	Black : Milky white	5
DRA-2	PPE : SB UL94V-1	Nylon 66 UL94V-2	Black : Milky white	5
DRA-3	PPE : SB UL94V-1	Nylon 66 UL94V-2	Black : Milky white	5

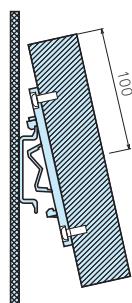
## DRT SERIES

## DIN-RAIL MOUNTING BASE



## ■ 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.



- 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.

Product no. / Dimensions

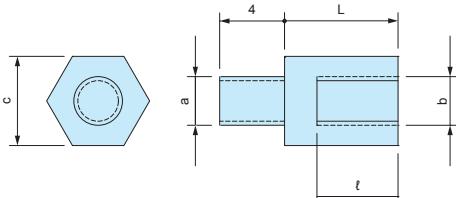
Product no.	Material	Color	Max load (kg)
DRT-1	PBT UL94V-0	Light gray	1

## TPS SERIES

## TAPPING STANOFF



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



■ Material / Finish : Brass / Unfinished

## Product no. / Dimensions

Product no.	Screw size (a)	Screw size (b)	c	L	t	Pack of	Recommended enclosure models
TPS-M2.3-4	M2.3	M2.3	5	4	3	4	WH series • PFE series
TPS-M2.3-5	M2.3	M2.3	5	5	3	4	LC • LCE • LCS • LCT series
TPS-M2.3-6	M2.3	M2.3	5	6	4	4	PF • PFF series (M2.3 boss models)
TPS-M2.3-7	M2.3	M2.3	5	7	5	4	TW • TWN • TWF series (M2.3 boss models)
TPS-M2.3-8	M2.3	M2.3	5	8	6	4	WP series (M2.3 boss models)
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	
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	
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	



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



How to tighten

## MT SERIES

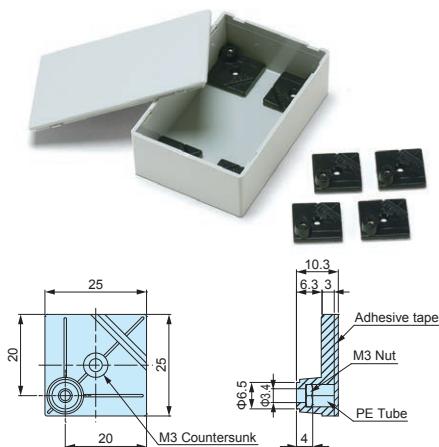
## PCB MOUNTING SCREWS for TPS



- PCB mounting Screws for TPS tapping standoffs

## Product no. / Dimensions

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

**T-600****M3 INSERT NUT ADHESIVE STANOFF**

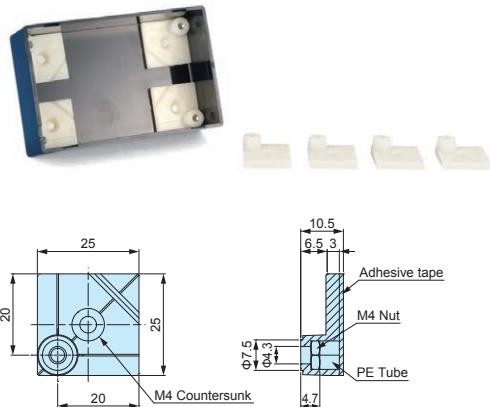
- Double-sided adhesive tape allows the standoff to be mounted easily; allows PCB mounting in non-boss enclosures.

**NOTE**

- Please ensure the surface is cleaned and grease-free before adhering.
- Once removed, it cannot be adhered on again.
- Recommended screw torque: 4kgf · cm (0.4N · m).

**Product no. / Dimensions**

Product no.	Material	Color	Weight (g)	Pack of
T-600	ABS	Black	2.6 (g) / pc	10

**T-700****M4 INSERT NUT ADHESIVE STANOFF**

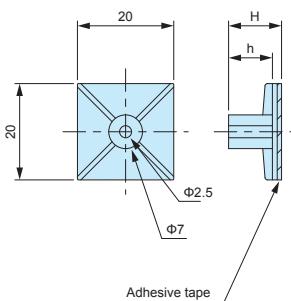
- Double-sided adhesive tape allows the standoff to be mounted easily; allows PCB mounting in non-boss enclosures.

**NOTE**

- Please ensure the surface is cleaned and grease-free before adhering.
- Once removed, it cannot be adhered on again.
- Recommended screw torque: 8.1kgf · cm (0.81N · m).

**Product no. / Dimensions**

Product no.	Material	Color	Weight (g)	Pack of
T-700	ABS	Natural	2.6 (g) / pc	10

**ASR SERIES****ADHESIVE STANOFF**


- M3 tapping screw use adhesive standoff.

Recommended to be used with EM-3 or EM-3-6 tapping screws (See page 115).

**NOTE**

- Please ensure the surface is cleaned and grease-free before adhering.
- Once removed, it cannot be adhered on again.
- Recommended screw torque: 4kgf · cm (0.4N · m).

**Product no. / Dimensions**

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

Material: Nylon 66 UL94V-2

## CJCV SERIES

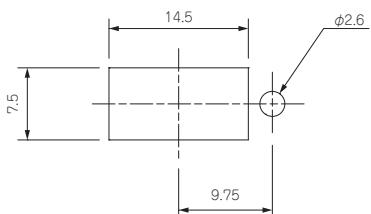
## USB DUST COVER FLAP

★★ NEW



- USB TYPE-A connector dust cover plug with stopper cord.
- A hole is required in order to install the flap.

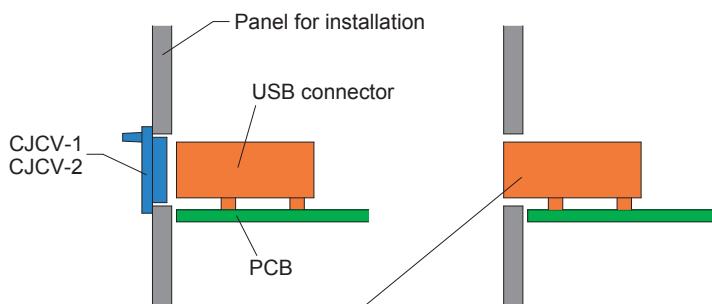
Mounting hole dimension



Product no.

Product no.	Material	Color	Panel thickness	A	Pcs
NEW CJCV-1	TPU	Black	0.5 ~ 2.0mm	8	10
NEW CJCV-2	TPU	Black	2.0 ~ 12.0mm	18.2	10

## How to Install



## Wrong Position

- Mount a USB connector so that the connector does not extend out from the panel's inner side.

## USBC SERIES

## USB DUSTPROOF BLIND PLUG

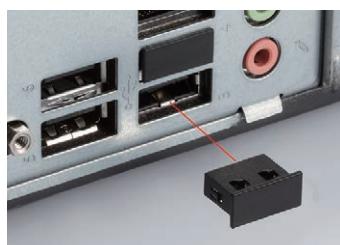
★★ NEW

## USB TYPE-A

USBC-2 (Pull-tab type)



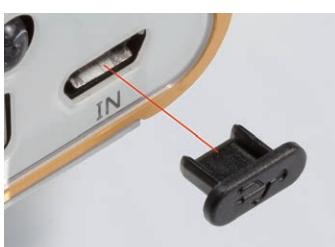
USBC-8 (No pull-tab type)



Product no.

Product no.	Material	Color	Pcs
NEW USBC-2	ABS UL94HB	Black	10
NEW USBC-8	PA66 UL94V-2	Black	10

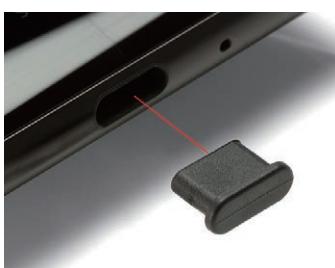
## MICRO USB



Product no.

Product no.	Material	Color	Pcs
NEW USBC-31	PE	Black	10

## USB TYPE-C



Product no.

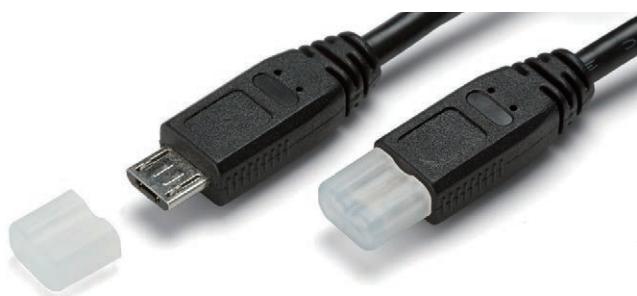
Product no.	Material	Color	Pcs
NEW USBC-3C	PE	Black	10

**KPS SERIES****USB DUSTPROOF CONNECTOR COVER**

★★ NEW

**USB TYPE-A****Product no.**

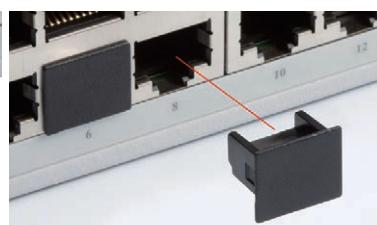
Product no.	Material	Color	Pcs
<b>NEW</b> KPS-6	PE	Natural	10

**MICRO USB****Product no.**

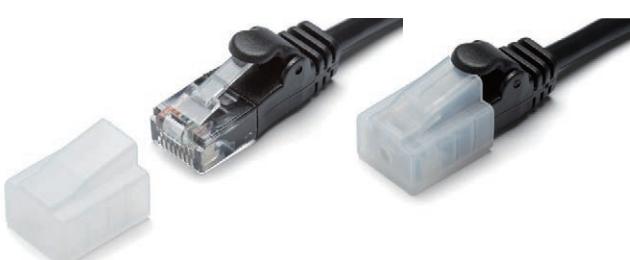
Product no.	Material	Color	Pcs
<b>NEW</b> KPS-21	PE	Natural	10

**PJR•PJS•PJCV SERIES****RJ45 DUSTPROOF PLUG • CONNECTOR COVER**

★★ NEW

**PJR-45 (Pull-tab type)****PJS-45 (No pull-tab type)****Product no.**

Product no.	Material	Color	Pcs
<b>NEW</b> PJR-45	PE	Black	10
<b>NEW</b> PJS-45	ABS UL94HB	Black	10

**Product no.**

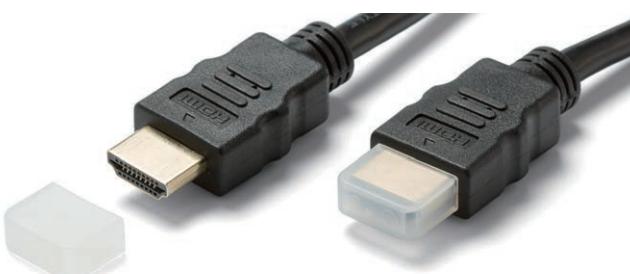
Product no.	Material	Color	Pcs
<b>NEW</b> PJCV-1	PE	Natural	10

**HDMIC•HDMIT SERIES****HDMI DUSTPROOF PLUG • CONNECTOR COVER**

★★ NEW

**HDMIC-1 (Pull-tab type)****HDMIC-3 (No pull-tab type)****Product no.**

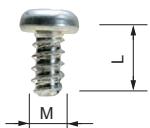
Product no.	Material	Color	Pcs
<b>NEW</b> HDMIC-1	PE	Black	10
<b>NEW</b> HDMIC-3	ABS UL94HB	Black	10

**Product no.**

Product no.	Material	Color	Pcs
<b>NEW</b> HDMIT-1	PE	Natural	10

## EM SERIES

## PCB MOUNTING SCREW



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

## Product no. / Dimensions

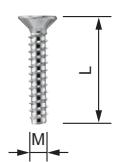
Product no.	M	L	Material	Finish	Suitable enclosures	Pack of
EM-1.6	1.6	4	Steel	Trivalent chromate	WC • CSS • CS • PS (M1.6 size)	50
EM-2	2	5	Steel	Trivalent chromate	PS • TW • TWN • TWF • WP (M2 size)	50
EM-2.3	2.3	6	Steel	Trivalent chromate	WH • LC • LCT • LCS • LCE • PFE WSC (Top cover bosses) PF •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

## MR SERIES

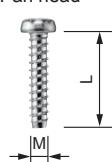
## TORX SCREW



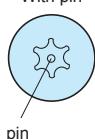
Countersunk head



Pan head



With pin



★ Without pin



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

## Product no. / Dimensions

★ Mark = Without pin

Product no.	M	L	head no.	Head style	Material	Finish	Suitable enclosures	Pack of
MR1.6-6S★	1.6	6	T3	Pan	Steel	Nickel plated	CS • CSS	20
MR2.5-8PS	2.5	8	T8	Pan	Steel	Nickel plated	PF • PFE • PFF (M2.5 size)	20
MR2.6-10S★	2.6	10	T8	Countersunk	Steel	Nickel plated	TW5-2-5 / 5-3-5 TW • TWN4-2-5 / 4-2-6 / 4-2-8 / 5-2-7 TW • TWN5-3-7 / 5-4-7 / 8-2-8 / 8-4-8 TWF4-2-5 / 5-2-5 / 5-3-5 / 5-2-7 / 5-3-7 / 5-4-7 / 5-3-9	20
MR2.6-10B★	2.6	10	T8	Countersunk	Steel	Black trivalent chromate		20
MR2.6-12PS	2.6	12	T8	Pan	Steel	Nickel plated	LCT • LCS • LC115H-F2 / F3 LCT • LCS • LC145S-F6	20
MR2.6-14PS	2.6	14	T8	Pan	Steel	Nickel plated	LCT • LCS • LC115H-F2 / F3 LCT • LCS • LC135-F4 / M2 / M3 / 9V LCT • LCS • LC135H-F4 / M2 / M3 / 9V LCT • LCS • LC145-F6 / M2 / M4 LCT • LCS • LC145H-F6 / M2 / M4 LCT • LCS • LC165-M4 LCT • LCS • LC165H-M4	20
MR2.6-14S	2.6	14	T8	Countersunk	Steel	Nickel plated	LCT • LCS • LC115-N / F2 / F3 LCT • LCS • LC145S-F6 LCE115-N TW • TWN7-2-11 / 7-4-11 / 7-5-11 TWF7-2-11 / 7-4-11 / 7-5-11 / 8-2-8 / 8-4-8	20
MR2.6-18S	2.6	18	T8	Countersunk	Steel	Nickel plated	LCT • LCS • LC115H-N / F2 / F3 / M2 / 9V LCT • LCS • LC135-N / F4 / M2 / M3 / 9V LCT • LCS • LC135H-N / F4 / M2 / M3 / 9V LCT • LCS • LC145-N / F6 / M2 / M4 LCT • LCS • LC145H-N / F6 / M2 / M4 LCT • LCS • LC165-N / M4 LCT • LCS • LC165H-N / M4 LCE115H-N • LCE135-N • LCE145H-N • LCE165H-N	20
MR3-8PS	3	8	T10	Pan	Steel	Nickel plated	PF • PFE • PFF (M3 size)	20
MR3-14S★	3	14	T10	Countersunk	Steel	Nickel plated	TW5-3-10	20
MR3-14B★	3	14	T10	Countersunk	Steel	Black trivalent chromate	TW • TWN5-3-9 / 7-3-13 / 7-5-13 / 9-4-17 / 9-6-17 TWF7-3-13 / 7-5-13 / 9-4-17 / 9-6-17	20
MR-2S	3	10	T10	Countersunk	Steel	Nickel plated	HEN	20

## Accessories (Optional parts)

## CR2•CR123A-PC SERIES

## LITHIUM BATTERY HOLDER



Technical Data			
Operating temperature: -10°C ~ +60°C			

## Components

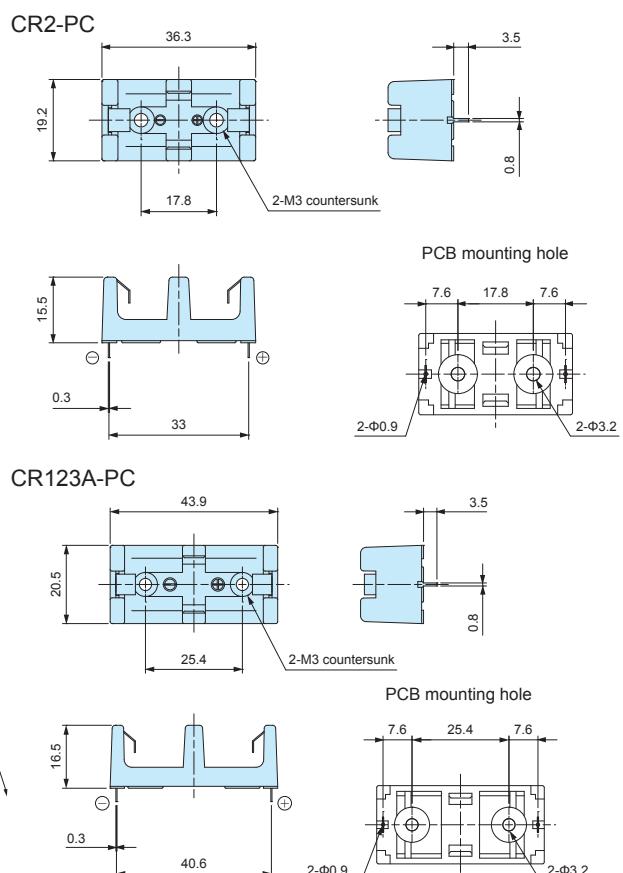
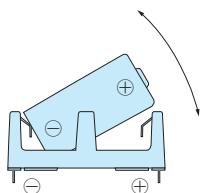
Holder material	Holder color	Contact material	Contact finish
ABS UL94V-0	Black	Phosphor bronze	Nickel plated

## Product no. / Feature

Product no.	Battery	Mounting	Weight (g)
CR2-PC	CR2×1	Through-hole mount pin x 2	4.3
CR123A-PC	CR123A×1	Through-hole mount pin x 2	5.0

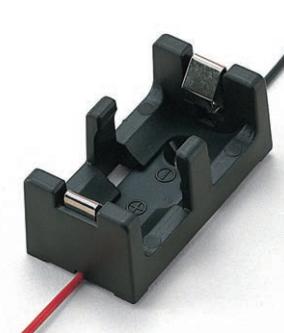
## Caution

- Please remove the battery from the positive (+) side. Removing it from the negative (-) side may damage the battery or the battery contacts.



## CR2•CR123A-R SERIES

## LITHIUM BATTERY HOLDER with LEAD WIRE



Technical Data			
Operating temperature: -10°C ~ +60°C			

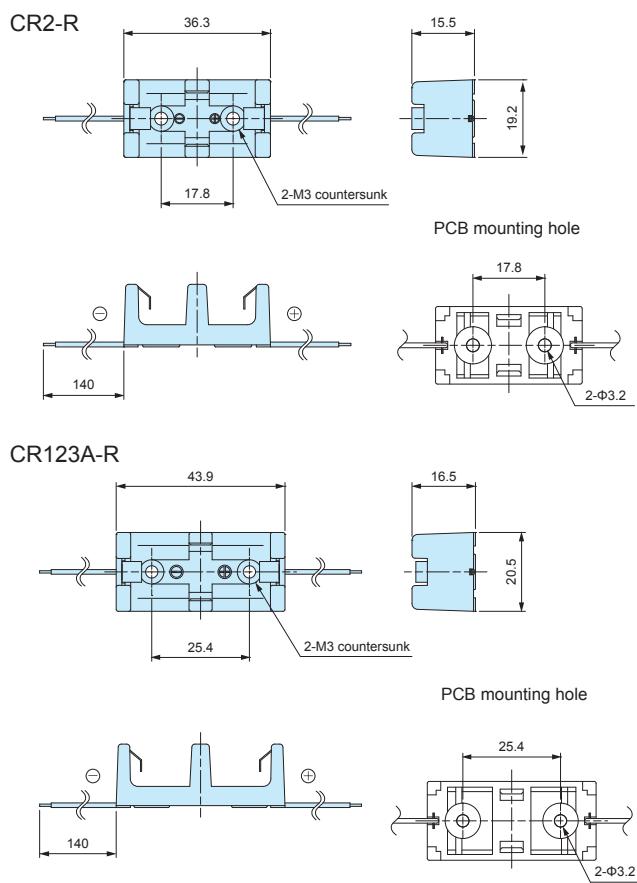
## Components

Holder material	Holder color	Contact material	Contact finish
ABS UL94V-0	Black	Phosphor bronze	Nickel plated

## Product no. / Feature

Product no.	Battery	Lead wire	Weight (g)
CR2-R	CR2×1	UL1007 AWG26 L=140	5.3
CR123A-R	CR123A×1	UL1007 AWG26 L=140	6.0

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



# MX•MXA•MXF•MXB SERIES ALUMINIUM MOBILE ENCLOSURE

MXF•MXB•MZA•MX mobile enclosures are designed with a beautiful and elegant finish in mind. Having a rounded design, it fits comfortably in your hand, while giving off a simple yet sharp look. Suitable for use as small audio devices and as an amplifier unit, among others in a wide variety of industries. Selectable from 4 different types: an affordable plastic end panel type MX series, a luxurious aluminium end panel type MZA series, a flanged end panel MXF series, and the MXB series, which is the MZA series with a protective silicone band.

## APPLICATION EXAMPLE

### DESKTOP AUDIO PREAMPLIFIER with USB

Product by Conisis lab.inc. (Japan)



### DIGITAL HEADPHONE AMPLIFIER

Product by UpTone Audio (USA)



### WIRELESS MICROPHONE SYSTEM

Product by Catchbox (Finland)



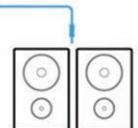
reddot award  
product design



Catchbox  
Microphone



Catchbox  
Receiver



Sound system  
of your choice



**ETHERNET CELLULAR ROUTER**

Product by NimbeLink (USA)

**WiFi ACCESS POINT****AIS (AUTOMATIC IDENTIFICATION SYSTEM) SIGNAL RECEIVER**

Product by SRT Marine System Solutions (UK)

**DATA TRANSMITTER for  
AUTOMATIC NUMBER  
PLATE RECOGNITION  
(ANPR) SYSTEM**

Product by Sensor Dynamics (Australia)

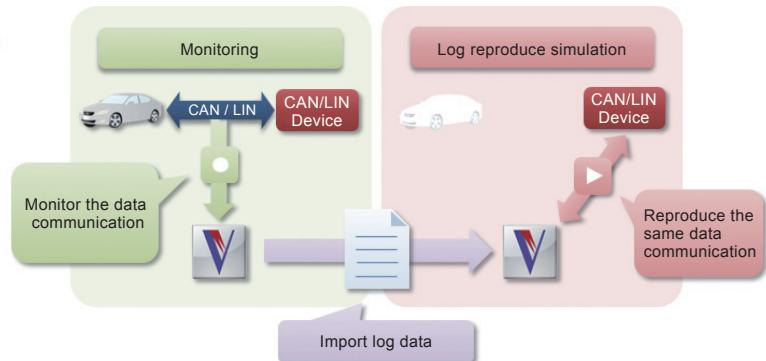
## IO-Link DEVICE

Product by Lemonage Software (Germany)



## CAN & LIN VEHICLE COMMUNICATION SIMULATOR / MONITOR

Product by P&A Technologies (Japan)



## SIGNAL CHECKER / TESTER

Product by KUWATEC (Japan)



## MODEL RAILROAD CONTROLLER

Product by Calura Ltd (Japan)



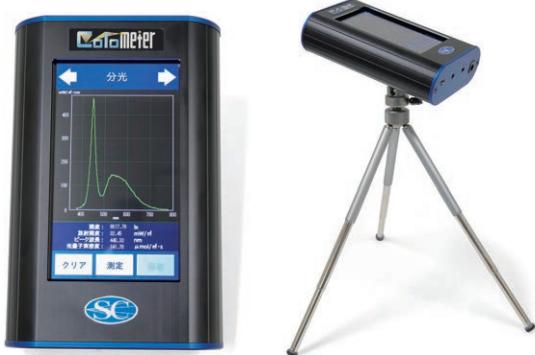
## PORTRABLE FREQUENCY STANDARD DEVICE

Product by FREQTIME (Japan)



## SPECTRAL LUMINOMETER

Product by Spectra Co-op (Japan)



## MOBILE MOISTURE METER

Product by ARP (Japan)



## ACTIVE EMF PROTECTION DEVICE

Product by Blueshield Inc (New Zealand)



## RTD SENSOR TESTER

Product by Turbomation (USA)



## FULL COLOR LED TABLETOP LIGHTING DEVICE

Product by DAISHO DENKI INC. (Japan)



## ILLUMINATION INVERTER

Product by Future Illuminations (USA)



## MXF SERIES

## FLANGED NETWORK ALUMINIUM ENCLOSURE

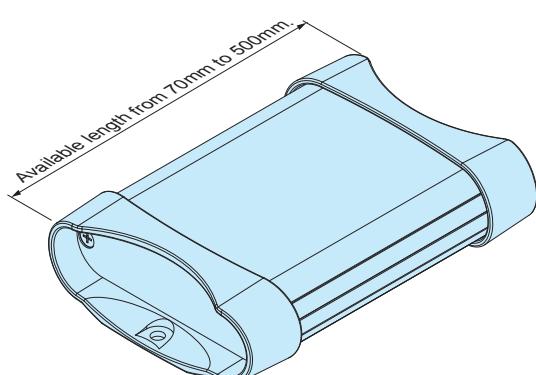


- Flanged network enclosure with easy to hold rounded design.
- 8 different color combinations and 12 different sizes available to choose from.
- Suitable to be used as transmitters, measurement tools, controllers, etc.
- Grooves are built into the internal enclosure, allowing for easy sliding/insertion of pcb boards.

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Frame	2	Extruded aluminium A6063S-T5	Silver • Black / Anodized
2	Flanged panel	2	ABS UL94HB	Black • Gray / Unpainted Navy • Lime / Painted
3	Self tapping screw	4	Steel	Nickel plated • Black trivalent chromate

Custom length available in 1mm intervals.



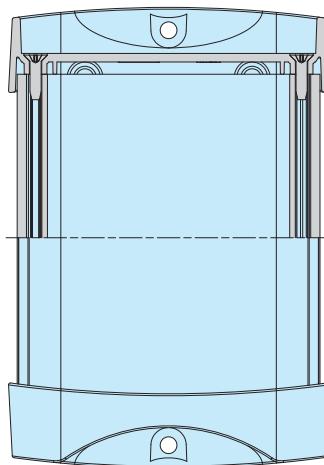
**Color Type** Please choose from the color combinations listed below

※ Black and Gray panels are ABS color. Navy and Lime panels are Painted.



### MXF dimensions

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



Included screws

MXF2-6 models : M2.6-14 x 4 pcs

MXF2-8, 3-11 models : M3-12 x 4 pcs

MXF4-13 models : M3-14 x 4 pcs

#### Screw Type

P	H

Plus head                      Hexalobular head

Please request / order by indicating  
the combination part number as below.

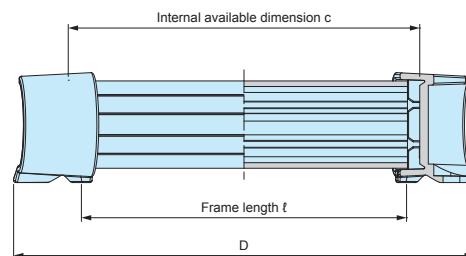
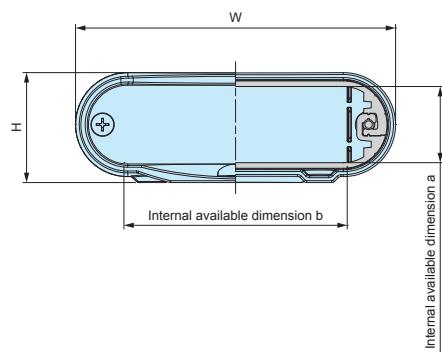
**MXF 2 - 6 - 7**



Color  
code



Screw  
P or H



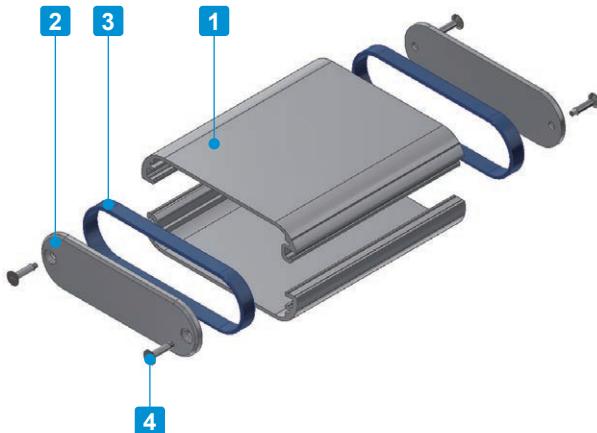
### Product no. / Dimensions

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

Product no.	H	W	D	a	b	c	ℓ	Weight (g)
NEW MXF2- 6- 7□□□	23.4	60.9	65	15.1	41.1	45	40	44
NEW MXF2- 6- 9□□□	23.4	60.9	90	15.1	41.1	70	65	59
NEW MXF2- 6-12□□□	23.4	60.9	115	15.1	41.1	95	90	75
NEW MXF2- 8- 9□□□	29.6	86.1	94	20.5	60.1	64.6	58	90
NEW MXF2- 8-12□□□	29.6	86.1	124	20.5	60.1	94.6	88	121
NEW MXF2- 8-15□□□	29.6	86.1	154	20.5	60.1	124.6	118	153
NEW MXF3-11-10□□□	35.6	114.2	104	26.5	87.3	74.6	66	130
NEW MXF3-11-14□□□	35.6	114.2	144	26.5	87.3	114.6	106	184
NEW MXF3-11-19□□□	35.6	114.2	194	26.5	87.3	164.6	156	251
NEW MXF4-13-12□□□	40.6	134.2	124	31	104.1	94.4	84	197
NEW MXF4-13-17□□□	40.6	134.2	174	31	104.1	144.4	134	284
NEW MXF4-13-23□□□	40.6	134.2	234	31	104.1	204.4	194	388

## MXB SERIES

## ALUMINIUM MOBILE ENCLOSURE with SILICONE BAND



- All aluminium mobile enclosure with anti-slip, impact resistant silicone band.
- 16 different color combinations and 30 different sizes available to choose from.
- Suitable to be used as digital audio amplifiers, communication devices, measurement tools, etc.

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Frame	2	Extruded aluminium A6063S-T5	Silver • Black / Anodized
2	Panel	2	Aluminium A1050P	Silver • Black / Anodized
3	Silicone band	2	Silicone	Black • Light gray • Navy • Cyan • Green • Yellow • Orange • Red
4	Self tapping screw	4	Steel	Nickel plated • Black trivalent chromate

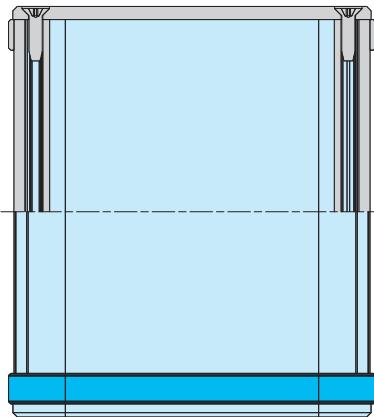
## Color Type

[B B] Black / Black	[B L] Black / Light gray	[B N] Black / Navy	[B C] Black / Cyan	[B G] Black / Green	[B Y] Black / Yellow	[B O] Black / Orange	[B R] Black / Red
[B B]	[B L]	[B N]	[B C]	[B G]	[B Y]	[B O]	[B R]
[S B] Silver / Black	[S L] Silver / Light gray	[S N] Silver / Navy	[S C] Silver / Cyan	[S G] Silver / Green	[S Y] Silver / Yellow	[S O] Silver / Orange	[S R] Silver / Red
[S B]	[S L]	[S N]	[S C]	[S G]	[S Y]	[S O]	[S R]

■ Mix and match the MXA series with the SIB series silicone band for a wider variety of color combinations.

## MXB dimensions

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



### Included screws

MXB1-5, 2-4, 2-6, 2-10 models : M2.6-14 x 4 pcs  
MXB2-7, 2-8, 3-11, 4-7, 4-10, 4-13 models : M3-10 x 4 pcs

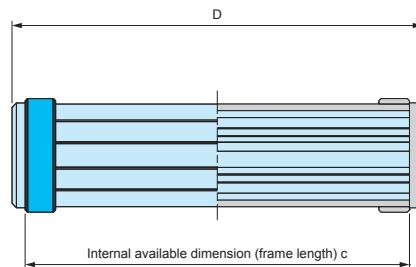
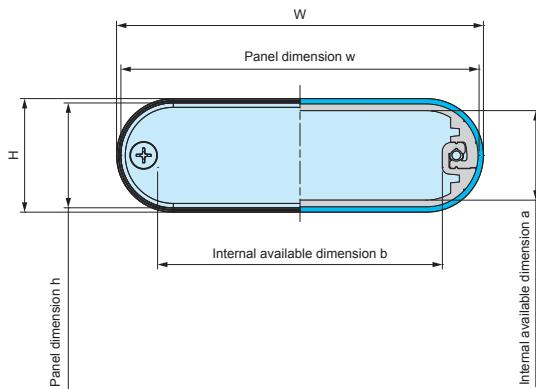
### Screw Type

P	H

Plus head                      Hexalobular head

Please request / order by indicating  
the combination part number as below.

**MXB 1 - 5 - 5**     
Color code  
Screw P or H



### Product no. / Dimensions

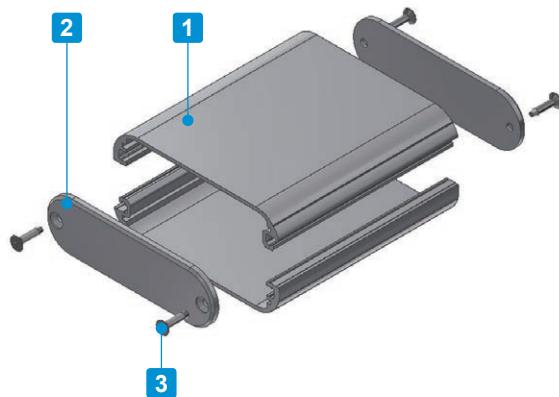
■ Please suffix color and screw code at the end of the product number.

Product no.	H	W	D	h	w	a	b	c	Weight (g)
<b>NEW</b> MXB1- 5- 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	15.8	50.4	49	13	48	10.2	33.6	43	26
<b>NEW</b> MXB1- 5- 8 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	15.8	50.4	79	13	48	10.2	33.6	73	41
<b>NEW</b> MXB1- 5-11 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	15.8	50.4	109	13	48	10.2	33.6	103	56
<b>NEW</b> MXB2- 4- 4 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	18	43.6	44	15	41	12.2	26.6	38	26
<b>NEW</b> MXB2- 4- 7 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	18	43.6	74	15	41	12.2	26.6	68	41
<b>NEW</b> MXB2- 4-10 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	18	43.6	104	15	41	12.2	26.6	98	51
<b>NEW</b> MXB2- 6- 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	20.3	59.6	46	18	57	15.1	42.5	40	36
<b>NEW</b> MXB2- 6- 7 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	20.3	59.6	71	18	57	15.1	42.5	65	51
<b>NEW</b> MXB2- 6-10 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	20.3	59.6	96	18	57	15.1	42.5	90	66
<b>NEW</b> MXB2- 7- 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	23.5	72.5	54	20	70	16.5	53.2	48	57
<b>NEW</b> MXB2- 7- 8 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	23.5	72.5	84	20	70	16.5	53.2	78	82
<b>NEW</b> MXB2- 7-11 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	23.5	72.5	114	20	70	16.5	53.2	108	112
<b>NEW</b> MXB2- 8- 6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	26.5	84.8	64	24	82	20.5	65.2	58	77
<b>NEW</b> MXB2- 8- 9 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	26.5	84.8	94	24	82	20.5	65.2	88	107
<b>NEW</b> MXB2- 8-12 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	26.5	84.8	124	24	82	20.5	65.2	118	137
<b>NEW</b> MXB2-10- 7 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	20.3	103.6	74	16	100	13.2	85.6	68	75
<b>NEW</b> MXB2-10-10 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	20.3	103.6	104	16	100	13.2	85.6	98	105
<b>NEW</b> MXB2-10-14 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	20.3	103.6	144	16	100	13.2	85.6	138	140
<b>NEW</b> MXB3-11- 7 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	33.5	113.9	72	30	110	26.5	93.2	66	120
<b>NEW</b> MXB3-11-11 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	33.5	113.9	112	30	110	26.5	93.2	106	170
<b>NEW</b> MXB3-11-16 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	33.5	113.9	162	30	110	26.5	93.2	156	240
<b>NEW</b> MXB4- 7- 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	38.2	72	52	35	70	31.4	53.2	46	72
<b>NEW</b> MXB4- 7- 8 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	38.2	72	82	35	70	31.4	53.2	76	102
<b>NEW</b> MXB4- 7-11 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	38.2	72	112	35	70	31.4	53.2	106	137
<b>NEW</b> MXB4-10- 7 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	44.7	97.9	70	40	95	36.4	78.2	64	125
<b>NEW</b> MXB4-10-11 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	44.7	97.9	110	40	95	36.4	78.2	104	180
<b>NEW</b> MXB4-10-14 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	44.7	97.9	140	40	95	36.4	78.2	134	225
<b>NEW</b> MXB4-13- 9 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	38.5	134	90	35	130	31	113.2	84	187
<b>NEW</b> MXB4-13-14 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	38.5	134	140	35	130	31	113.2	134	272
<b>NEW</b> MXB4-13-20 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	38.5	134	200	35	130	31	113.2	194	377

■ H and W may experience slight variance from listed dimensions due to silicone band construct.

## MXA SERIES

## ALUMINIUM MOBILE ENCLOSURE



- All aluminium mobile enclosure with easy to hold rounded design.
- 14 different color combinations and 30 different sizes available to choose from.
- Suitable to be used as digital audio amplifiers, communication devices, measurement tools, etc.
- Grooves are built into the internal enclosure, allowing for easy sliding/insertion of pcb boards.
- MXA1-5 models do not have internal grooves.

## Included screws

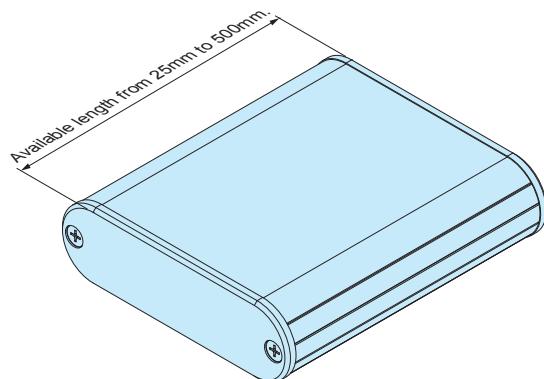
MXA1-5, 2-4, 2-6, 2-10 models : M2.6-14 x 4pcs

MXA2-7, 2-8, 3-11, 4-7, 4-10, 4-13 models : M3-10 x 4 pcs

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Frame	2	Extruded aluminium A6063S-T5	Silver • Black / Anodized
2	Panel	2	Aluminium A1050P	Black • Silver • Cobalt • Green • Purple • Orange • Red / Anodized
3	Self tapping screw	4	Steel	Nickel plated • Black trivalent chromate

Custom length available in 1mm intervals.



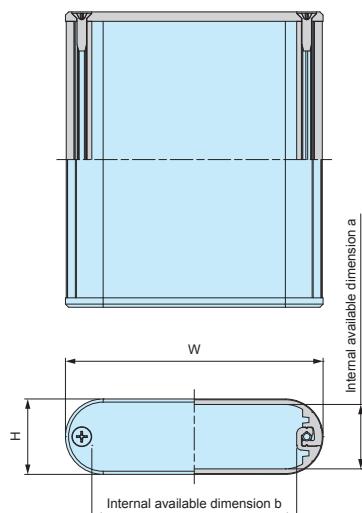
**Color Type** Please choose from the color combinations listed below



### MXA dimensions

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

### Accessories (Optional parts)



#### Screw Type

P	H

Plus head      Hexalobular head

Please request / order by indicating  
the combination part number as below.

**MXA 1 - 5 - 5**



Color  
code



Screw  
P or H



Silicone band SIB series  
See page 130

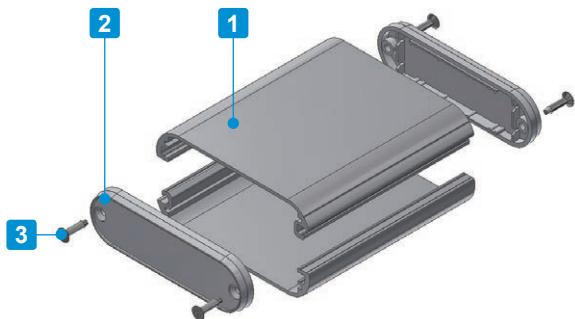
### Product no. / Dimensions

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

Product no.	H	W	D	a	b	c	Weight (g)
MXA1- 5- 5□□□	13	48	49	10.2	33.6	43	25
MXA1- 5- 8□□□	13	48	79	10.2	33.6	73	40
MXA1- 5-11□□□	13	48	109	10.2	33.6	103	55
MXA2- 4- 4□□□	15	41	44	12.2	26.6	38	25
MXA2- 4- 7□□□	15	41	74	12.2	26.6	68	40
MXA2- 4-10□□□	15	41	104	12.2	26.6	98	50
MXA2- 6- 5□□□	18	57	46	15.1	42.5	40	35
MXA2- 6- 7□□□	18	57	71	15.1	42.5	65	50
MXA2- 6-10□□□	18	57	96	15.1	42.5	90	65
MXA2- 7- 5□□□	20	70	54	16.5	53.2	48	55
MXA2- 7- 8□□□	20	70	84	16.5	53.2	78	80
MXA2- 7-11□□□	20	70	114	16.5	53.2	108	110
MXA2- 8- 6□□□	24	82	64	20.5	65.2	58	75
MXA2- 8- 9□□□	24	82	94	20.5	65.2	88	105
MXA2- 8-12□□□	24	82	124	20.5	65.2	118	135
MXA2-10- 7□□□	16	100	74	13.2	85.6	68	70
MXA2-10-10□□□	16	100	104	13.2	85.6	98	100
MXA2-10-14□□□	16	100	144	13.2	85.6	138	135
MXA3-11- 7□□□	30	110	72	26.5	93.2	66	115
MXA3-11-11□□□	30	110	112	26.5	93.2	106	165
MXA3-11-16□□□	30	110	162	26.5	93.2	156	235
MXA4- 7- 5□□□	35	70	52	31.4	53.2	46	70
MXA4- 7- 8□□□	35	70	82	31.4	53.2	76	100
MXA4- 7-11□□□	35	70	112	31.4	53.2	106	135
MXA4-10- 7□□□	40	95	70	36.4	78.2	64	120
MXA4-10-11□□□	40	95	110	36.4	78.2	104	175
MXA4-10-14□□□	40	95	140	36.4	78.2	134	220
MXA4-13- 9□□□	35	130	90	31	113.2	84	180
MXA4-13-14□□□	35	130	140	31	113.2	134	265
MXA4-13-20□□□	35	130	200	31	113.2	194	370

## MX SERIES

## MOBILE ENCLOSURE



- Mobile enclosure with easy to hold rounded design.
- 12 different color combinations and 30 different sizes available to choose from.
- Frame is made from extruded aluminium material, while the panel is ABS plastic.
- Grooves are built into the internal enclosure, allowing for easy sliding/insertion of PCB boards.
- MX1-5 models do not have internal grooves.

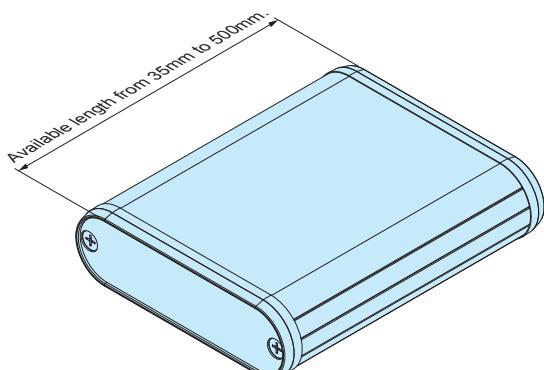
## Included screws

MX1-5, 2-4, 2-6, 2-10 models : M2.6-14 x 4 pcs  
 MX2-7, 2-8, 3-11 models : M3-12 x 4 pcs  
 MX4-7, 4-10, 4-13 models : M3-14 x 4 pcs

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Frame	2	Extruded aluminium A6063S-T5	Silver • Black / Anodized
2	Panel	2	ABS UL94HB	Gray • Black / Unpainted Navy • Lime • Orange • Red / Painted
3	Self tapping screw	4	Steel	Nickel plated • Black trivalent chromate

Custom length available in 1mm intervals.



**Color Type** Please choose from the color combinations listed below

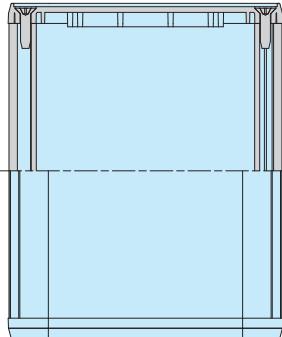
※Black • Gray panels / Unpainted Other panels / Painted



## MX dimensions

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

## Accessories (Optional parts)



Screw Type

P	H
	 Hexalobular head



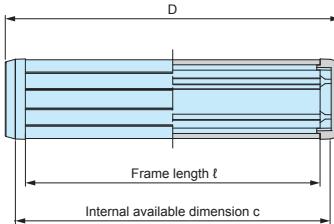
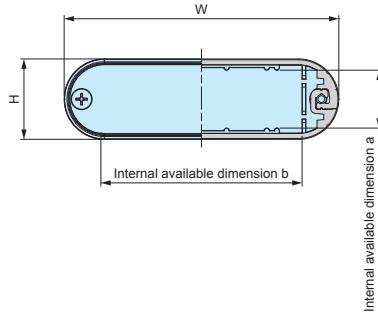
Silicone band SIB series  
See page 130

Please request / order by indicating  
the combination part number as below.

**MX 1 - 5 - 6**



Screw  
P or H



## Product no. / Dimensions

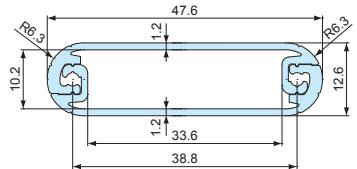
■ Please suffix color and screw code at the end of the product number.

Product no.	H	W	D	a	b	c	ℓ	Weight (g)
MX1- 5- 6□□□	13	48	55	6.9	33.6	49.6	43	25
MX1- 5- 9□□□	13	48	85	6.9	33.6	79.6	73	40
MX1- 5-12□□□	13	48	115	6.9	33.6	109.6	103	55
MX2- 4- 5□□□	15	41	50	8.9	26.6	44.6	38	20
MX2- 4- 8□□□	15	41	80	8.9	26.6	74.6	68	35
MX2- 4-11□□□	15	41	110	8.9	26.6	104.6	98	50
MX2- 6- 5□□□	18	57	50	12.3	42.5	45	40	35
MX2- 6- 8□□□	18	57	75	12.3	42.5	70	65	50
MX2- 6-10□□□	18	57	100	12.3	42.5	95	90	70
MX2- 7- 6□□□	20	70	60	13.2	53.2	54.6	48	50
MX2- 7- 9□□□	20	70	90	13.2	53.2	84.6	78	80
MX2- 7-12□□□	20	70	120	13.2	53.2	114.6	108	105
MX2- 8- 7□□□	24	82	70	17.2	65.2	64.6	58	75
MX2- 8-10□□□	24	82	100	17.2	65.2	94.6	88	105
MX2- 8-13□□□	24	82	130	17.2	65.2	124.6	118	140
MX2-10- 8□□□	16	100	80	9.9	85.6	74.6	68	70
MX2-10-11□□□	16	100	110	9.9	85.6	104.6	98	95
MX2-10-15□□□	16	100	150	9.9	85.6	144.6	138	130
MX3-11- 8□□□	30	110	80	23.3	93.2	74.6	66	110
MX3-11-12□□□	30	110	120	23.3	93.2	114.6	106	165
MX3-11-17□□□	30	110	170	23.3	93.2	164.6	156	235
MX4- 7- 6□□□	35	70	60	28.2	53.2	53	46	65
MX4- 7- 9□□□	35	70	90	28.2	53.2	83	76	100
MX4- 7-12□□□	35	70	120	28.2	53.2	113	106	130
MX4-10- 8□□□	40	95	80	33.1	78.2	73	64	115
MX4-10-12□□□	40	95	120	33.1	78.2	113	104	175
MX4-10-15□□□	40	95	150	33.1	78.2	143	134	215
MX4-13-10□□□	35	130	100	27.7	113.2	94.4	84	175
MX4-13-15□□□	35	130	150	27.7	113.2	144.4	134	265
MX4-13-21□□□	35	130	210	27.7	113.2	204.4	194	375

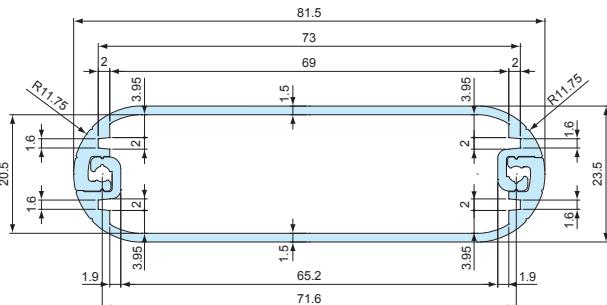
**MXF • MXB • MXA • MX frame**

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

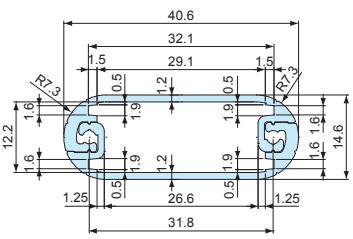
MXF/MXB/MXA/MX1-5-□



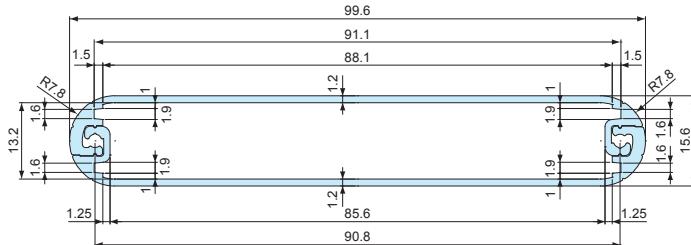
MXF/MXB/MXA/MX2-8-□



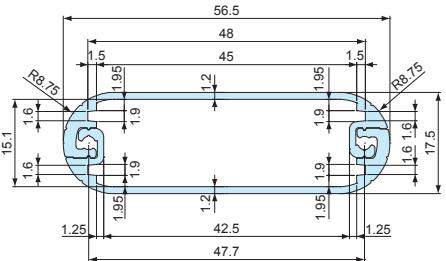
MXF/MXB/MXA/MX2-4-□



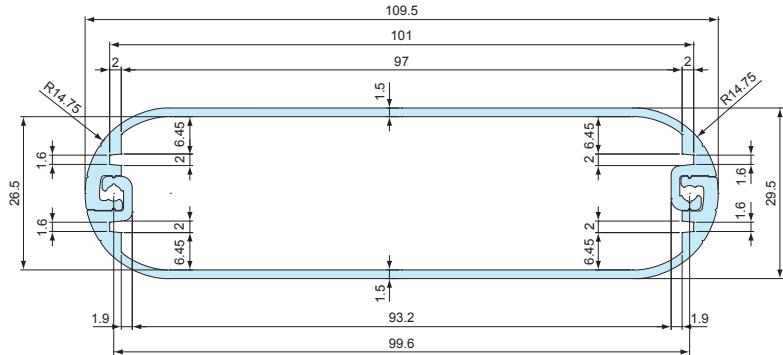
MXF/MXB/MXA/MX2-10-□



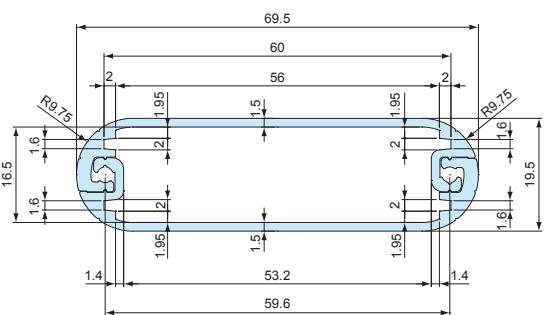
MXF/MXB/MXA/MX2-6-□



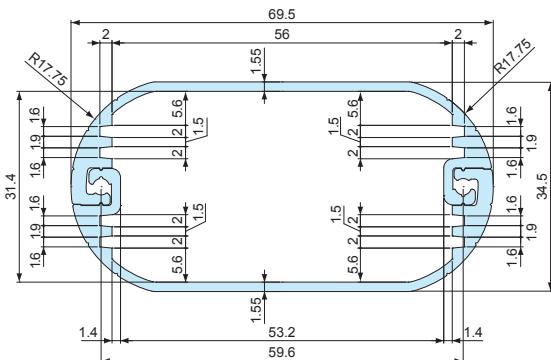
MXF/MXB/MXA/MX3-11-□



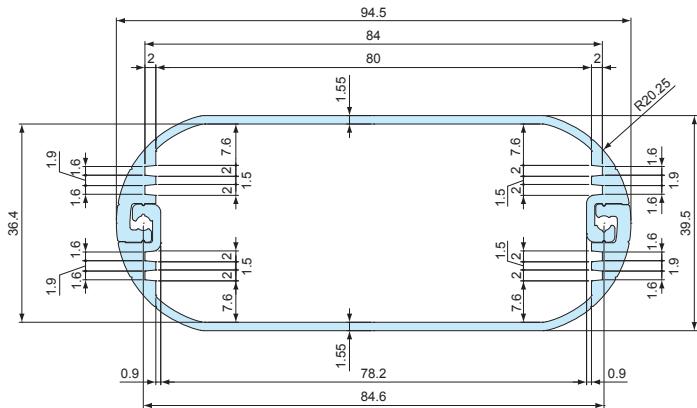
MXF/MXB/MXA/MX2-7-□



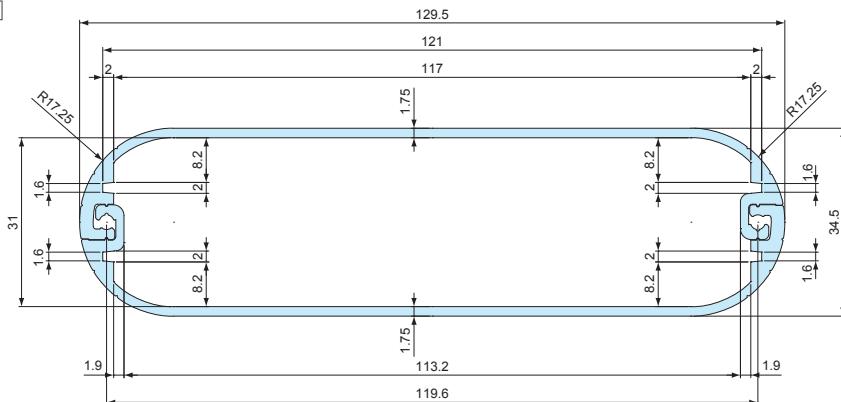
MXF/MXB/MXA/MX4-7-□



MXF/MXB/MXA/MX4-10-□



MXF/MXB/MXA/MX4-13-□



## Accessories (Optional parts)

## SIB SERIES

## SILICONE BAND

★★ NEW

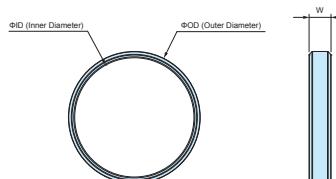


Application example



- Silicone band designed to fit MXA & MX series.
- Silicone band provides both shock resistance and non-slip grips for the MXA & MX enclosure.
- Elastic silicone band may also fit other similarly sized enclosures.

## SIB dimensions



## Color Type

Code	<input type="checkbox"/> Red	<input type="checkbox"/> Orange	<input type="checkbox"/> Yellow	<input type="checkbox"/> Green	<input type="checkbox"/> Cyan	<input type="checkbox"/> Navy	<input type="checkbox"/> Light gray	<input type="checkbox"/> Black
Color								

## Components

Part name	Pcs	Material	Color
Silicone band	Pair (2 pcs)	Silicone	Red • Orange • Yellow • Green • Cyan • Navy • Light gray • Black

## Product no. / Dimensions

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

Product no.	W	ID	OD	Suitable enclosures	Enclosure circumference (mm)	Weight (g)
<b>NEW</b> SIB-21□	6	21	25	MXA/MX1-5-□ • 2-4-□ • 2-6-□	95~135	2
<b>NEW</b> SIB-38□	7	38	42	MXA/MX2-7-□ • 2-8-□ • 4-7-□	160~190	4
<b>NEW</b> SIB-58□	8	58	63	MXA/MX2-10-□ • 3-11-□ • 4-10-□	215~255	10
<b>NEW</b> SIB-72□	10	72	77	MXA/MX4-13-□	280~320	14

# MULTI-FUNCTION EXTRUDED ALUMINIUM CASE EXP•EXPF•EXPE•EXEF•EXW•EXWF series

The following series, by utilizing similar extrusion frames, are available in 6 different types, such as having IP65, or EMC shielded functions, among others.

67 different sizes are available for each version.

## CORNER GUARD

EXP series Page 135 ~ 136



## IP65 CORNER GUARD

EXW series Page 139 ~ 140



## EMC CORNER GUARD

EXPE series Page 137 ~ 138



## FLANGED

EXPF series Page 141 ~ 142



## IP65 FLANGED

EXWF series Page 145 ~ 146



## EMC FLANGED

EXEF series Page 143 ~ 144



**Custom length available in 1mm intervals.**



# 16 COLOR COMBINATIONS

EXP series is available in 2 different body frame and 8 different exterior frame colors for a total of 16 different color types.



## APPLICATION EXAMPLE

### MEASURING INSTRUMENT



Accessories (Optional parts)  
Tilt leg TLW series  
See page 154

### NETWORK / COMMUNICATION BOX

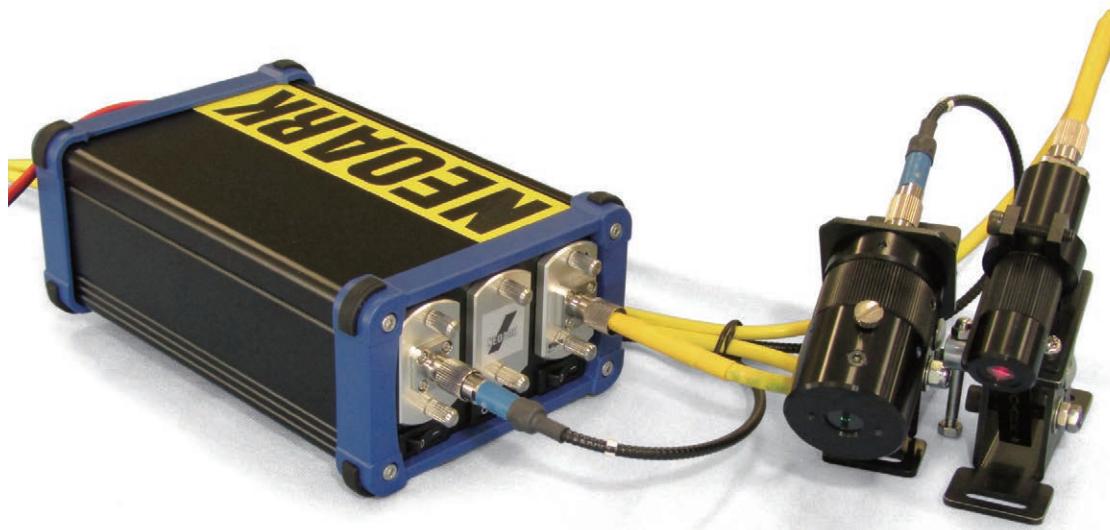


### CONTROLLER



## FIBER LASER PROJECTOR

Product by NEOARK (Japan)



## IMPULSE GENERATOR

Product by Digital Signal Technology (Japan)



## PERISTALTIC DC PUMP

Product by Technic (USA)



## PHOTO-FLASH SEQUENCER

Product by ScanBox (France)



※Photo is IP65 waterproof EXW mode.  
See page 139 ~ 140 for EXW series.

**DESKTOP LOAD CELL AMPLIFIER**

Product by IMADA (Japan)

**WIDE RANGE SPEED MEASUREMENT SYSTEM**

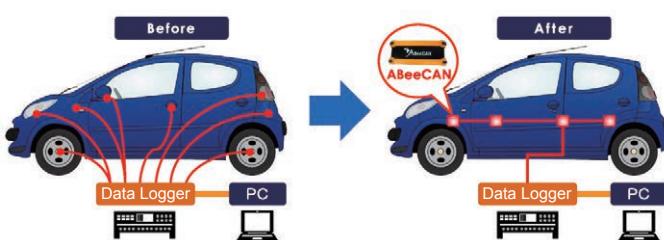
Product by ACT Electronics (Japan)

**A Bee CAN - ANALOG CAN CONVERTER**

Product by PERITEC (Japan)



※Above photo is custom length EXP series.



### **APPLICATION EXAMPLE**

#### **Testing system for vehicle air conditioning.**

Converter for analog signal data (temperature, voltage and humidity) can be convert to CAN data and transmitted to CAN bus. Wiring quantity and cost can be saved by converting to CAN format for easy data collection through CAN data logger.

## EXP SERIES

## ALUMINIUM PANEL CASE with CORNER GUARD



- Corner guards are designed to be both aesthetically pleasing, and impact resistant.
- Available in 67 different sizes and 16 different color combinations.
- Custom length is available.

## Components

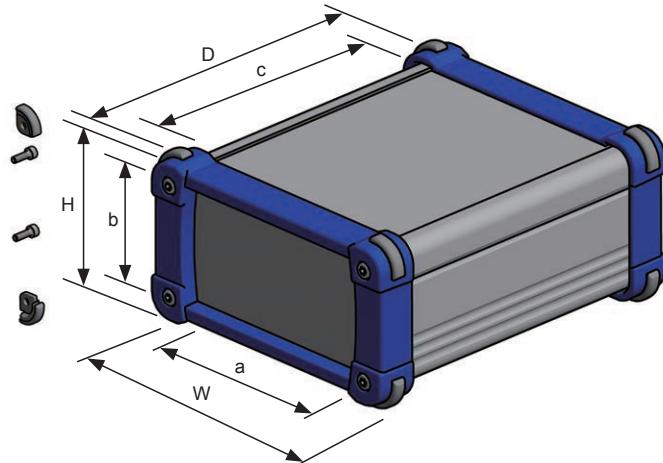
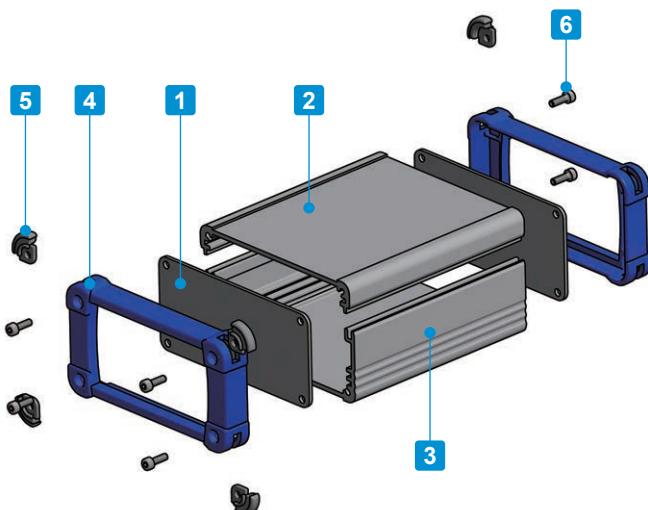
No.	Part name	Pcs	Material	Color / Finish
1	Panel	2	Aluminium A1100P	Silver • Black / Anodized
2	Top cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Bottom cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
4	Exterior frame	2	PC+ABS UL94V-0	Black • Gray / Unpainted Indigo • Navy • Yellow • Orange • Red / Painted
5	Corner guard	8	Silicone	Black • Dark gray
6	Screw	8	Stainless steel	Unfinished

■ See page 149 ~ 152 for Top / Bottom cover dimensions.

## Color Type

Code	S   B Silver / Black	S   G Silver / Gray	S   I Silver / Indigo	S   N Silver / Navy
Color				
Code	S   L Silver / Lime	S   Y Silver / Yellow	S   O Silver / Orange	S   R Silver / Red
Color				
Code	B   B Black / Black	B   G Black / Gray	B   I Black / Indigo	B   N Black / Navy
Color				
Code	B   L Black / Lime	B   Y Black / Yellow	B   O Black / Orange	B   R Black / Red
Color				

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



Included screws  
 EXP 7-□, 9-□ models : M2.5-8 x 8 pcs  
 EXP12-□, 15-□ models : M3-10 x 8 pcs  
 EXP20-□ models : M4-12 x 8 pcs  
 EXP24-□ models : M5-12 x 8 pcs  
 ※Hexagonal wrench included.

#### Product no. / Dimensions

Product no.	Dimensions (External)			Dimensions (Internal)		
	W	H	D	a	b	c
EXP 7- 3- 6□□	69	34	60	47	19.6	46
EXP 7- 3- 9□□	69	34	87	47	19.6	73
EXP 7- 3-11□□	69	34	110	47	19.6	96
EXP 7- 4- 6□□	69	44	60	47	29.6	46
EXP 7- 4- 9□□	69	44	87	47	29.6	73
EXP 7- 4-11□□	69	44	110	47	29.6	96
EXP 7- 6- 6□□	69	59	60	47	44.6	46
EXP 7- 6- 9□□	69	59	87	47	44.6	73
EXP 7- 6-11□□	69	59	110	47	44.6	96
EXP 9- 4- 7□□	89	39	70	67	24.6	56
EXP 9- 4-10□□	89	39	100	67	24.6	86
EXP 9- 4-13□□	89	39	130	67	24.6	116
EXP 9- 5- 7□□	89	49	70	67	34.6	56
EXP 9- 5-10□□	89	49	100	67	34.6	86
EXP 9- 5-13□□	89	49	130	67	34.6	116
EXP 9- 6- 7□□	89	64	70	67	49.6	56
EXP 9- 6-10□□	89	64	100	67	49.6	86
EXP 9- 6-13□□	89	64	130	67	49.6	116
EXP12- 4- 9□□	116	41	90	89	24	74
EXP12- 4-13□□	116	41	130	89	24	114
EXP12- 4-18□□	116	41	176	89	24	160
EXP12- 6- 9□□	116	56	90	89	39	74
EXP12- 6-13□□	116	56	130	89	39	114
EXP12- 6-18□□	116	56	176	89	39	160
EXP12- 7- 9□□	116	71	90	89	54	74
EXP12- 7-13□□	116	71	130	89	54	114
EXP12- 7-18□□	116	71	176	89	54	160
EXP15- 5-11□□	151	46	110	107.4	29	93
EXP15- 5-15□□	151	46	150	107.4	29	133
EXP15- 5-20□□	151	46	200	107.4	29	183
EXP15- 6-11□□	151	61	110	107.4	44	93
EXP15- 6-15□□	151	61	150	107.4	44	133
EXP15- 6-20□□	151	61	200	107.4	44	183
EXP15- 8-11□□	151	81	110	107.4	64	93
EXP15- 8-15□□	151	81	150	107.4	64	133
EXP15- 8-20□□	151	81	200	107.4	64	183
EXP15-10-11□□	151	101	110	107.4	84	93
EXP15-10-15□□	151	101	150	107.4	84	133
EXP15-10-20□□	151	101	200	107.4	84	183

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

Product no.	Dimensions (External)			Dimensions (Internal)		
	W	H	D	a	b	c
NEW EXP20- 6-14□□	199	56	140	132	35	120
NEW EXP20- 6-19□□	199	56	192	132	35	172
NEW EXP20- 6-25□□	199	56	245	132	35	225
NEW EXP20- 6-30□□	199	56	300	132	35	280
NEW EXP20- 7-14□□	199	74	140	132	53	120
NEW EXP20- 7-19□□	199	74	192	132	53	172
NEW EXP20- 7-25□□	199	74	245	132	53	225
NEW EXP20- 7-30□□	199	74	300	132	53	280
NEW EXP20- 9-14□□	199	94	140	132	73	120
NEW EXP20- 9-19□□	199	94	192	132	73	172
NEW EXP20- 9-25□□	199	94	245	132	73	225
NEW EXP20- 9-30□□	199	94	300	132	73	280
NEW EXP20-12-14□□	199	119	140	132	98	120
NEW EXP20-12-19□□	199	119	192	132	98	172
NEW EXP20-12-25□□	199	119	245	132	98	225
NEW EXP20-12-30□□	199	119	300	132	98	280
NEW EXP24- 6-17□□	244	64	170	177	43	147
NEW EXP24- 6-23□□	244	64	230	177	43	207
NEW EXP24- 6-29□□	244	64	290	177	43	267
NEW EXP24- 6-35□□	244	64	350	177	43	327
NEW EXP24- 9-17□□	244	89	170	177	68	147
NEW EXP24- 9-23□□	244	89	230	177	68	207
NEW EXP24- 9-29□□	244	89	290	177	68	267
NEW EXP24- 9-35□□	244	89	350	177	68	327
NEW EXP24-11-17□□	244	114	170	177	93	147
NEW EXP24-11-23□□	244	114	230	177	93	207
NEW EXP24-11-29□□	244	114	290	177	93	267
NEW EXP24-11-35□□	244	114	350	177	93	327

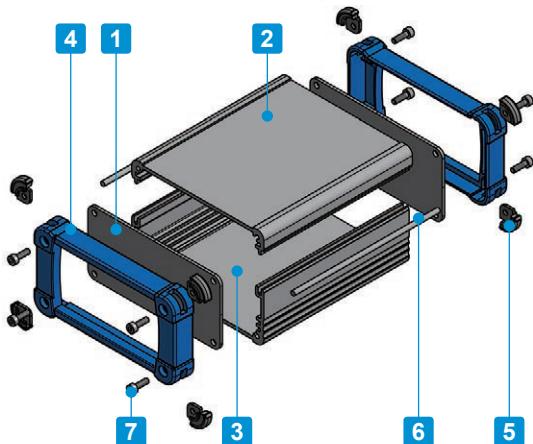
#### Accessories (Optional parts)



Tilt leg TLW series  
See page 154

## EXPE SERIES

## ALUMINIUM EMC SHIELD CASE with CORNER GUARD

  
NEW SIZE
EMC  
Shielding  
Effects

- Corner guards are designed to be both aesthetically pleasing, and impact resistant.
- Available in 67 different sizes and 8 different color combinations.
- EMC shielding is achieved by having the unfinished inner sides of the top/bottom covers and panels, as well as the fabric-over-foam gasket in contact with one another.

## Included screws

EXPE 7-□, 9-□ models : M2.5-8 x 8 pcs

EXPE12-□, 15-□ models : M3-10 x 8 pcs

EXPE20-□ models : M4-12 x 8 pcs

EXPE24-□ models : M5-12 x 8 pcs

※Hexagonal wrench included.

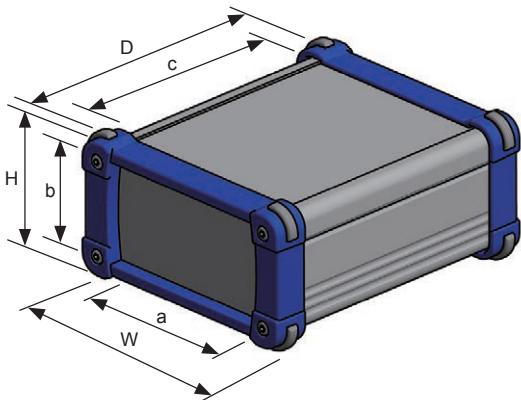
## Components

No.	Part name	Pcs	Material	Color / Finish
1	Panel	2	Aluminium A1100P	Silver / Painted (outside) • Unfinished (inside)
2	Top cover	1	Extruded aluminium A6063S-T5	Silver / Painted (outside) • Unfinished (inside)
3	Bottom cover	1	Extruded aluminium A6063S-T5	Silver / Painted (outside) • Unfinished (inside)
4	Exterior frame	2	PC+ABS UL94V-0	Black • Gray / Unpainted Indigo • Navy • Yellow • Orange • Red / Painted
5	Corner guard	8	Silicone	Black • Dark gray
6	Fabric-over-foam gasket	2	Conductive fabric : TPE	Metallic gray
7	Screw	8	Stainless steel	Unfinished

■ See page 149 ~ 152 for Top / Bottom cover dimensions.

## Color Type

Code	[S B] Silver / Black	[S G] Silver / Gray	[S I] Silver / Indigo	[S N] Silver / Navy
Color				
Code	[S L] Silver / Lime	[S Y] Silver / Yellow	[S O] Silver / Orange	[S R] Silver / Red
Color				



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

#### Product no. / Dimensions

Product no.	Dimensions (External)			Dimensions (Internal)		
	W	H	D	a	b	c
EXPE 7- 3- 6□□	69	34	60	47	19.6	46
EXPE 7- 3- 9□□	69	34	87	47	19.6	73
EXPE 7- 3-11□□	69	34	110	47	19.6	96
EXPE 7- 4- 6□□	69	44	60	47	29.6	46
EXPE 7- 4- 9□□	69	44	87	47	29.6	73
EXPE 7- 4-11□□	69	44	110	47	29.6	96
EXPE 7- 6- 6□□	69	59	60	47	44.6	46
EXPE 7- 6- 9□□	69	59	87	47	44.6	73
EXPE 7- 6-11□□	69	59	110	47	44.6	96
EXPE 9- 4- 7□□	89	39	70	67	24.6	56
EXPE 9- 4-10□□	89	39	100	67	24.6	86
EXPE 9- 4-13□□	89	39	130	67	24.6	116
EXPE 9- 5- 7□□	89	49	70	67	34.6	56
EXPE 9- 5-10□□	89	49	100	67	34.6	86
EXPE 9- 5-13□□	89	49	130	67	34.6	116
EXPE 9- 6- 7□□	89	64	70	67	49.6	56
EXPE 9- 6-10□□	89	64	100	67	49.6	86
EXPE 9- 6-13□□	89	64	130	67	49.6	116
EXPE12- 4- 9□□	116	41	90	89	24	74
EXPE12- 4-13□□	116	41	130	89	24	114
EXPE12- 4-18□□	116	41	176	89	24	160
EXPE12- 6- 9□□	116	56	90	89	39	74
EXPE12- 6-13□□	116	56	130	89	39	114
EXPE12- 6-18□□	116	56	176	89	39	160
EXPE12- 7- 9□□	116	71	90	89	54	74
EXPE12- 7-13□□	116	71	130	89	54	114
EXPE12- 7-18□□	116	71	176	89	54	160
EXPE15- 5-11□□	151	46	110	107.4	29	93
EXPE15- 5-15□□	151	46	150	107.4	29	133
EXPE15- 5-20□□	151	46	200	107.4	29	183
EXPE15- 6-11□□	151	61	110	107.4	44	93
EXPE15- 6-15□□	151	61	150	107.4	44	133
EXPE15- 6-20□□	151	61	200	107.4	44	183
EXPE15- 8-11□□	151	81	110	107.4	64	93
EXPE15- 8-15□□	151	81	150	107.4	64	133
EXPE15- 8-20□□	151	81	200	107.4	64	183
EXPE15-10-11□□	151	101	110	107.4	84	93
EXPE15-10-15□□	151	101	150	107.4	84	133
EXPE15-10-20□□	151	101	200	107.4	84	183



Following models are suitable for placement of a Mini-ITX board.

EXPE20-7-19□□  
EXPE20-9-19□□  
EXPE20-12-19□□

Product no.	Dimensions (External)			Dimensions (Internal)		
	W	H	D	a	b	c
NEW EXPE20- 6-14□□	199	56	140	132	35	120
NEW EXPE20- 6-19□□	199	56	192	132	35	172
NEW EXPE20- 6-25□□	199	56	245	132	35	225
NEW EXPE20- 6-30□□	199	56	300	132	35	280
NEW EXPE20- 7-14□□	199	74	140	132	53	120
NEW EXPE20- 7-19□□	199	74	192	132	53	172
NEW EXPE20- 7-25□□	199	74	245	132	53	225
NEW EXPE20- 7-30□□	199	74	300	132	53	280
NEW EXPE20- 9-14□□	199	94	140	132	73	120
NEW EXPE20- 9-19□□	199	94	192	132	73	172
NEW EXPE20- 9-25□□	199	94	245	132	73	225
NEW EXPE20- 9-30□□	199	94	300	132	73	280
NEW EXPE20-12-14□□	199	119	140	132	98	120
NEW EXPE20-12-19□□	199	119	192	132	98	172
NEW EXPE20-12-25□□	199	119	245	132	98	225
NEW EXPE20-12-30□□	199	119	300	132	98	280
NEW EXPE24- 6-17□□	244	64	170	177	43	147
NEW EXPE24- 6-23□□	244	64	230	177	43	207
NEW EXPE24- 6-29□□	244	64	290	177	43	267
NEW EXPE24- 6-35□□	244	64	350	177	43	327
NEW EXPE24- 9-17□□	244	89	170	177	68	147
NEW EXPE24- 9-23□□	244	89	230	177	68	207
NEW EXPE24- 9-29□□	244	89	290	177	68	267
NEW EXPE24- 9-35□□	244	89	350	177	68	327
NEW EXPE24-11-17□□	244	114	170	177	93	147
NEW EXPE24-11-23□□	244	114	230	177	93	207
NEW EXPE24-11-29□□	244	114	290	177	93	267
NEW EXPE24-11-35□□	244	114	350	177	93	327

#### How to install a shield gasket



■ Insert fabric-over-foam gasket into the joint-grooves on the bottom cover.



■ Ensure that a small portion of the fabric-over-foam gasket protrudes out in order to maintain a connection with the end panel.

## EXW SERIES

## IP65 ALUMINIUM CASE with CORNER GUARD

IP65



- IP65 is made possible by the sealing of between top & bottom covers and end panels with gaskets.
- Available in 39 different sizes and 6 different color combinations by 2 body frame and 3 end panel colors.
- Custom length is available.

## Technical Data

Protection class : IP65

## Components

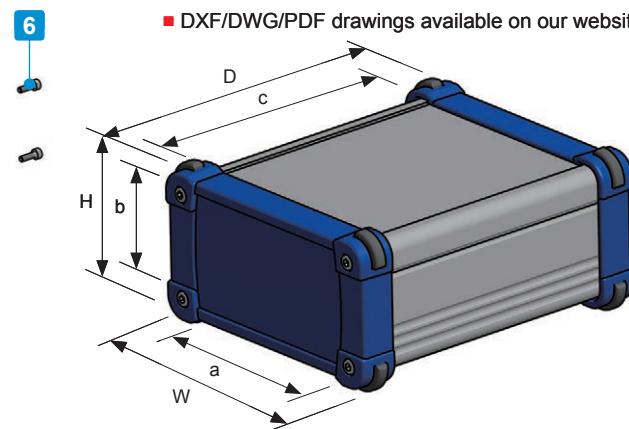
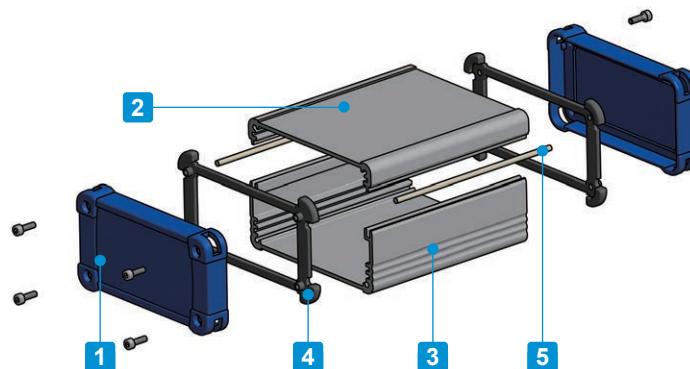
No.	Part name	Pcs	Material	Color / Finish
1	End panel	2	PC+ABS UL94V-0	Black • Gray / Unpainted Navy / Painted
2	Top cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Bottom cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
4	Panel gasket	2	Silicone	Black • Dark gray
5	Cover gasket	2	Silicone	White gray
6	Screw	8	Stainless Steel	Unfinished

Included screw  
 EXW7-□, 9-□ models : M2.5-8 x 8 pcs  
 EXW12-□, 15-□ models : M3-10 x 8 pcs  
 ※Hexagonal wrench included.

## Color Type

Code	S B Silver / Black	S G Silver / Gray	S N Silver / Navy
Color			
Code	B B Black / Black	B G Black / Gray	B N Black / Navy
Color			

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



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

#### Product no. / Dimensions

Product no.	External dimensions			Internal dimensions		
	W	H	D	a	b	c
EXW 7- 3- 6□□	69	34	58	47	20	46
EXW 7- 3- 9□□	69	34	85	47	20	73
EXW 7- 3-11□□	69	34	108	47	20	96
EXW 7- 4- 6□□	69	44	58	47	30	46
EXW 7- 4- 9□□	69	44	85	47	30	73
EXW 7- 4-11□□	69	44	108	47	30	96
EXW 7- 6- 6□□	69	59	58	47	45	46
EXW 7- 6- 9□□	69	59	85	47	45	73
EXW 7- 6-11□□	69	59	108	47	45	96
EXW 9- 4- 7□□	89	39	69	67	25	56
EXW 9- 4-10□□	89	39	99	67	25	86
EXW 9- 4-13□□	89	39	129	67	25	116
EXW 9- 5- 7□□	89	49	69	67	35	56
EXW 9- 5-10□□	89	49	99	67	35	86
EXW 9- 5-13□□	89	49	129	67	35	116
EXW 9- 6- 7□□	89	64	69	67	50	56
EXW 9- 6-10□□	89	64	99	67	50	86
EXW 9- 6-13□□	89	64	129	67	50	116
EXW12- 4- 9□□	116	41	88	89	24	74
EXW12- 4-13□□	116	41	128	89	24	114
EXW12- 4-18□□	116	41	174	89	24	160
EXW12- 6- 9□□	116	56	88	89	39	74
EXW12- 6-13□□	116	56	128	89	39	114
EXW12- 6-18□□	116	56	174	89	39	160
EXW12- 7- 9□□	116	71	88	89	54	74
EXW12- 7-13□□	116	71	128	89	54	114
EXW12- 7-18□□	116	71	174	89	54	160
EXW15- 5-11□□	151	46	107	107	29	93
EXW15- 5-15□□	151	46	147	107	29	133
EXW15- 5-20□□	151	46	197	107	29	183
EXW15- 6-11□□	151	61	107	107	44	93
EXW15- 6-15□□	151	61	147	107	44	133
EXW15- 6-20□□	151	61	197	107	44	183
EXW15- 8-11□□	151	81	107	107	64	93
EXW15- 8-15□□	151	81	147	107	64	133
EXW15- 8-20□□	151	81	197	107	64	183
EXW15-10-11□□	151	101	107	107	84	93
EXW15-10-15□□	151	101	147	107	84	133
EXW15-10-20□□	151	101	197	107	84	183

■ Custom length is available.

#### How to install cover gasket



- Insert cover gaskets into the joint-grooves on the bottom cover.



- Ensure that a small portion of the cover gasket protrudes out in order to maintain a seal with the panel gasket.

## EXPF SERIES

## FLANGED ALUMINIUM PANEL CASE



- Equipped with flanged frame for easy wall mounting.
- Available in 67 different sizes and 6 different color combinations.
- Custom length is available.

Included screws  
 EXPF 7-□, 9-□ models : M2.5-8 x 8 pcs  
 EXPF11-□, 15-□ models : M3-10 x 8 pcs  
 EXPF20-□ models : M4-12 x 8 pcs  
 EXPF24-□ models : M5-12 x 8 pcs  
 ※Hexagonal wrench included.

## Components

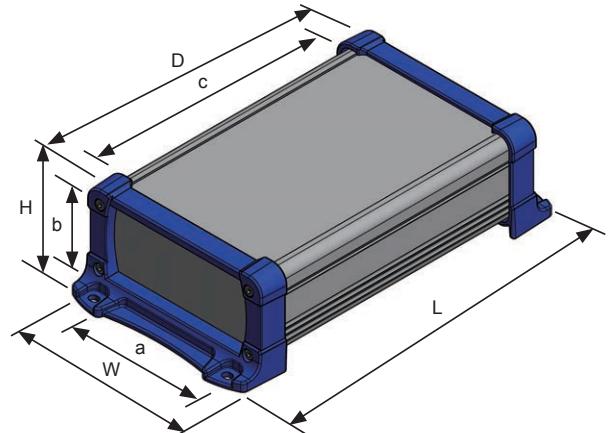
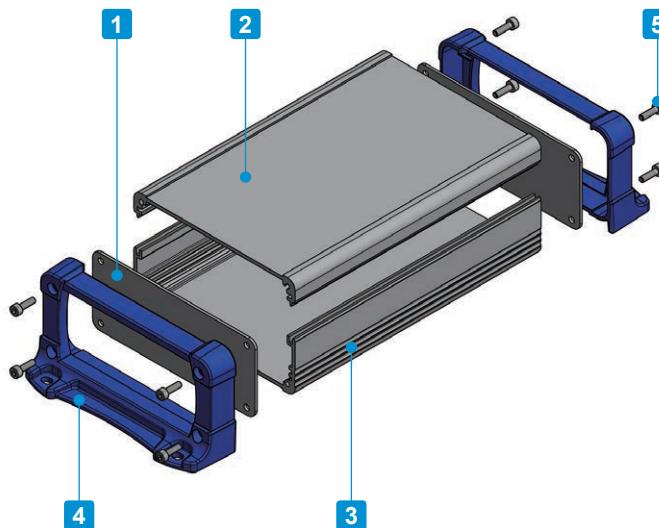
No.	Part name	Pcs	Material	Color / Finish
1	Panel	2	Aluminium A1100P	Silver • Black / Anodized
2	Top cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Bottom cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
4	Flanged frame	2	PC+ABS UL94V-0	Black • Gray / Unpainted Navy / Painted
5	Screw	8	Stainless steel	Unfinished

■ See page 149 ~ 152 for Top / Bottom cover dimensions.

## Color Type

Code	S B Silver / Black	S G Silver / Gray	S N Silver / Navy
Color			
Code	B B Black / Black	B G Black / Gray	B N Black / Navy
Color			

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



#### Product no. / Dimensions

Product no.	Dimensions (External)				Dimensions (Internal)		
	W	H	D	L	a	b	c
NEW EXPF 7- 3- 6□□	66	34	60	84	47	19.6	46
NEW EXPF 7- 3- 9□□	66	34	87	111	47	19.6	73
NEW EXPF 7- 3-11□□	66	34	110	134	47	19.6	96
NEW EXPF 7- 4- 6□□	66	44	60	84	47	29.6	46
NEW EXPF 7- 4- 9□□	66	44	87	111	47	29.6	73
NEW EXPF 7- 4-11□□	66	44	110	134	47	29.6	96
NEW EXPF 7- 6- 6□□	66	59	60	84	47	44.6	46
NEW EXPF 7- 6- 9□□	66	59	87	111	47	44.6	73
NEW EXPF 7- 6-11□□	66	59	110	134	47	44.6	96
NEW EXPF 9- 4- 7□□	86	39	70	95.8	67	24.6	56
NEW EXPF 9- 4-10□□	86	39	100	125.8	67	24.6	86
NEW EXPF 9- 4-13□□	86	39	130	155.8	67	24.6	116
NEW EXPF 9- 5- 7□□	86	49	70	95.8	67	34.6	56
NEW EXPF 9- 5-10□□	86	49	100	125.8	67	34.6	86
NEW EXPF 9- 5-13□□	86	49	130	155.8	67	34.6	116
NEW EXPF 9- 6- 7□□	86	64	70	95.8	67	49.6	56
NEW EXPF 9- 6-10□□	86	64	100	125.8	67	49.6	86
NEW EXPF 9- 6-13□□	86	64	130	155.8	67	49.6	116
NEW EXPF11- 4- 9□□	113	41.5	90	121.8	89	24	74
NEW EXPF11- 4-13□□	113	41.5	130	161.8	89	24	114
NEW EXPF11- 4-18□□	113	41.5	176	207.8	89	24	160
NEW EXPF11- 6- 9□□	113	56.5	90	121.8	89	39	74
NEW EXPF11- 6-13□□	113	56.5	130	161.8	89	39	114
NEW EXPF11- 6-18□□	113	56.5	176	207.8	89	39	160
NEW EXPF11- 7- 9□□	113	71.5	90	121.8	89	54	74
NEW EXPF11- 7-13□□	113	71.5	130	161.8	89	54	114
NEW EXPF11- 7-18□□	113	71.5	176	207.8	89	54	160
NEW EXPF15- 5-11□□	148	47	110	149.2	107.4	29	93
NEW EXPF15- 5-15□□	148	47	150	189.2	107.4	29	133
NEW EXPF15- 5-20□□	148	47	200	239.2	107.4	29	183
NEW EXPF15- 6-11□□	148	62	110	149.2	107.4	44	93
NEW EXPF15- 6-15□□	148	62	150	189.2	107.4	44	133
NEW EXPF15- 6-20□□	148	62	200	239.2	107.4	44	183
NEW EXPF15- 8-11□□	148	82	110	149.2	107.4	64	93
NEW EXPF15- 8-15□□	148	82	150	189.2	107.4	64	133
NEW EXPF15- 8-20□□	148	82	200	239.2	107.4	64	183
NEW EXPF15-10-11□□	148	102	110	149.2	107.4	84	93
NEW EXPF15-10-15□□	148	102	150	189.2	107.4	84	133
NEW EXPF15-10-20□□	148	102	200	239.2	107.4	84	183

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

Product no.	Dimensions (External)				Dimensions (Internal)		
	W	H	D	L	a	b	c
NEW EXPF20- 6-14□□	195	57	140	188.6	132	35	120
NEW EXPF20- 6-19□□	195	57	192	240.6	132	35	172
NEW EXPF20- 6-25□□	195	57	245	293.6	132	35	225
NEW EXPF20- 6-30□□	195	57	300	348.6	132	35	280
NEW EXPF20- 8-14□□	195	75	140	188.6	132	53	120
NEW EXPF20- 8-19□□	195	75	192	240.6	132	53	172
NEW EXPF20- 8-25□□	195	75	245	293.6	132	53	225
NEW EXPF20- 8-30□□	195	75	300	348.6	132	53	280
NEW EXPF20-10-14□□	195	95	140	188.6	132	73	120
NEW EXPF20-10-19□□	195	95	192	240.6	132	73	172
NEW EXPF20-10-25□□	195	95	245	293.6	132	73	225
NEW EXPF20-10-30□□	195	95	300	348.6	132	73	280
NEW EXPF20-12-14□□	195	120	140	188.6	132	98	120
NEW EXPF20-12-19□□	195	120	192	240.6	132	98	172
NEW EXPF20-12-25□□	195	120	245	293.6	132	98	225
NEW EXPF20-12-30□□	195	120	300	348.6	132	98	280
NEW EXPF24- 7-17□□	240	65	170	218.6	177	43	147
NEW EXPF24- 7-23□□	240	65	230	278.6	177	43	207
NEW EXPF24- 7-29□□	240	65	290	338.6	177	43	267
NEW EXPF24- 7-35□□	240	65	350	398.6	177	43	327
NEW EXPF24- 9-17□□	240	90	170	218.6	177	68	147
NEW EXPF24- 9-23□□	240	90	230	278.6	177	68	207
NEW EXPF24- 9-29□□	240	90	290	338.6	177	68	267
NEW EXPF24- 9-35□□	240	90	350	398.6	177	68	327
NEW EXPF24-12-17□□	240	115	170	218.6	177	93	147
NEW EXPF24-12-23□□	240	115	230	278.6	177	93	207
NEW EXPF24-12-29□□	240	115	290	338.6	177	93	267
NEW EXPF24-12-35□□	240	115	350	398.6	177	93	327



Following models are suitable for placement of a Mini-ITX board.  
EXPF20-8-19□□  
EXPF20-10-19□□  
EXPF20-12-19□□

## EXEF SERIES

## FLANGED ALUMINIUM EMC SHIELD CASE

EMC  
Shielding  
Effects

- EMC shielding is achieved by having the unfinished inner sides of the top/bottom covers and panels, as well as the fabric-over-foam gasket in contact with one another.
- Equipped with flanged frame for easy wall mounting.
- Available in 67 different sizes and 3 different color combinations.

Included screws  
 EXEF 7-□, 9-□ models : M2.5-8 x 8 pcs  
 EXEF11-□, 15-□ models : M3-10 x 8 pcs  
 EXEF20-□ models : M4-12 x 8 pcs  
 EXEF24-□ models : M5-12 x 8 pcs  
 ※Hexagonal wrench included.

## Components

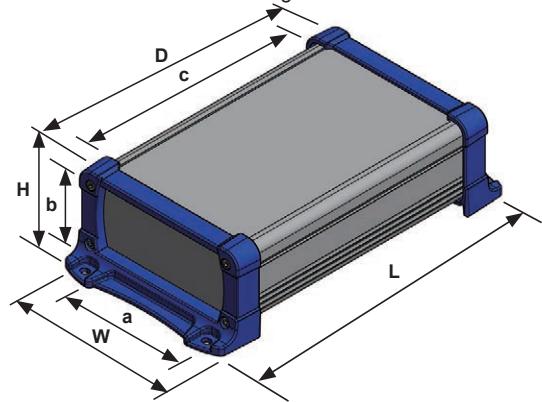
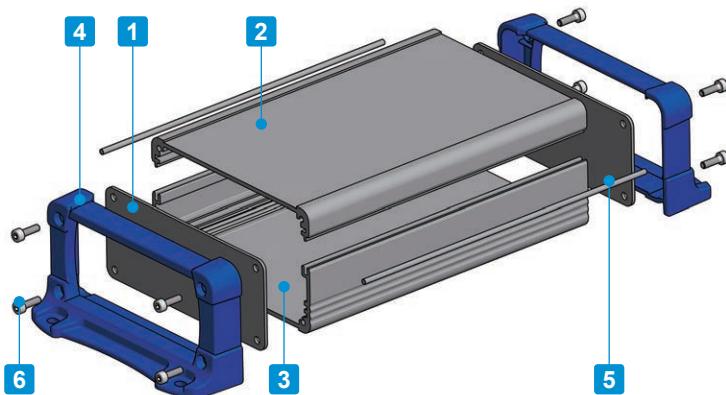
No.	Part name	Pcs	Material	Color / Finish
1	Panel	2	Aluminium A1100P	Silver / Painted (outside) • Unfinished (inside)
2	Top cover	1	Extruded aluminium A6063S-T5	Silver / Painted (outside) • Unfinished (inside)
3	Bottom cover	1	Extruded aluminium A6063S-T5	Silver / Painted (outside) • Unfinished (inside)
4	Flanged frame	2	PC+ABS UL94V-0	Black • Gray / Unpainted Navy / Painted
5	Fabric-over-foam gasket	2	Conductive fabric : TPE	Metallic gray
6	Screw	8	Stainless steel	Unfinished

■ See page 149 ~ 152 for Top / Bottom cover dimensions.

## Color Type

Code	S B Silver / Black	S G Silver / Gray	S N Silver / Navy
Color			

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



#### Product no. / Dimensions

Product no.	Dimensions (External)				Dimensions (Internal)		
	W	H	D	L	a	b	c
NEW EXEF 7- 3- 6□□	66	34	60	84	47	19.6	46
NEW EXEF 7- 3- 9□□	66	34	87	111	47	19.6	73
NEW EXEF 7- 3-11□□	66	34	110	134	47	19.6	96
NEW EXEF 7- 4- 6□□	66	44	60	84	47	29.6	46
NEW EXEF 7- 4- 9□□	66	44	87	111	47	29.6	73
NEW EXEF 7- 4-11□□	66	44	110	134	47	29.6	96
NEW EXEF 7- 6- 6□□	66	59	60	84	47	44.6	46
NEW EXEF 7- 6- 9□□	66	59	87	111	47	44.6	73
NEW EXEF 7- 6-11□□	66	59	110	134	47	44.6	96
NEW EXEF 9- 4- 7□□	86	39	70	95.8	67	24.6	56
NEW EXEF 9- 4-10□□	86	39	100	125.8	67	24.6	86
NEW EXEF 9- 4-13□□	86	39	130	155.8	67	24.6	116
NEW EXEF 9- 5- 7□□	86	49	70	95.8	67	34.6	56
NEW EXEF 9- 5-10□□	86	49	100	125.8	67	34.6	86
NEW EXEF 9- 5-13□□	86	49	130	155.8	67	34.6	116
NEW EXEF 9- 6- 7□□	86	64	70	95.8	67	49.6	56
NEW EXEF 9- 6-10□□	86	64	100	125.8	67	49.6	86
NEW EXEF 9- 6-13□□	86	64	130	155.8	67	49.6	116
NEW EXEF11- 4- 9□□	113	41.5	90	121.8	89	24	74
NEW EXEF11- 4-13□□	113	41.5	130	161.8	89	24	114
NEW EXEF11- 4-18□□	113	41.5	176	207.8	89	24	160
NEW EXEF11- 6- 9□□	113	56.5	90	121.8	89	39	74
NEW EXEF11- 6-13□□	113	56.5	130	161.8	89	39	114
NEW EXEF11- 6-18□□	113	56.5	176	207.8	89	39	160
NEW EXEF11- 7- 9□□	113	71.5	90	121.8	89	54	74
NEW EXEF11- 7-13□□	113	71.5	130	161.8	89	54	114
NEW EXEF11- 7-18□□	113	71.5	176	207.8	89	54	160
NEW EXEF15- 5-11□□	148	47	110	149.2	107.4	29	93
NEW EXEF15- 5-15□□	148	47	150	189.2	107.4	29	133
NEW EXEF15- 5-20□□	148	47	200	239.2	107.4	29	183
NEW EXEF15- 6-11□□	148	62	110	149.2	107.4	44	93
NEW EXEF15- 6-15□□	148	62	150	189.2	107.4	44	133
NEW EXEF15- 6-20□□	148	62	200	239.2	107.4	44	183
NEW EXEF15- 8-11□□	148	82	110	149.2	107.4	64	93
NEW EXEF15- 8-15□□	148	82	150	189.2	107.4	64	133
NEW EXEF15- 8-20□□	148	82	200	239.2	107.4	64	183
NEW EXEF15-10-11□□	148	102	110	149.2	107.4	84	93
NEW EXEF15-10-15□□	148	102	150	189.2	107.4	84	133
NEW EXEF15-10-20□□	148	102	200	239.2	107.4	84	183

Following models are suitable for placement of a Mini-ITX board.

EXEF20-8-19□□  
EXEF20-10-19□□  
EXEF20-12-19□□



#### How to install a shield gasket



■ Insert fabric-over-foam gasket into the joint-grooves on the bottom cover.



■ Ensure that a small portion of the fabric-over-foam gasket protrudes out in order to maintain a connection with the end panel.

## EXWF SERIES

## IP65 FLANGED ALUMINIUM CASE



- Waterproof case available in 67 different sizes and 6 different color combinations by 2 body frame and 3 end panel colors.
- Flanged end panels make it easy for wall mounting. Suitable to be used as wall mounted controller and transmitter.
- Custom length is available.

## Technical Data

Protection class : IP65 • IP54  
Protection class varies by size.  
■ Not suitable for environments with direct rainfall

Included screw  
EXWF7-□, 9-□ models : M2.5-8 x 8 pcs  
EXWF12-□, 15-□ models : M3-10 x 8 pcs  
EXWF20-□ models : M4-12 x 8 pcs  
EXWF24-□ models : M5-12 x 8 pcs  
※Hexagonal wrench included.

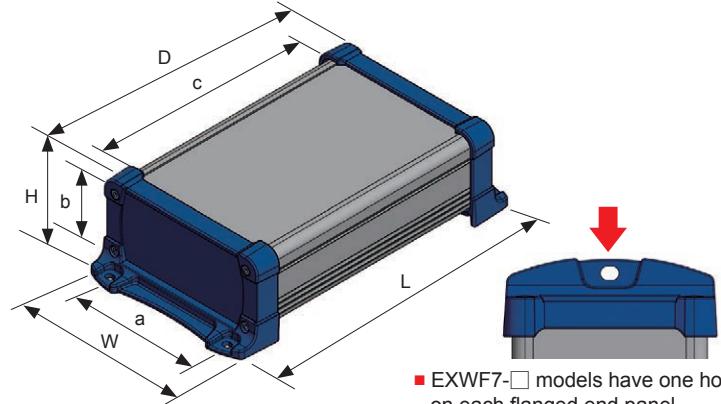
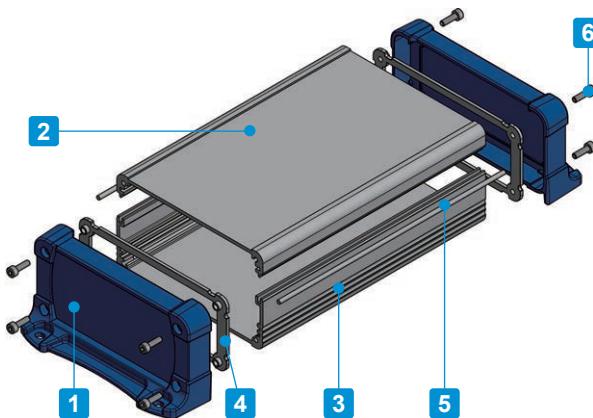
## Components

No.	Part name	Pcs	Material	Color / Finish
1	Flanged end panel	2	PC+ABS UL94V-0	Black • Gray / Unpainted Navy / Painted
2	Top cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Bottom cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
4	Panel gasket	2	Silicone	Black
5	Cover gasket	2	Silicone	White gray
6	Screw	8	Stainless Steel	Unfinished

## Color Type

Code	S B Silver / Black	S G Silver / Gray	S N Silver / Navy
Color			
Code	B B Black / Black	B G Black / Gray	B N Black / Navy
Color			

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



#### Product no. / Dimensions

Product no.	Protection class	External dimensions				Internal dimensions		
		W	H	D	L	a	b	c
NEW EXWF 7- 3- 6□□	IP65	66	34	58	82	47	20	46
NEW EXWF 7- 3- 9□□	IP65	66	34	85	109	47	20	73
NEW EXWF 7- 3-11□□	IP65	66	34	108	132	47	20	96
NEW EXWF 7- 4- 6□□	IP65	66	44	58	82	47	30	46
NEW EXWF 7- 4- 9□□	IP65	66	44	85	109	47	30	73
NEW EXWF 7- 4-11□□	IP65	66	44	108	132	47	30	96
NEW EXWF 7- 6- 6□□	IP65	66	59	58	82	47	45	46
NEW EXWF 7- 6- 9□□	IP65	66	59	85	109	47	45	73
NEW EXWF 7- 6-11□□	IP65	66	59	108	132	47	45	96
NEW EXWF 9- 4- 7□□	IP65	86	39	69	94.8	67	25	56
NEW EXWF 9- 4-10□□	IP65	86	39	99	124.8	67	25	86
NEW EXWF 9- 4-13□□	IP65	86	39	129	154.8	67	25	116
NEW EXWF 9- 5- 7□□	IP65	86	49	69	94.8	67	35	56
NEW EXWF 9- 5-10□□	IP65	86	49	99	124.8	67	35	86
NEW EXWF 9- 5-13□□	IP65	86	49	129	154.8	67	35	116
NEW EXWF 9- 6- 7□□	IP65	86	64	69	94.8	67	50	56
NEW EXWF 9- 6-10□□	IP65	86	64	99	124.8	67	50	86
NEW EXWF 9- 6-13□□	IP65	86	64	129	154.8	67	50	116
NEW EXWF11- 4- 9□□	IP65	113	41.5	88	119.8	89	24	74
NEW EXWF11- 4-13□□	IP65	113	41.5	128	159.8	89	24	114
NEW EXWF11- 4-17□□	IP65	113	41.5	174	205.8	89	24	160
NEW EXWF11- 6- 9□□	IP65	113	56.5	88	119.8	89	39	74
NEW EXWF11- 6-13□□	IP65	113	56.5	128	159.8	89	39	114
NEW EXWF11- 6-17□□	IP65	113	56.5	174	205.8	89	39	160
NEW EXWF11- 7- 9□□	IP65	113	71.5	88	119.8	89	54	74
NEW EXWF11- 7-13□□	IP65	113	71.5	128	159.8	89	54	114
NEW EXWF11- 7-17□□	IP65	113	71.5	174	205.8	89	54	160
NEW EXWF15- 5-11□□	IP65	148	47	107	146.2	107	29	93
NEW EXWF15- 5-15□□	IP65	148	47	147	186.2	107	29	133
NEW EXWF15- 5-20□□	IP65	148	47	197	236.2	107	29	183
NEW EXWF15- 6-11□□	IP65	148	62	107	146.2	107	44	93
NEW EXWF15- 6-15□□	IP65	148	62	147	186.2	107	44	133
NEW EXWF15- 6-20□□	IP65	148	62	197	236.2	107	44	183
NEW EXWF15- 8-11□□	IP65	148	82	107	146.2	107	64	93
NEW EXWF15- 8-15□□	IP65	148	82	147	186.2	107	64	133
NEW EXWF15- 8-20□□	IP65	148	82	197	236.2	107	64	183
NEW EXWF15-10-11□□	IP65	148	102	107	146.2	107	84	93
NEW EXWF15-10-15□□	IP65	148	102	147	186.2	107	84	133
NEW EXWF15-10-20□□	IP65	148	102	197	236.2	107	84	183

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

Product no.	Protection class	External dimensions				Internal dimensions		
		W	H	D	L	a	b	c
NEW EXWF20- 6-14□□	IP54	195	57	138	186.6	132	35	120
NEW EXWF20- 6-19□□	IP54	195	57	190	238.6	132	35	172
NEW EXWF20- 6-25□□	IP54	195	57	243	291.6	132	35	225
NEW EXWF20- 6-30□□	IP54	195	57	298	346.6	132	35	280
NEW EXWF20- 8-14□□	IP54	195	75	138	186.6	132	53	120
NEW EXWF20- 8-19□□	IP54	195	75	190	238.6	132	53	172
NEW EXWF20- 8-25□□	IP54	195	75	243	291.6	132	53	225
NEW EXWF20- 8-30□□	IP54	195	75	298	346.6	132	53	280
NEW EXWF20-10-14□□	IP54	195	95	138	186.6	132	73	120
NEW EXWF20-10-19□□	IP54	195	95	190	238.6	132	73	172
NEW EXWF20-10-25□□	IP54	195	95	243	291.6	132	73	225
NEW EXWF20-10-30□□	IP54	195	95	298	346.6	132	73	280
NEW EXWF20-12-14□□	IP54	195	120	138	186.6	132	98	120
NEW EXWF20-12-19□□	IP54	195	120	190	238.6	132	98	172
NEW EXWF20-12-25□□	IP54	195	120	243	291.6	132	98	225
NEW EXWF20-12-30□□	IP54	195	120	298	346.6	132	98	280
NEW EXWF24- 7-14□□	IP54	240	65	165	213.6	177	43	147
NEW EXWF24- 7-19□□	IP54	240	65	225	273.6	177	43	207
NEW EXWF24- 7-25□□	IP54	240	65	285	333.6	177	43	267
NEW EXWF24- 7-35□□	IP54	240	65	345	393.6	177	43	327
NEW EXWF24- 9-14□□	IP54	240	90	165	213.6	177	68	147
NEW EXWF24- 9-19□□	IP54	240	90	225	273.6	177	68	207
NEW EXWF24- 9-25□□	IP54	240	90	285	333.6	177	68	267
NEW EXWF24- 9-35□□	IP54	240	90	345	393.6	177	68	327
NEW EXWF24-12-14□□	IP54	240	115	165	213.6	177	93	147
NEW EXWF24-12-19□□	IP54	240	115	225	273.6	177	93	207
NEW EXWF24-12-25□□	IP54	240	115	285	333.6	177	93	267
NEW EXWF24-12-35□□	IP54	240	115	345	393.6	177	93	327

#### How to install cover gasket



■ Insert cover gaskets into the joint-grooves on the bottom cover.



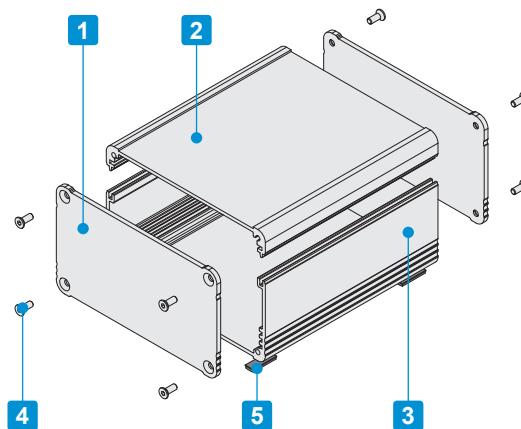
■ Ensure that a small portion of the cover gasket protrudes out in order to maintain a seal with the panel gasket.

## EX SERIES

## EXTRUDED ALUMINIUM CASE



- Simple yet beautifully designed aluminium extrusion enclosure.
- Selectable in 4 different color combinations.
- Beautiful high-end finish is achieved by having a chamfered edge panel.
- Suitable for industrial and audio interface equipment.
- Custom length is available.



## Components

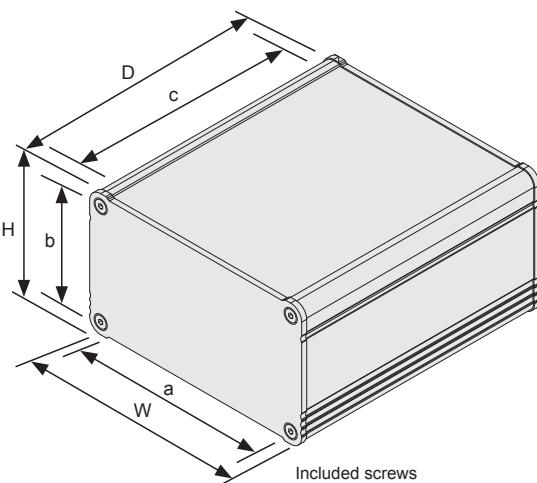
No.	Part name	Pcs	Material	Color / Finish
1	End panel	2	Aluminium A1050P	Silver • Black / Anodized
2	Top cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Bottom cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
4	Screw	8	Stainless steel	Unfinished
5	Rubber feet	4	Polyurethane	Black

■ See page 149 ~ 152 for Top / Bottom cover dimensions.

## Color Type

Code	S S Silver / Silver	S B Silver / Black	B S Black / Silver	B B Black / Black
Color				

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



Included screws  
 EX 6-□, 8-□ models : M2.5-8 x 8 pcs  
 EX11-□, 14-□ models : M3-8 x 8 pcs  
 EX19-□ models : M4-10 x 8 pcs  
 EX23-□ models : M5-10 x 8 pcs  
 ※Hexagonal wrench included.

## Accessories (Optional parts)



Wall mounting bracket EF series  
See page 182

### Product no. / Dimensions

Product no.	Dimensions (External)			Dimensions (Internal)		
	W	H	D	a	b	c
EX 6- 3- 5□□	60.6	25.6	50	47	19.6	46
EX 6- 3- 8□□	60.6	25.6	77	47	19.6	73
EX 6- 3-10□□	60.6	25.6	100	47	19.6	96
EX 6- 4- 5□□	60.6	35.6	50	47	29.6	46
EX 6- 4- 8□□	60.6	35.6	77	47	29.6	73
EX 6- 4-10□□	60.6	35.6	100	47	29.6	96
EX 6- 5- 5□□	60.6	50.6	50	47	44.6	46
EX 6- 5- 8□□	60.6	50.6	77	47	44.6	73
EX 6- 5-10□□	60.6	50.6	100	47	44.6	96
EX 8- 3- 6□□	80.6	30.6	60	67	24.6	56
EX 8- 3- 9□□	80.6	30.6	90	67	24.6	86
EX 8- 3-12□□	80.6	30.6	120	67	24.6	116
EX 8- 4- 6□□	80.6	40.6	60	67	34.6	56
EX 8- 4- 9□□	80.6	40.6	90	67	34.6	86
EX 8- 4-12□□	80.6	40.6	120	67	34.6	116
EX 8- 6- 6□□	80.6	55.6	60	67	49.6	56
EX 8- 6- 9□□	80.6	55.6	90	67	49.6	86
EX 8- 6-12□□	80.6	55.6	120	67	49.6	116
EX11- 3- 8□□	106	31	79	89	24	74
EX11- 3-12□□	106	31	119	89	24	114
EX11- 3-16□□	106	31	165	89	24	160
EX11- 5- 8□□	106	46	79	89	39	74
EX11- 5-12□□	106	46	119	89	39	114
EX11- 5-16□□	106	46	165	89	39	160
EX11- 6- 8□□	106	61	79	89	54	74
EX11- 6-12□□	106	61	119	89	54	114
EX11- 6-16□□	106	61	165	89	54	160
EX14- 4-10□□	141	36	98	107.4	29	93
EX14- 4-14□□	141	36	138	107.4	29	133
EX14- 4-19□□	141	36	188	107.4	29	183
EX14- 5-10□□	141	51	98	107.4	44	93
EX14- 5-14□□	141	51	138	107.4	44	133
EX14- 5-19□□	141	51	188	107.4	44	183
EX14- 7-10□□	141	71	98	107.4	64	93
EX14- 7-14□□	141	71	138	107.4	64	133
EX14- 7-19□□	141	71	188	107.4	64	183
EX14- 9-10□□	141	91	98	107.4	84	93
EX14- 9-14□□	141	91	138	107.4	84	133
EX14- 9-19□□	141	91	188	107.4	84	183

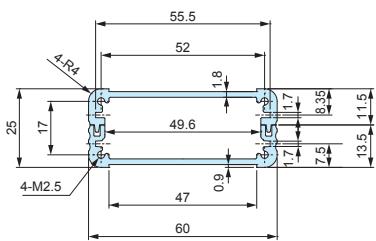
■ Please suffix color code at the end of the product number.

Product no.	Dimensions (External)			Dimensions (Internal)		
	W	H	D	a	b	c
NEW EX19- 4-13□□	186.5	43.5	125	132	35	120
NEW EX19- 4-18□□	186.5	43.5	177	132	35	172
NEW EX19- 4-23□□	186.5	43.5	230	132	35	225
NEW EX19- 4-29□□	186.5	43.5	285	132	35	280
NEW EX19- 6-13□□	186.5	61.5	125	132	53	120
NEW EX19- 6-18□□	186.5	61.5	177	132	53	172
NEW EX19- 6-23□□	186.5	61.5	230	132	53	225
NEW EX19- 6-29□□	186.5	61.5	285	132	53	280
NEW EX19- 8-13□□	186.5	81.5	125	132	73	120
NEW EX19- 8-18□□	186.5	81.5	177	132	73	172
NEW EX19- 8-23□□	186.5	81.5	230	132	73	225
NEW EX19- 8-29□□	186.5	81.5	285	132	73	280
NEW EX19-11-13□□	186.5	106.5	125	132	98	120
NEW EX19-11-18□□	186.5	106.5	177	132	98	172
NEW EX19-11-23□□	186.5	106.5	230	132	98	225
NEW EX19-11-29□□	186.5	106.5	285	132	98	280
NEW EX23- 5-15□□	232	52	153	177	43	147
NEW EX23- 5-21□□	232	52	213	177	43	207
NEW EX23- 5-27□□	232	52	273	177	43	267
NEW EX23- 5-33□□	232	52	333	177	43	327
NEW EX23- 8-15□□	232	77	153	177	68	147
NEW EX23- 8-21□□	232	77	213	177	68	207
NEW EX23- 8-27□□	232	77	273	177	68	267
NEW EX23- 8-33□□	232	77	333	177	68	327
NEW EX23-10-15□□	232	102	153	177	93	147
NEW EX23-10-21□□	232	102	213	177	93	207
NEW EX23-10-27□□	232	102	273	177	93	267
NEW EX23-10-33□□	232	102	333	177	93	327

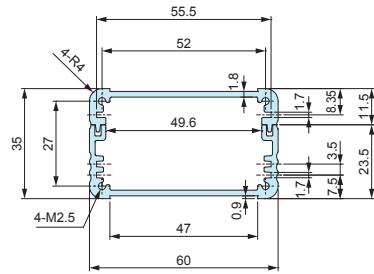
**EXP • EXPE • EXPF • EXEF • EX top / bottom covers**

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

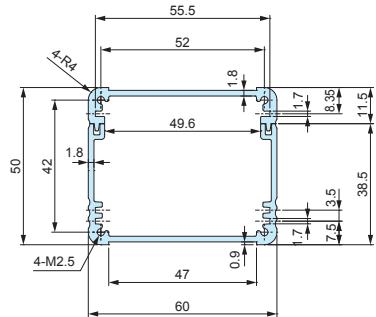
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EX6-3-□**



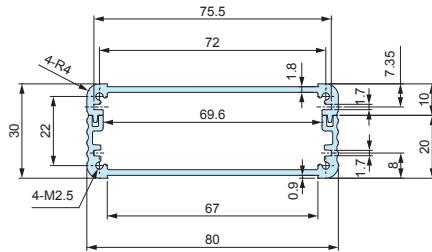
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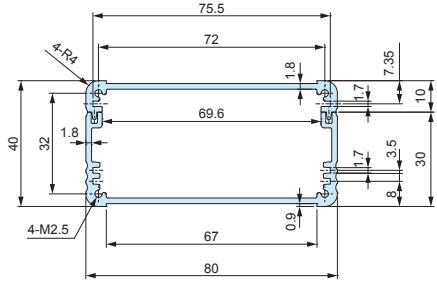
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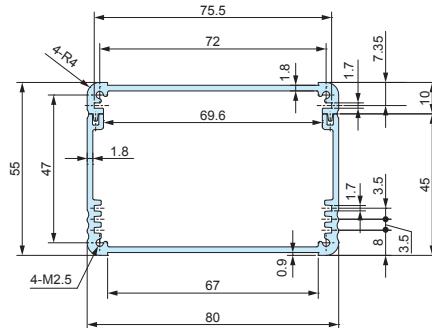
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EX8-3-□**



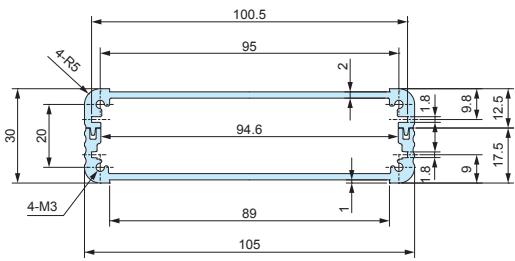
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EX8-4-□**



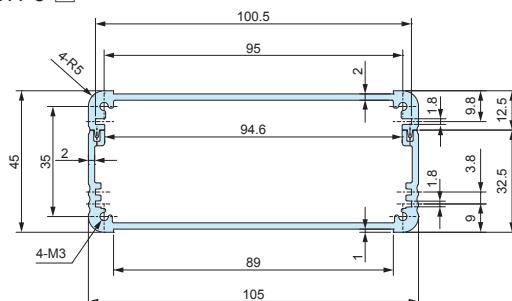
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EX8-6-□**



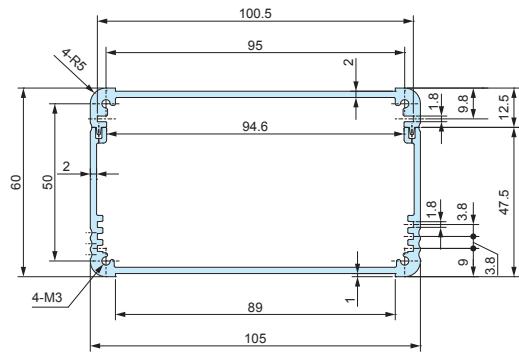
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EX11-3-□**



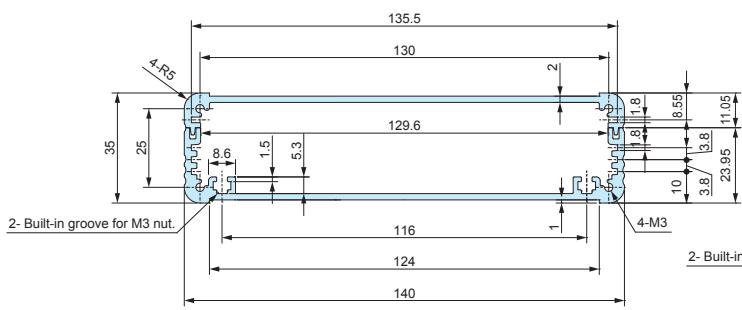
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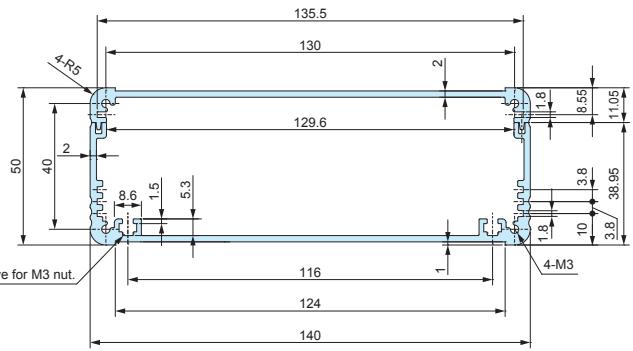
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EX11-6-□



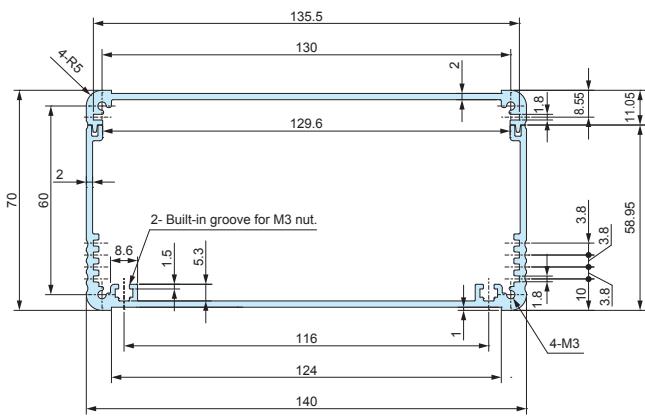
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EX14-4-□



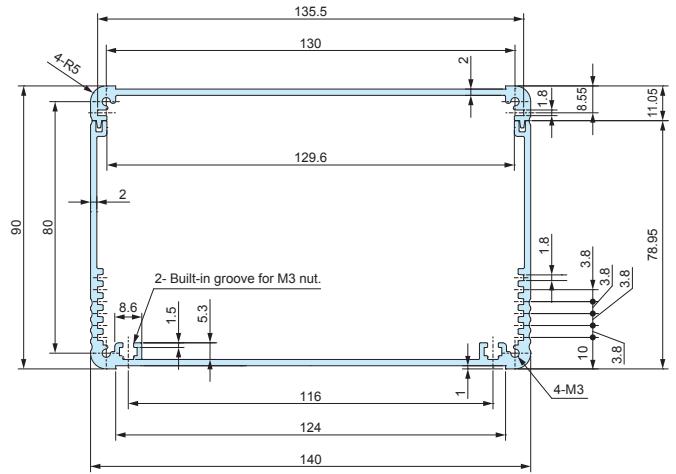
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EXP • EXPE • EXPF • EXEF15-8-□  
EX14-7-□



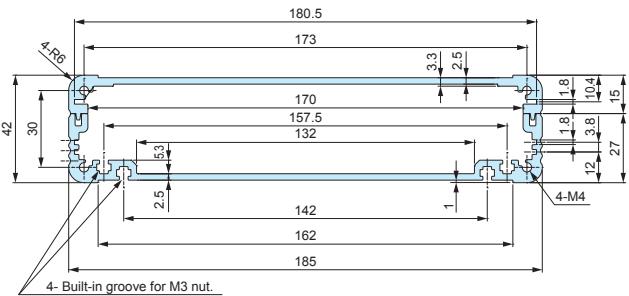
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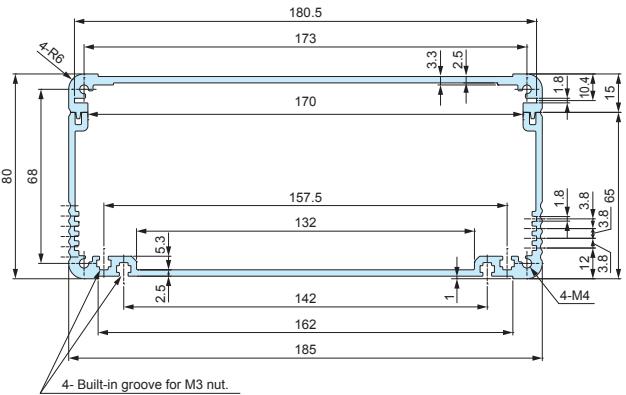
**EXP • EXPE • EXPF • EXEF • EX top / bottom covers**

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

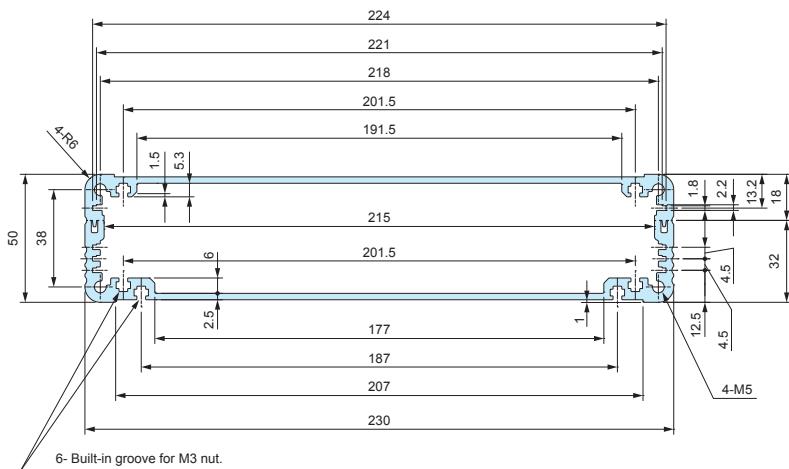
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EX19-4-□



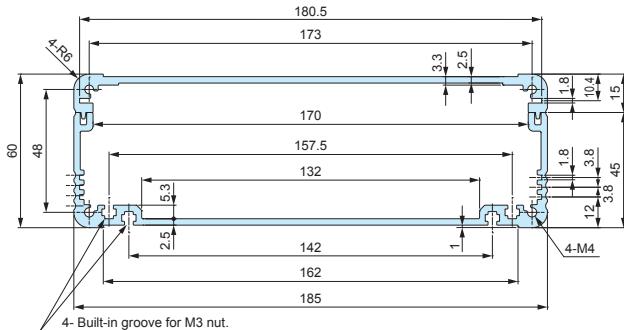
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EXPF • EXEF20-10-□  
EX19-8-□



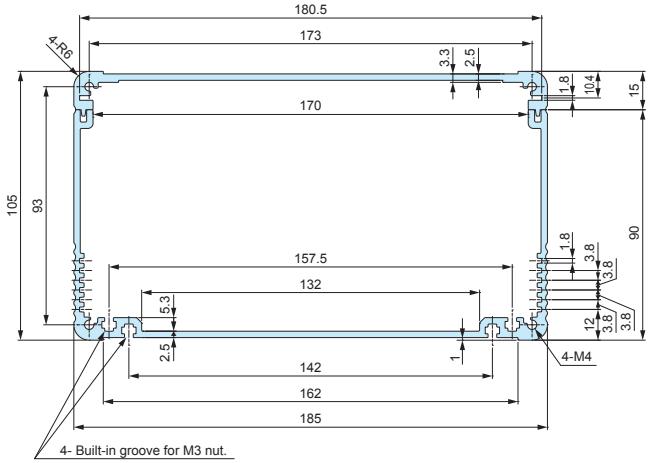
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EX23-5-□



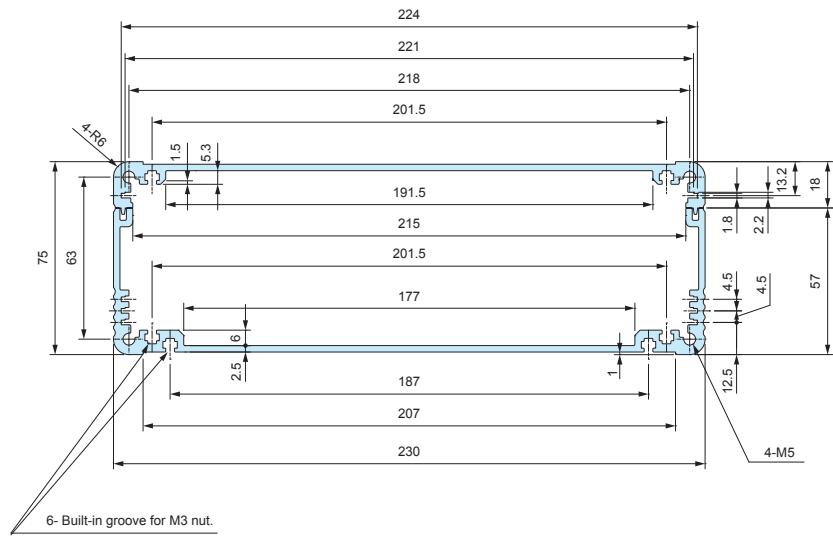
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EXPF • EXEF20-8-□  
EX19-6-□



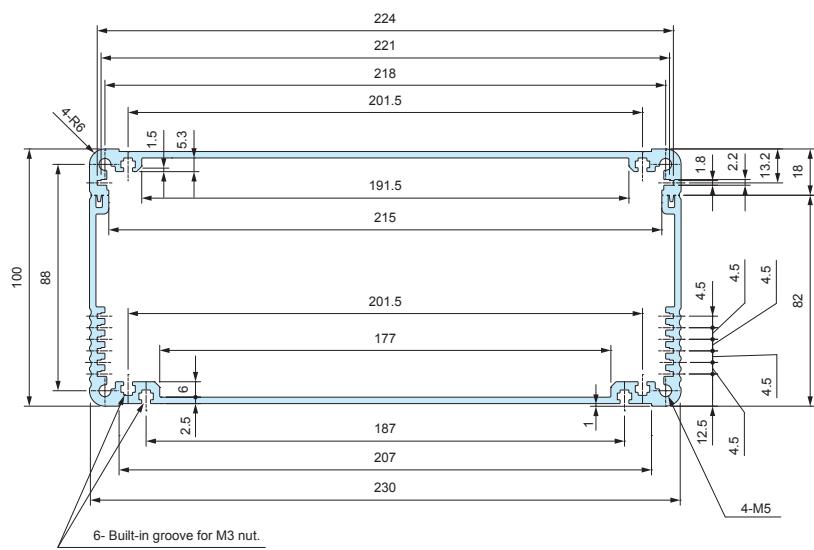
EXP • EXPE • EXPF • EXEF20-12-□  
EX19-11-□

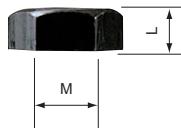
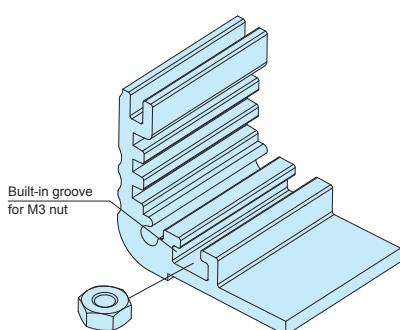


EXP • EXPE • EXPF • EXEF24-9-□  
EX23-8-□



EXP • EXPE24-11-□  
EXP • EXEF24-12-□  
EX23-10-□



**MT-3N****SLIDING NUT for EXP • EXPE • EXW • EXPF • EXEF • EXWF • EX****Product no. / Dimensions**

Product no.	M	L	Material	Finish	Pack of
MT-3N	3	2.4	Steel	Black trivalent chromate	50

- Sliding nut can be used on all EXP • EXPE • EXW • EXPF • EXEF • EXWF • EX models with width 140mm or larger bottom covers, as well as with width 230mm top covers.

**EXEG SERIES****EMC SHIELDING FABRIC-OVER-FOAM GASKET for EXPE • EXEF**

NEW SIZE

- EMC shielding fabric-over-foam gasket for EXPE • EXEF series.

**Suitable Enclosure**

Product no.	Suitable enclosure
EXEG-2.5	EXPE7-□ • 9-□ • 12-□ • 15-□ / EXEF7-□ • 9-□ • 11-□ • 15-□
EXEG-3.2	EXPE20-□ • 24-□ / EXEF20-□ • 24-□

**Product no. / Dimensions**

Product no.	Φ	Material	Color	Sales unit
EXEG-2.5	2.5	Wire mesh gasket • TPE	Metallic gray	500mm x 1 pc
NEW EXEG-3.2	3.2	Wire mesh gasket • TPE	Metallic gray	500mm x 1 pc

Length tolerance = +/- 10%

**APPLICATION EXAMPLE EX series****PREMAIN POWER AMPLIFIER**

Product by AY-densi (Japan)

**USB EDGE NODE**

Product by SHINWA (Japan)



TLW SERIES

TILT LEG

★★ NEW



APPLICATION EXAMPLE

## Technical Data

Max load : 7kg

- New tilt leg with eye catching colors and rounded design.
- Non-slip design with Elastomer (TPE) pad.
- Available in 3 different color patterns.

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Front foot	2	PC+ABS UL94V-0, TPE	Black & Black • Navy & Gray • Light gray & Gray
2	Rear foot	2	PC+ABS UL94V-0, TPE	Black & Black • Navy & Gray • Light gray & Gray
-	Washer head screw	4	Steel M3-6	Black trivalent chromate
-	Nut	4	Steel M3	Black trivalent chromate

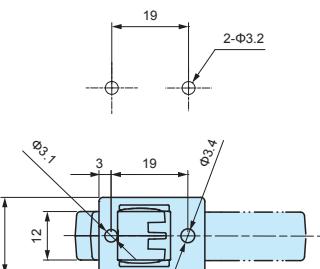
## Product no.

Product no.	Color (plastic)	Color (TPE)
NEW TLW-46BB	Black	Black
NEW TLW-46NG	Navy	Gray
NEW TLW-46LG	Light gray	Gray

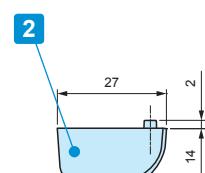
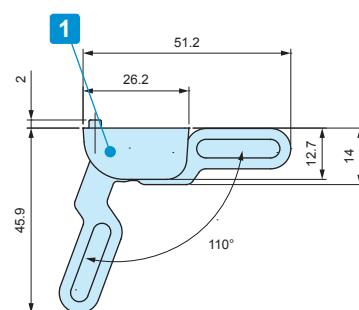
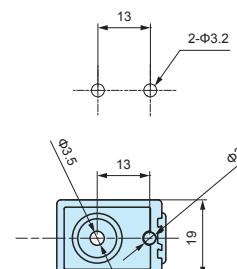
- TLW tilt leg can be used in various applications.



Mounting hole (Front)



Mounting hole (Rear)



# AW·AWN·AWP IP67 ALUMINIUM ENCLOSURE

AW·AWN·AWP series are highly functional aluminium enclosures which are IP67 rated with heat dissipating heat-sink fins.

34 sizes available. Standard, Flanged, Shielding, and Silicone protector types are available. Suitable for LED power supply, industrial camera, controller or measuring instrument where waterproof and cooling performance are crucial.

## APPLICATION EXAMPLE

### LIQUID LEVEL SENSOR

Product by Watty Corporation (Japan)



### HEAVY DUTY PORTABLE HARDNESS TESTER

Product by DEMEQ (Argentina)



### RADIO-CONTROLLED ELECTRONIC EXPLoder

Product by CODETEL (France)



### OUTDOOR LED POWER SUPPLY



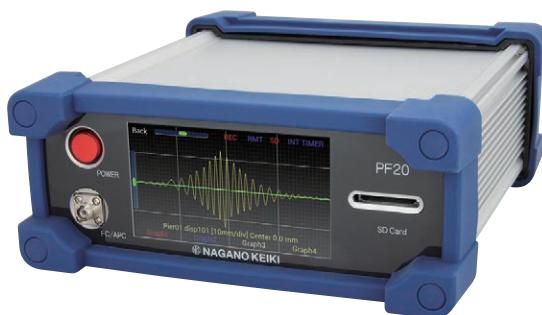
### OPTICAL PHASE INTERROGATOR (OPI) DEVELOPMENT KIT

Product by Broadcom Limited (USA)



**FBG DATA LOGGER**

Product by NAGANO KEIKI (Japan)

**DATA LOGGER with 3G MODEM REPORT FUNCTION**

Product by mSolution (Hong Kong)

**PIN HOLE DETECTOR**

Product by SANKO ELECTRONIC LABORATORY (Japan)

**PD ANNUNCIATOR**

Product by ndb Technologies (Canada)

**DC CONVERTER****CUSTOM LENGTH AVAILABLE**

Flexible frame length from 50mm to 700mm in 1mm intervals.

No minimum order quantity and short lead time for small quantity order.



## AW SERIES

## IP67 FLANGED ALUMINIUM ENCLOSURE



- IP67 and heat dissipation enclosure. Designed with flanged end panels.
- PCB or chassis is mounted by sliding it horizontally into an inner-grooved body frame.
- Designed for a tough environment where waterproof and heat countermeasures are required.
- Suitable for outdoor use such as LED power supply and junction boxes.

## Technical Data

Protection class: IP67  
Operating temperature: -40°C ~ +105°C  
Recommended torque:  
1.0N·m (10kgf·cm)

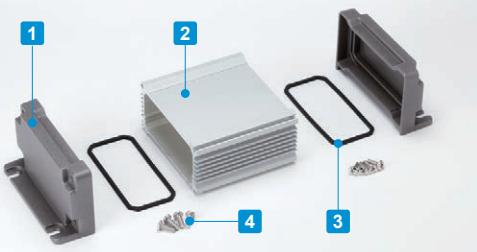
## Normal N type Components

No.	Part name	Pcs	Material	Color / Finish
1	Flanged end panel	2	Diecast aluminium ADC12	Metallic gray • Black / Powder coated
2	Body frame	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Gasket	2	Silicone	Black
4	Screw	8	Stainless steel	Unfinished

## EMC Shielded E type Components

No.	Part name	Pcs	Material	Color / Finish
1	Flanged end panel	2	Diecast aluminium ADC12	Silver • Black / Painted (unfinished inside)
2	Body frame	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Gasket	2	Silicone	Black
4	Screw	8	Stainless steel	Unfinished

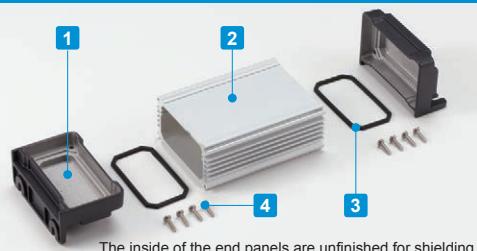
## Normal - N type



## Color type



## EMC Shielded - E type

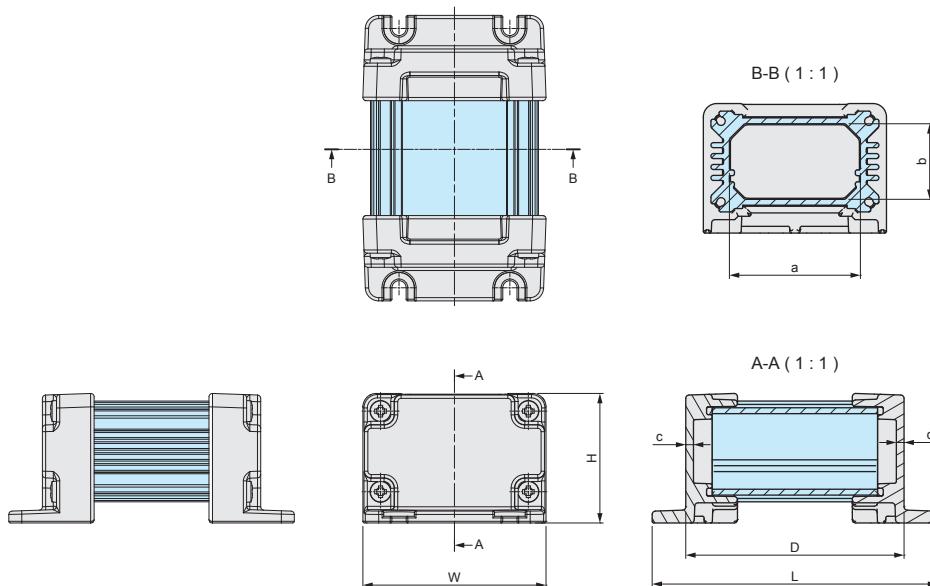


## Color type



## AW dimensions

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



### Product no. / Dimensions

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

Product no.	W	H	D	L	a	b	c	Weight (g)
AW 5-4- 7□□□	54.6	38.6	65	85	39	22.5	2.3	128.5
AW 5-4- 9□□□	54.6	38.6	85	105	39	22.5	2.3	149
AW 5-4-11□□□	54.6	38.6	110	130	39	22.5	2.3	175
AW 5-4-14□□□	54.6	38.6	135	155	39	22.5	2.3	201.5
AW 7-7- 8□□□	65.8	70.8	80	106	47	51	2.5	294.5
AW 7-7-11□□□	65.8	70.8	110	136	47	51	2.5	350
AW 7-7-15□□□	65.8	70.8	150	176	47	51	2.5	424.5
AW 7-7-20□□□	65.8	70.8	200	226	47	51	2.5	517
AW 7-7-25□□□	65.8	70.8	250	276	47	51	2.5	610
AW 8-5- 9□□□	80.8	50.8	90	116	62	31	2.5	289.5
AW 8-5-12□□□	80.8	50.8	115	141	62	31	2.5	330.5
AW 8-5-14□□□	80.8	50.8	140	166	62	31	2.5	372
AW 8-5-18□□□	80.8	50.8	175	201	62	31	2.5	429.5
AW 9-9-10□□□	86.3	92	100	129	66.5	66.5	3	560.5
AW 9-9-13□□□	86.3	92	125	154	66.5	66.5	3	633.5
AW 9-9-17□□□	86.3	92	170	199	66.5	66.5	3	764.5
AW 9-9-22□□□	86.3	92	220	249	66.5	66.5	3	910.5
AW 9-9-28□□□	86.3	92	275	304	66.5	66.5	3	1,071
AW11-6-11□□□	106.3	62	110	139	86.5	36.5	3	526.5
AW11-6-15□□□	106.3	62	150	179	86.5	36.5	3	625
AW11-6-19□□□	106.3	62	190	219	86.5	36.5	3	723.5
AW11-6-24□□□	106.3	62	240	269	86.5	36.5	3	847
AW12-8-11□□□	120	77	105	134	100.2	51.5	3	614.5
AW12-8-14□□□	120	77	140	169	100.2	51.5	3	720.5
AW12-8-17□□□	120	77	179.5	208.5	100.2	51.5	3	840
AW12-8-22□□□	120	77	215	244	100.2	51.5	3	947.5
AW16-9-14□□□	156.3	87	135	164	136.5	61.5	3	945.5
AW16-9-18□□□	156.3	87	175	204	136.5	61.5	3	1,092.5
AW16-9-23□□□	156.3	87	225	254	136.5	61.5	3	1,275.5
AW16-9-28□□□	156.3	87	275	304	136.5	61.5	3	1,459
AW21-9-17□□□	206.3	87	170	199	186.5	61.5	3	1,303
AW21-9-21□□□	206.3	87	210	239	186.5	61.5	3	1,473.5
AW21-9-26□□□	206.3	87	260	289	186.5	61.5	3	1,686.5
AW21-9-31□□□	206.3	87	310	339	186.5	61.5	3	1,899.5

### Accessories (Optional parts)



Mounting plate □AWC series  
See page 170



Hexagon socket head screw HCS series  
See page 170



Cable gland  
See page 265 ~ 272



Pole mounting bracket SSK series  
See page 257 ~ 258



Protective vent PMF series  
See page 259 ~ 261

## AWN SERIES

## IP67 HEAT-SINK ALUMINIUM ENCLOSURE



- IP67 and heat dissipation enclosure design. Selectable in both Normal or EMC Shielded type.
- The extruded aluminium frame and diecast aluminium panels makes it extremely suitable to be used in harsh environments where waterproofing and heat dissipation is essential.
- PCB or chassis can be mounted by sliding it horizontally into inner-grooved body frame.
- Suitable for measuring instruments, industrial control box, and industrial camera housing, among others.

## Technical Data

Protection class: IP67  
Operating temperature: -40°C ~ +105°C  
Recommended torque:  
1.0N • m (10kgf • cm)

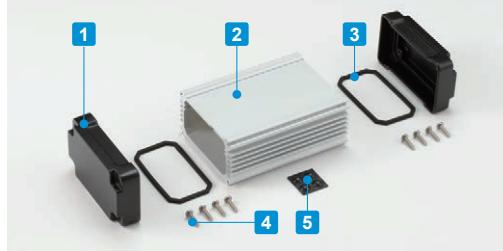
## Normal N type Components

No.	Part name	Pcs	Material	Color / Finish
1	End Panel	2	Diecast aluminium ADC12	Metallic gray • Black / Powder coated
2	Body frame	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Gasket	2	Silicone	Black
4	Screw	8	Stainless steel	Unfinished
5	Rubber feet	4	Polyurethane	Black

## EMC Shielded E type Components

No.	Part name	Pcs	Material	Color / Finish
1	End Panel	2	Diecast aluminium ADC12	Silver • Black / Painted (unfinished inside)
2	Body frame	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Gasket	2	Silicone	Black
4	Screw	8	Stainless steel	Unfinished
5	Rubber feet	4	Polyurethane	Black

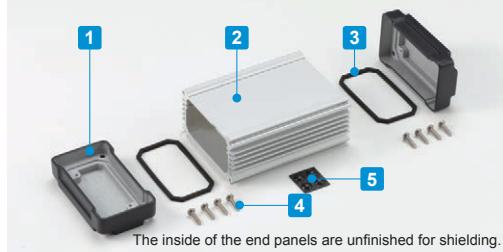
## Normal - N type



## Color type



## EMC Shielded - E type

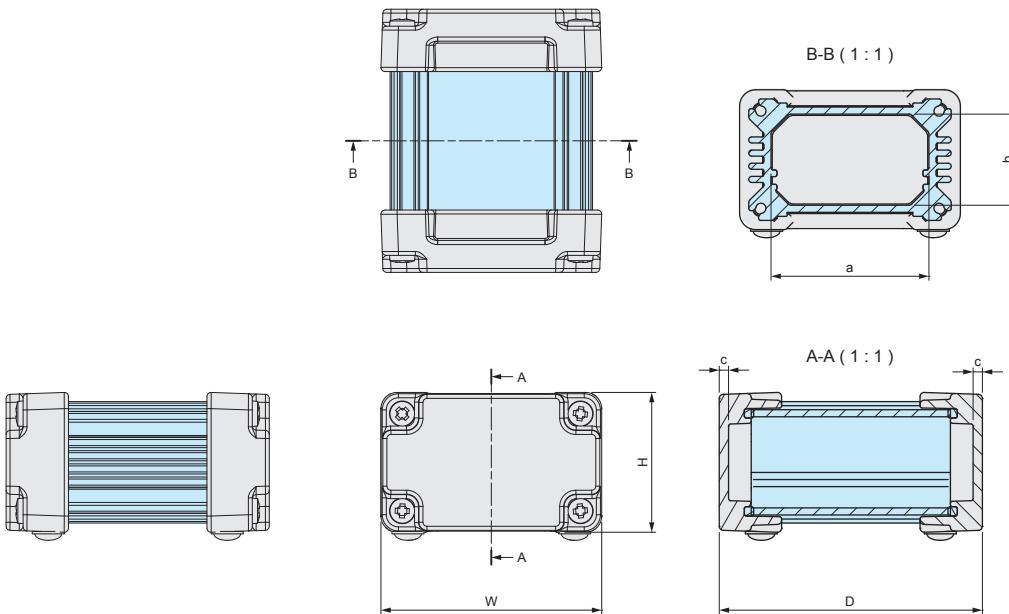


## Color type



## AWN dimensions

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



### Product no. / Dimensions

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

Product no.	W	H	D	a	b	c	Weight (g)
AWN 5-4- 7□□□	54.6	34.6	65	39	22.5	2.3	118.5
AWN 5-4- 9□□□	54.6	34.6	85	39	22.5	2.3	139
AWN 5-4-11□□□	54.6	34.6	110	39	22.5	2.3	165
AWN 5-4-14□□□	54.6	34.6	135	39	22.5	2.3	191.5
AWN 7-7- 8□□□	65.8	65.8	80	47	51	2.5	272.5
AWN 7-7-11□□□	65.8	65.8	110	47	51	2.5	328
AWN 7-7-15□□□	65.8	65.8	150	47	51	2.5	402.5
AWN 7-7-20□□□	65.8	65.8	200	47	51	2.5	495
AWN 7-7-25□□□	65.8	65.8	250	47	51	2.5	588
AWN 8-5- 9□□□	80.8	45.8	90	62	31	2.5	259.5
AWN 8-5-12□□□	80.8	45.8	115	62	31	2.5	300.5
AWN 8-5-14□□□	80.8	45.8	140	62	31	2.5	342
AWN 8-5-18□□□	80.8	45.8	175	62	31	2.5	399.5
AWN 9-9-10□□□	86.3	86.3	100	66.5	66.5	3	521.5
AWN 9-9-13□□□	86.3	86.3	125	66.5	66.5	3	594.5
AWN 9-9-17□□□	86.3	86.3	170	66.5	66.5	3	725.5
AWN 9-9-22□□□	86.3	86.3	220	66.5	66.5	3	871.5
AWN 9-9-28□□□	86.3	86.3	275	66.5	66.5	3	1,032
AWN11-6-11□□□	106.3	56.3	110	86.5	36.5	3	479.5
AWN11-6-15□□□	106.3	56.3	150	86.5	36.5	3	578
AWN11-6-19□□□	106.3	56.3	190	86.5	36.5	3	676.5
AWN11-6-24□□□	106.3	56.3	240	86.5	36.5	3	800
AWN12-8-11□□□	120	71.3	105	100.2	51.5	3	590.5
AWN12-8-14□□□	120	71.3	140	100.2	51.5	3	696.5
AWN12-8-17□□□	120	71.3	179.5	100.2	51.5	3	816
AWN12-8-22□□□	120	71.3	215	100.2	51.5	3	923.5
AWN16-9-14□□□	156.3	81.3	135	136.5	61.5	3	871.5
AWN16-9-18□□□	156.3	81.3	175	136.5	61.5	3	1,018.5
AWN16-9-23□□□	156.3	81.3	225	136.5	61.5	3	1,201.5
AWN16-9-28□□□	156.3	81.3	275	136.5	61.5	3	1,385
AWN21-9-17□□□	206.3	81.3	170	186.5	61.5	3	1,261
AWN21-9-21□□□	206.3	81.3	210	186.5	61.5	3	1,431.5
AWN21-9-26□□□	206.3	81.3	260	186.5	61.5	3	1,644.5
AWN21-9-31□□□	206.3	81.3	310	186.5	61.5	3	1,857.5

### Accessories (Optional parts)



Mounting plate AWC series  
See page 170



Hexagon socket head screw HCS series  
See page 170



Cable gland  
See page 265 ~ 272



Silicone protector AWSP series  
See page 169

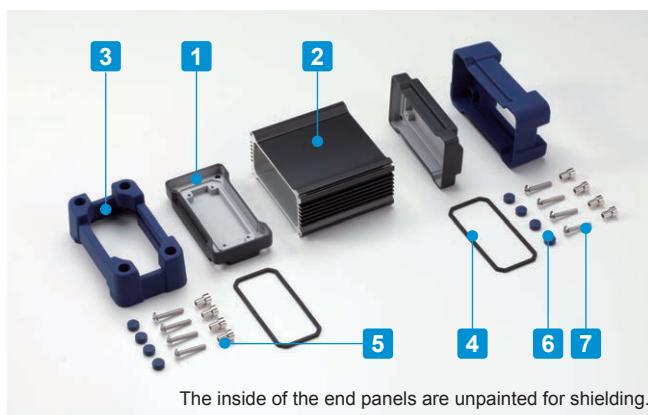
## AWP SERIES

## IP67 ALUMINIUM ENCLOSURE with SILICONE PROTECTOR



## Technical Data

Protection class: IP67  
Operating temperature: -40°C ~ +105°C  
Recommended torque: 1.0N · m (10kgf · cm)



- Strong impact resistant enclosure with tough silicone boot protectors.
- Specifically designed with heat dissipation effect, EMC shielding and IP67 rating.
- PCB or chassis can be horizontally mounted by sliding into an inner-grooved body frame.
- Available in 30 sizes and 8 different color combinations. Selectable from a total of 240 different combinations.
- Suitable for measuring instruments, industrial control box, industrial camera housing, etc.

## Components

No.	Part name	Pcs	Material	Color / Finish
1	End panel	2	Diecast aluminium ADC12	Silver • Black / Painted (unfinished inside)
2	Body frame	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Protector	2	Silicone	Black • Gray • Navy • Yellow
4	Conductive gasket	2	Conductive silicone	Black
5	Spacer	8	Brass	Nickel plated
6	Blind cap	8	Silicone	Black • Gray • Navy • Yellow
7	Screw	8	Stainless steel	Unfinished

**Color Type**

Code	S B Silver / Black	S G Silver / Gray	S N Silver / Navy	S Y Silver / Yellow
Color				
Code	B B Black / Black	B G Black / Gray	B N Black / Navy	B Y Black / Yellow
Color				

**Ordering Number**

For example, in case of ordering AWP7-7-8 size, Black enclosure and Navy silicone protector.

**Product no. : AWP7-7-8****B      N**

Put a color code SB, SG, SN, SY, BB, BG, BN or BY.

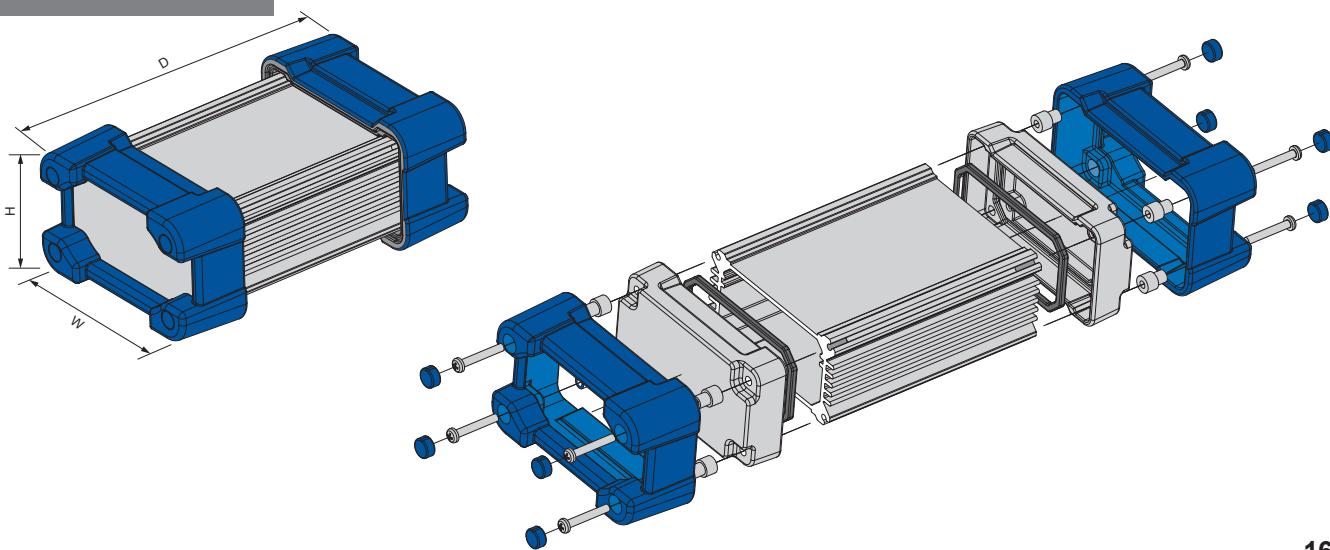
## ※ Thermal resistance test condition

- Ambient air cooling
- Heat-sink fins are set perpendicular to the ground with temperature at 60°C.
- Anodized aluminium extrusion
- Heat source is applied on the opposite side (inner side) of the fins.

**Product no. / Dimensions**

Product no.	W	H	D	※Thermal resistance rate (°C/W)	Weight (g)
AWP 7-7- 8□□	72.4(65.8)	73.6(65.8)	104 (80)	4.41	363.5
AWP 7-7-11□□	72.4(65.8)	73.6(65.8)	134(110)	3.5	419
AWP 7-7-15□□	72.4(65.8)	73.6(65.8)	174(150)	2.83	493.5
AWP 7-7-20□□	72.4(65.8)	73.6(65.8)	224(200)	2.33	586
AWP 7-7-25□□	72.4(65.8)	73.6(65.8)	274(250)	2.02	679
AWP 8-5- 9□□	87.4(80.8)	53.6(45.8)	114 (90)	5.97	353.5
AWP 8-5-12□□	87.4(80.8)	53.6(45.8)	139(115)	5.01	394.5
AWP 8-5-14□□	87.4(80.8)	53.6(45.8)	164(140)	4.37	436
AWP 8-5-18□□	87.4(80.8)	53.6(45.8)	199(175)	3.76	493.5
AWP 9-9-10□□	93.9(86.3)	95.1(86.3)	130(100)	3.1	693
AWP 9-9-13□□	93.9(86.3)	95.1(86.3)	155(125)	2.63	766
AWP 9-9-17□□	93.9(86.3)	95.1(86.3)	200(170)	2.12	897
AWP 9-9-22□□	93.9(86.3)	95.1(86.3)	250(220)	1.79	1,043
AWP 9-9-28□□	93.9(86.3)	95.1(86.3)	305(275)	1.54	1,203.5
AWP11-6-11□□	113.9(106.3)	65.1(56.3)	140(110)	4.52	652.5
AWP11-6-15□□	113.9(106.3)	65.1(56.3)	180(150)	3.62	751.5
AWP11-6-19□□	113.9(106.3)	65.1(56.3)	220(190)	3.08	850
AWP11-6-24□□	113.9(106.3)	65.1(56.3)	270(240)	2.64	973
AWP12-8-11□□	127.6(120)	80.1(71.3)	135(105)	3.6	778.5
AWP12-8-14□□	127.6(120)	80.1(71.3)	170(140)	2.93	885
AWP12-8-17□□	127.6(120)	80.1(71.3)	209.5(179.5)	2.47	1,004.5
AWP12-8-22□□	127.6(120)	80.1(71.3)	245(215)	2.18	1,112
AWP16-9-14□□	163.9(156.3)	90.1(81.3)	165(135)	2.64	1,094
AWP16-9-18□□	163.9(156.3)	90.1(81.3)	205(175)	2.2	1,240.5
AWP16-9-23□□	163.9(156.3)	90.1(81.3)	255(225)	1.86	1,424
AWP16-9-28□□	163.9(156.3)	90.1(81.3)	305(275)	1.63	1,607.5
AWP21-9-17□□	213.9(206.3)	90.1(81.3)	202(170)	2.3	1,571.5
AWP21-9-21□□	213.9(206.3)	90.1(81.3)	242(210)	1.99	1,742
AWP21-9-26□□	213.9(206.3)	90.1(81.3)	292(260)	1.72	1,955.5
AWP21-9-31□□	213.9(206.3)	90.1(81.3)	342(310)	1.54	2,168.5

■ ( ) value = enclosure dimension.

**AWP dimensions**

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

# AWA SERIES HEAT-SINK ALUMINIUM ENCLOSURE

AWA series is an aluminium enclosure that has a frame with heat-sink fins on both sides.

Furthermore, the enclosure is also conductive, which provides a shielding effect.

By machining the panels, the unit becomes extremely suitable to be used as high-end audio, or as an industrial equipment.

## APPLICATION EXAMPLE

### INDUSTRIAL IoT INTERFACE DEVICE

Product by SEE Système Radio (France)



**INDUSTRIAL FANLESS PC****AUDIO AMPLIFIER****WIDE-BAND SOLID STATE  
OPTICAL AMPLIFIER**

Product by Spectra Quest Lab. (Japan)

**CUSTOMIZATION**

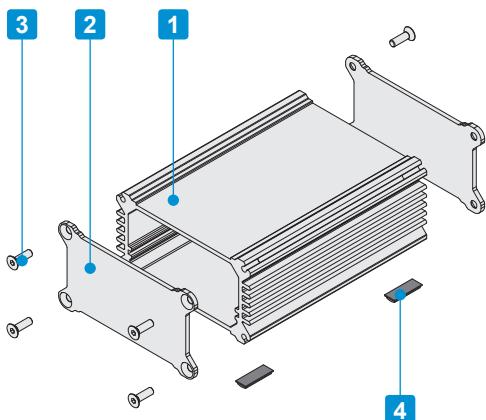
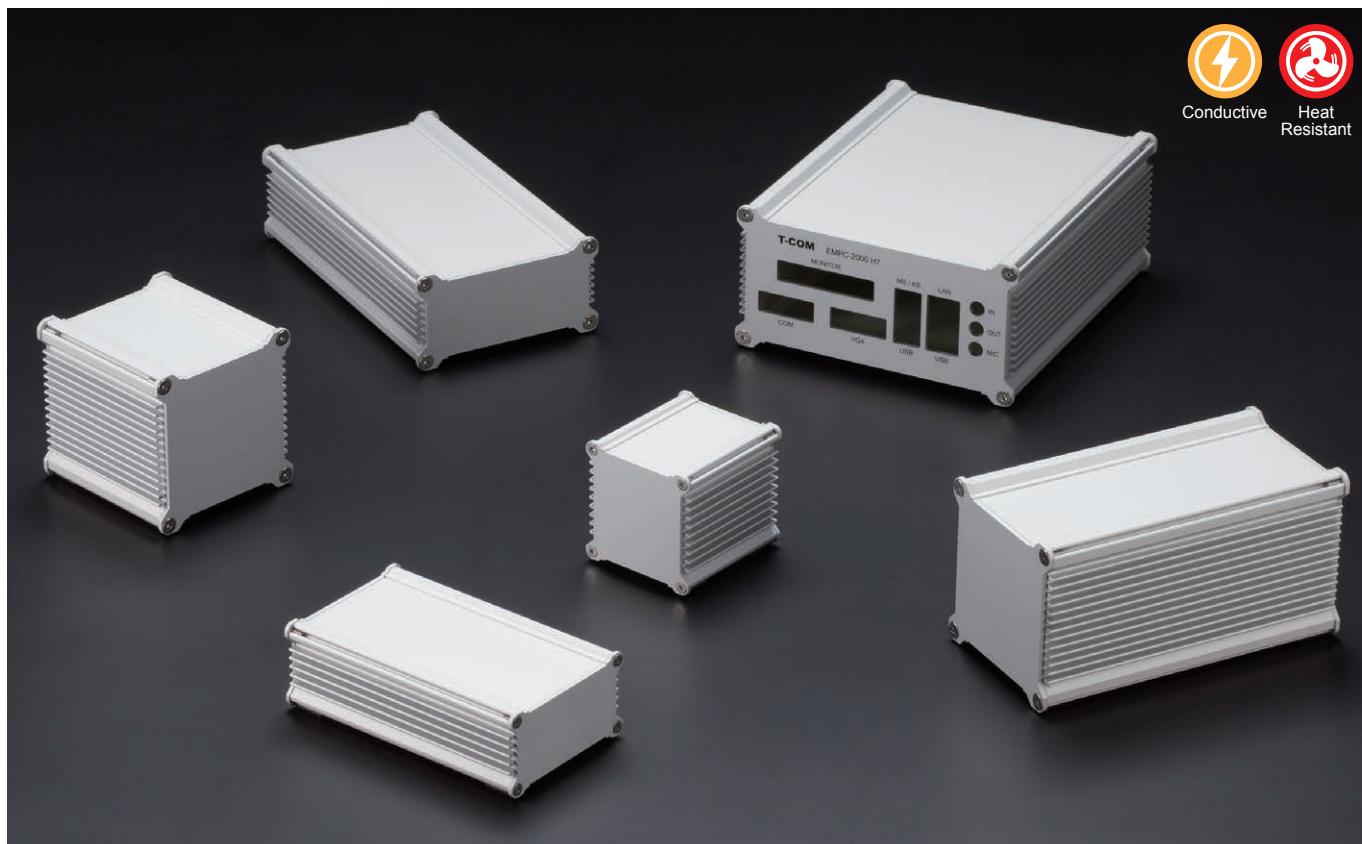
CNC milling available for customization on AWA series.

See website for more details.



## AWA SERIES

## HEAT-SINK ALUMINIUM ENCLOSURE



- Extruded aluminium frame manufactured with heat-sink sides.
- Silver anodized end panels makes for a luxurious finish.
- Conductivity is achieved by utilizing the contact between the unfinished end panels side, and the unfinished ends of the frame.
- PCB or chassis can be horizontally mounted by sliding into an inner-grooved body frame.
- Suitable for industrial fanless PC, measuring instrument, digital audio amplifier and so on.

Included screws :  
 AWA5-3, 6-6, 8-4 models : Hex countersunk M3-10 x 8 pcs  
 AWA8-8, 10-5, 12-7, 15-8 models : Hex countersunk M4-10 x 8 pcs  
 AWA20-8 models : Hex countersunk M5-10 x 8 pcs  
 ※Hexagonal wrench included.

## Component

No.	Part name	Pcs	Material	Color / Finish
1	Body frame	1	Extruded aluminium A6063S-T5	Silver / Anodized
2	End panel	2	Aluminium A1050P	Silver / Anodized (outside) : Unfinished (inside)
3	Hex socket screw	8	Stainless steel	Unfinished
4	Rubber feet	4	Polyurethane	Black

## Accessories (Optional parts)

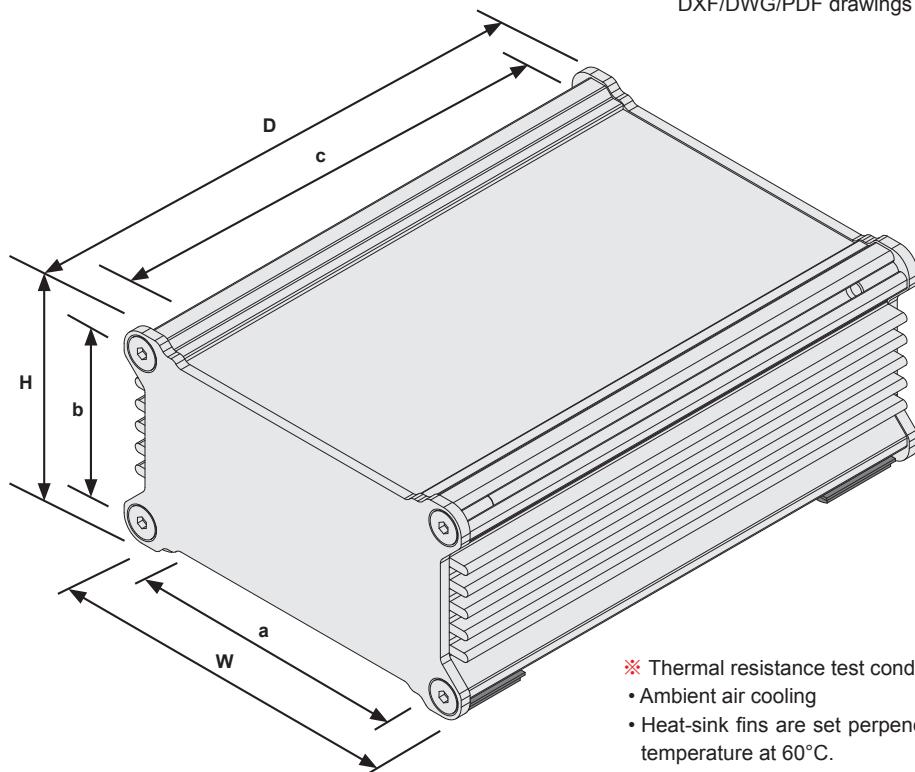


Mounting plate AWC series  
See page 170



Aluminium isolation feet AFS • AFM series  
See page 191 ~ 192

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



※ Thermal resistance test condition

- Ambient air cooling
- Heat-sink fins are set perpendicular to the ground with temperature at 60°C.
- Anodized aluminium extrusion
- Heat source is applied on the opposite side (inner side) of the fins.

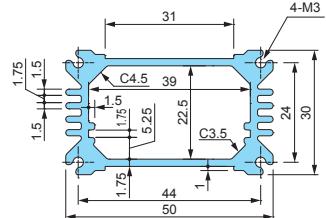
**Product no. / Dimensions**

Product no.	Dimensions (External)			Dimensions (Internal)			※Thermal resistance rate (°C/W)	Weight (g)
	W	H	D	a	b	c		
AWA 5-3- 5SS	52	32	53.2	39	22.5	49.2	11.2	69.5
AWA 5-3- 7SS	52	32	73.2	39	22.5	69.2	9.18	90.5
AWA 5-3-10SS	52	32	98.2	39	22.5	94.2	7.64	116.5
AWA 5-3-12SS	52	32	123.2	39	22.5	119.2	6.63	142.5
AWA 6-6- 7SS	61	61	68	47	51	64	4.41	156
AWA 6-6-10SS	61	61	98	47	51	94	3.5	212
AWA 6-6-14SS	61	61	138	47	51	134	2.83	286
AWA 6-6-19SS	61	61	188	47	51	184	2.33	379
AWA 6-6-24SS	61	61	238	47	51	234	2.02	471.5
AWA 8-4- 8SS	76	41	78	62	31	74	5.97	154
AWA 8-4-10SS	76	41	103	62	31	99	5.01	195
AWA 8-4-13SS	76	41	128	62	31	124	4.37	236.5
AWA 8-4-16SS	76	41	163	62	31	159	3.76	294
AWA 8-8- 9SS	82	82	86	66.5	66.5	81	3.1	319.5
AWA 8-8-11SS	82	82	111	66.5	66.5	106	2.63	392.5
AWA 8-8-16SS	82	82	156	66.5	66.5	151	2.12	523.5
AWA 8-8-21SS	82	82	206	66.5	66.5	201	1.79	669.5
AWA 8-8-26SS	82	82	261	66.5	66.5	256	1.54	829.5
AWA10-5-10SS	102	52	95.6	86.5	36.5	90.6	4.52	288.5
AWA10-5-14SS	102	52	135.6	86.5	36.5	130.6	3.62	387.5
AWA10-5-18SS	102	52	175.6	86.5	36.5	170.6	3.08	486
AWA10-5-23SS	102	52	225.6	86.5	36.5	220.6	2.64	609
AWA12-7- 9SS	115.7	67	90.6	100.2	51.5	85.6	3.6	354
AWA12-7-12SS	115.7	67	125.6	100.2	51.5	120.6	2.93	460
AWA12-7-17SS	115.7	67	165.1	100.2	51.5	160.1	2.47	579.5
AWA12-7-20SS	115.7	67	200.6	100.2	51.5	195.6	2.18	687
AWA15-8-12SS	152	77	120.6	136.5	61.5	115.6	2.64	565.5
AWA15-8-16SS	152	77	160.6	136.5	61.5	155.6	2.2	712
AWA15-8-21SS	152	77	210.6	136.5	61.5	205.6	1.86	895.5
AWA15-8-26SS	152	77	260.6	136.5	61.5	255.6	1.63	1,079
AWA20-8-15SS	202.4	77.4	153.8	186.5	61.5	147.8	2.3	854.5
AWA20-8-19SS	202.4	77.4	193.8	186.5	61.5	187.8	1.99	1,025
AWA20-8-24SS	202.4	77.4	243.8	186.5	61.5	237.8	1.72	1,238
AWA20-8-29SS	202.4	77.4	293.8	186.5	61.5	287.8	1.54	1,451.5

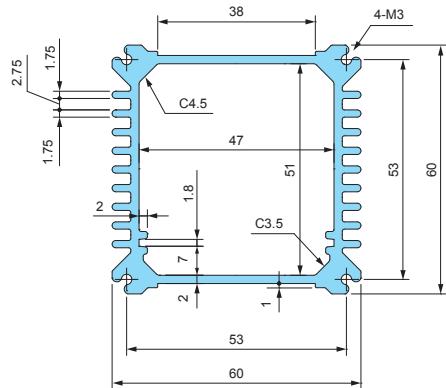
## AW • AWN • AWP • AWA frame

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

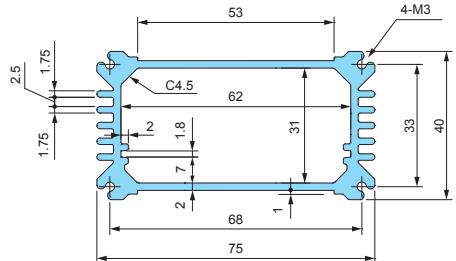
AW/AWN5-4-□



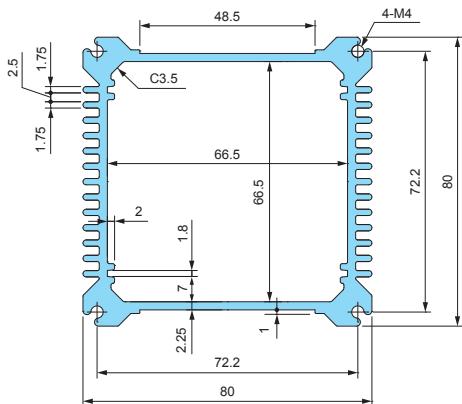
AW/AWN/AWP7-7-□



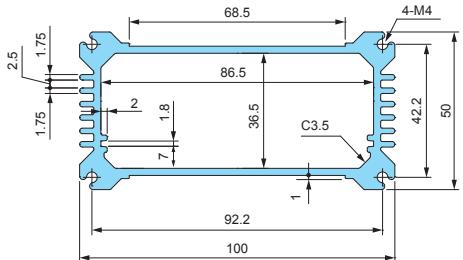
AW/AWN/AWP8-5-□



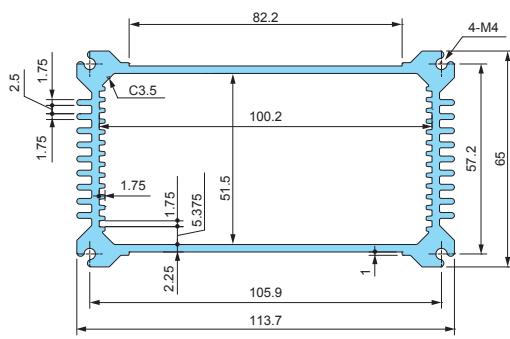
AW/AWN/AWP9-9-□



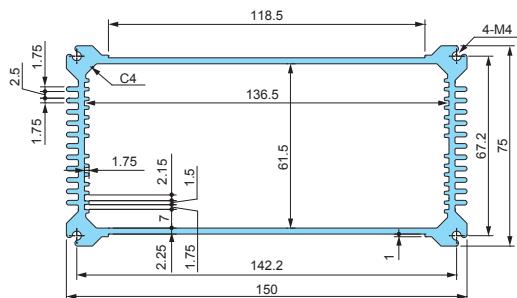
AW/AWN/AWP11-6-□



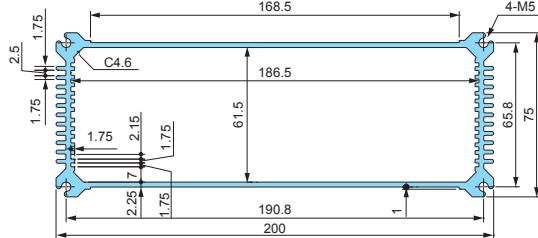
AW/AWN/AWP12-8-□



AW/AWN/AWP16-9-□



AW/AWN/AWP21-9-□



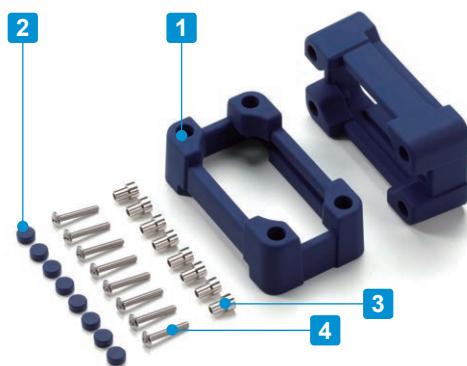
## ※ Thermal resistance test condition

- Ambient air cooling
- Heat-sink fins are set perpendicular to the ground with temperature at 60°C.
- Anodized aluminium extrusion
- Heat source is applied on the opposite side (inner side) of the fins.

Product no.		Frame	※Thermal resistance rate (°C/W)
AW 5-4- 7	AWN 5-4- 7	—	49.2
AW 5-4- 9	AWN 5-4- 9	—	69.2
AW 5-4-11	AWN 5-4-11	—	94.2
AW 5-4-14	AWN 5-4-14	—	119.2
AW 7-7- 8	AWN 7-7- 8	AWP 7-7- 8	64
AW 7-7-11	AWN 7-7-11	AWP 7-7-11	94
AW 7-7-15	AWN 7-7-15	AWP 7-7-15	134
AW 7-7-20	AWN 7-7-20	AWP 7-7-20	184
AW 7-7-25	AWN 7-7-25	AWP 7-7-25	234
AW 8-5- 9	AWN 8-5- 9	AWP 8-5- 9	74
AW 8-5-12	AWN 8-5-12	AWP 8-5-12	99
AW 8-5-14	AWN 8-5-14	AWP 8-5-14	124
AW 8-5-18	AWN 8-5-18	AWP 8-5-18	159
AW 9-9-10	AWN 9-9-10	AWP 9-9-10	81
AW 9-9-13	AWN 9-9-13	AWP 9-9-13	106
AW 9-9-17	AWN 9-9-17	AWP 9-9-17	151
AW 9-9-22	AWN 9-9-22	AWP 9-9-22	201
AW 9-9-28	AWN 9-9-28	AWP 9-9-28	256
AW11-6-11	AWN11-6-11	AWP11-6-11	90.6
AW11-6-15	AWN11-6-15	AWP11-6-15	130.6
AW11-6-19	AWN11-6-19	AWP11-6-19	170.6
AW11-6-24	AWN11-6-24	AWP11-6-24	220.6
AW12-8-11	AWN12-8-11	AWP12-8-11	85.6
AW12-8-14	AWN12-8-14	AWP12-8-14	120.6
AW12-8-17	AWN12-8-17	AWP12-8-17	160.1
AW12-8-22	AWN12-8-22	AWP12-8-22	195.6
AW16-9-14	AWN16-9-14	AWP16-9-14	115.6
AW16-9-18	AWN16-9-18	AWP16-9-18	155.6
AW16-9-23	AWN16-9-23	AWP16-9-23	205.6
AW16-9-28	AWN16-9-28	AWP16-9-28	255.6
AW21-9-17	AWN21-9-17	AWP21-9-17	147.8
AW21-9-21	AWN21-9-21	AWP21-9-21	187.8
AW21-9-26	AWN21-9-26	AWP21-9-26	237.8
AW21-9-31	AWN21-9-31	AWP21-9-31	287.8

## AWSP SERIES

## SILICONE PROTECTOR

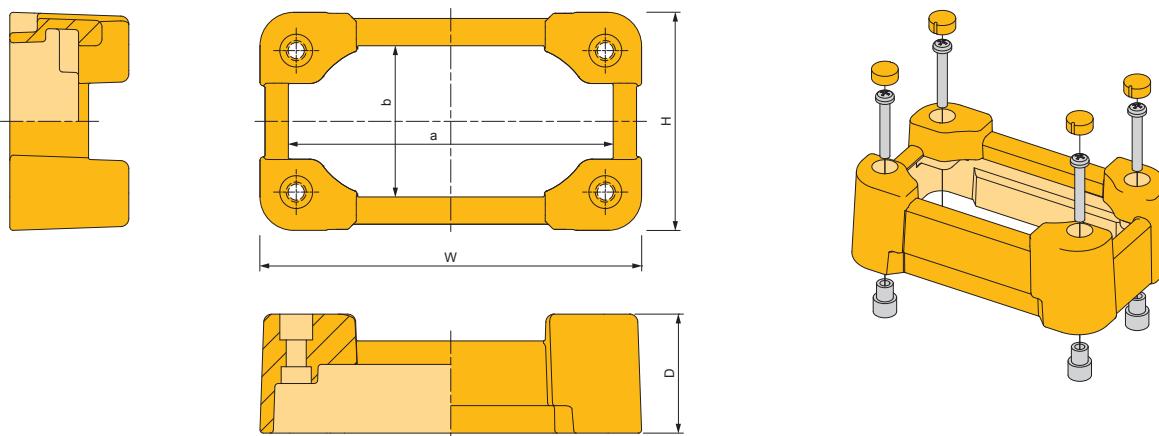


## Color Type

Code	B Black	G Gray	N Navy	Y Yellow
Color				

- Silicone protector for AWN series.
- Protect switches and/or connectors on end panels from impact when dropped, etc.

## AWSP dimensions



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Protector	2	Silicone	Black • Gray • Navy • Yellow
2	Blind cap	8	Silicone	Black • Gray • Navy • Yellow
3	Spacer	8	Brass	Nickel plated
4	Screw	8	Stainless steel	Unfinished

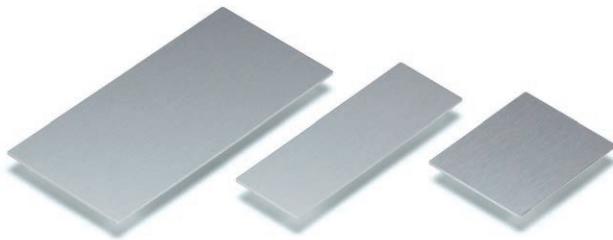
## Product no. / Dimensions

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

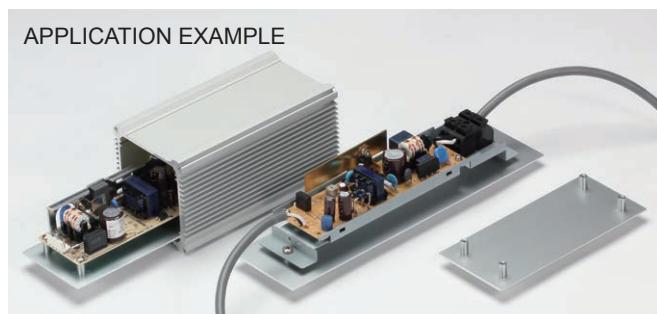
Product no.	W	H	D	a	b	Screw size	Suitable enclosure	Weight (g)
AWSP 7-7□	72.4	73.6	31	58.4	56.6	M3	AWN 7-7-□	99
AWSP 8-5□	87.4	53.6	31	73.4	36.6	M3	AWN 8-5-□	100.5
AWSP 9-9□	93.9	95.1	35.5	76.9	75.1	M4	AWN 9-9-□	184.5
AWSP11-6□	113.9	65.1	35.5	96.9	45.1	M4	AWN11-6-□	186
AWSP12-8□	127.6	80.1	35.5	110.6	60.1	M4	AWN12-8-□	201
AWSP16-9□	163.9	90.1	35.5	145.9	69.1	M4	AWN16-9-□	235
AWSP21-9□	213.9	90.1	39.5	192.9	66.1	M5	AWN21-9-□	333

## AWC SERIES

## ALUMINIUM MOUNTING PLATE



## APPLICATION EXAMPLE

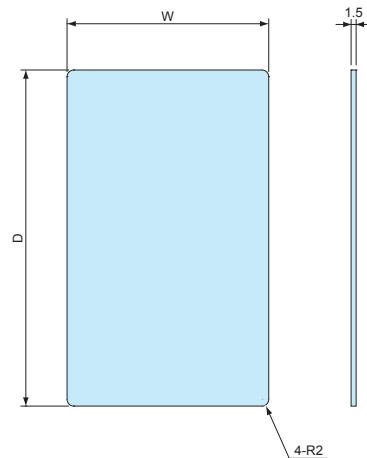


- Material: Aluminium A1050P t=1.5 / Silver anodized
- Mounting plate for AW, AWN, and AWP series enclosures.
- Utilize for mounting PCB, power supply, terminal blocks, etc.

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

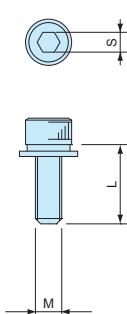
## Product no. / Dimensions

Product no.	W	D	Suitable enclosure
AWC 5- 7	38.9	49.2	AW • AWN 5-4-7
AWC 5- 9	38.9	69.2	AW • AWN 5-4-9
AWC 5-11	38.9	94.2	AW • AWN 5-4-11
AWC 5-14	38.9	119.2	AW • AWN 5-4-14
AWC 7- 8	47	64	AW • AWN • AWP 7-7-8
AWC 7-11	47	94	AW • AWN • AWP 7-7-11
AWC 7-15	47	134	AW • AWN • AWP 7-7-15
AWC 7-20	47	184	AW • AWN • AWP 7-7-20
AWC 7-25	47	234	AW • AWN • AWP 7-7-25
AWC 8- 9	61.8	74	AW • AWN • AWP 8-5-9
AWC 8-12	61.8	99	AW • AWN • AWP 8-5-12
AWC 8-14	61.8	124	AW • AWN • AWP 8-5-14
AWC 8-18	61.8	159	AW • AWN • AWP 8-5-18
AWC 9-10	66.5	81	AW • AWN • AWP 9-9-10
AWC 9-13	66.5	106	AW • AWN • AWP 9-9-13
AWC 9-17	66.5	151	AW • AWN • AWP 9-9-17
AWC 9-22	66.5	201	AW • AWN • AWP 9-9-22
AWC 9-28	66.5	256	AW • AWN • AWP 9-9-28
AWC11-11	86.5	90.6	AW • AWN • AWP11-6-11
AWC11-15	86.5	130.6	AW • AWN • AWP11-6-15
AWC11-19	86.5	170.6	AW • AWN • AWP11-6-19
AWC11-24	86.5	220.6	AW • AWN • AWP11-6-24
AWC12-11	100.2	85.6	AW • AWN • AWP12-8-11
AWC12-14	100.2	120.6	AW • AWN • AWP12-8-14
AWC12-17	100.2	160.1	AW • AWN • AWP12-8-17
AWC12-22	100.2	195.6	AW • AWN • AWP12-8-22
AWC16-14	136.3	115.6	AW • AWN • AWP16-9-14
AWC16-18	136.3	155.6	AW • AWN • AWP16-9-18
AWC16-23	136.3	205.6	AW • AWN • AWP16-9-23
AWC16-28	136.3	255.6	AW • AWN • AWP16-9-28
AWC21-17	186.1	147.8	AW • AWN • AWP21-9-17
AWC21-21	186.1	187.8	AW • AWN • AWP21-9-21
AWC21-26	186.1	237.8	AW • AWN • AWP21-9-26
AWC21-31	186.1	287.8	AW • AWN • AWP21-9-31



## HCS SERIES

## HEXAGON SOCKET HEAD SCREW



- Hexagon socket head screws for fastening the end panels of AW and AWN enclosures.

■ Utilize for tamper-resistance functionality or for an elegant sleek look.

## Product no. / Dimensions

Product no.	M	L	S	Material	Pack of
HCS3-12S	3	12	2.5	Stainless steel	8
HCS4-12S	4	12	3	Stainless steel	8
HCS5-12S	5	12	4	Stainless steel	8

# EXH HEAT-SINK ALUMINIUM ENCLOSURE

EXH series is an aluminium enclosure with a highly efficient heat-sink top cover.

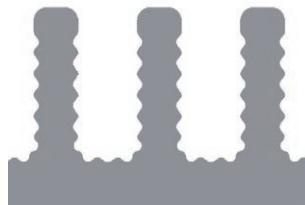
Suitable to be used as fanless PC, power amplifier, and power supply box where heat dissipation is required.  
Wide range, 30 different sizes available.



## Waved surface heat-sink fins for maximum cooling performance!

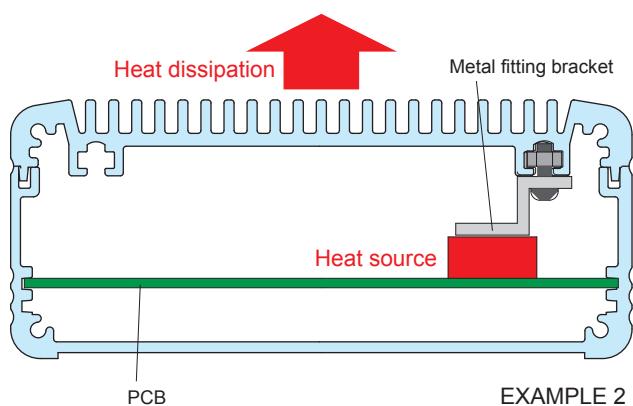
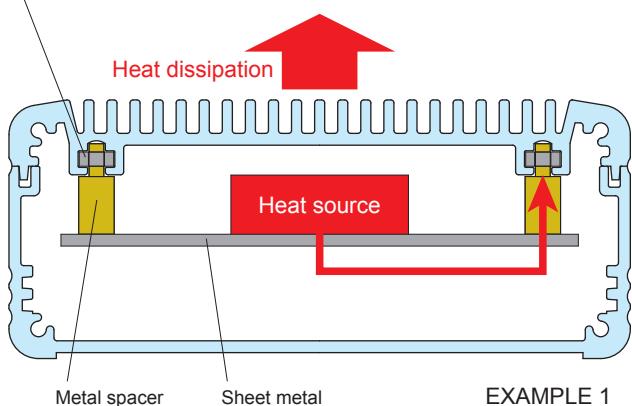
- Each heat-sink fin has a waved surface construction for maximum cooling performance.

**Waved Surface**



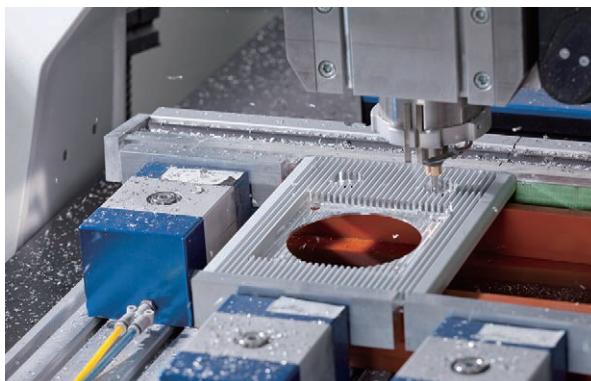
## HEAT DISSIPATION EXAMPLE

- EXH series has grooves to put M3 nuts inside its heat-sink cover. It is possible to construct a heat conduction route from your heat source to heat-sink cover easily for better heat dissipation performance.



# CUSTOMIZATION EXAMPLE

## CNC MACHINING on HEAT-SINK COVER



Heat-sink plates can be customized with our high speed CNC machines.

## PIN SHAPED FIN CUSTOMIZATION



Pin shaped heat-sink fin can be customized for better cooling performance.

## COLOR ANODIZING

Various colors, such as blue, red, orange, green or purple can be anodized as per your requirements.



■ Not all colors and shades of colors are possible.

## CUSTOM LENGTH AVAILABLE



# APPLICATION EXAMPLE

## STABILIZED DIODE LASER

Product by Spectra Quest Lab. (Japan)

Controller



Laser Head



## IOT GATEWAY

Product by VNPT Technology (Vietnam)



## ULTRASONIC NOZZLE CLEANER

Product by ESER Corporation (Japan)



TAKACHI PF plastic enclosure is also adopted.

## ALL-IN-ONE EDGE NODE

Product by SHINWA (Japan)



## 4 CHANNEL POWER SWITCHING EDGE NODE

Product by SHINWA (Japan)

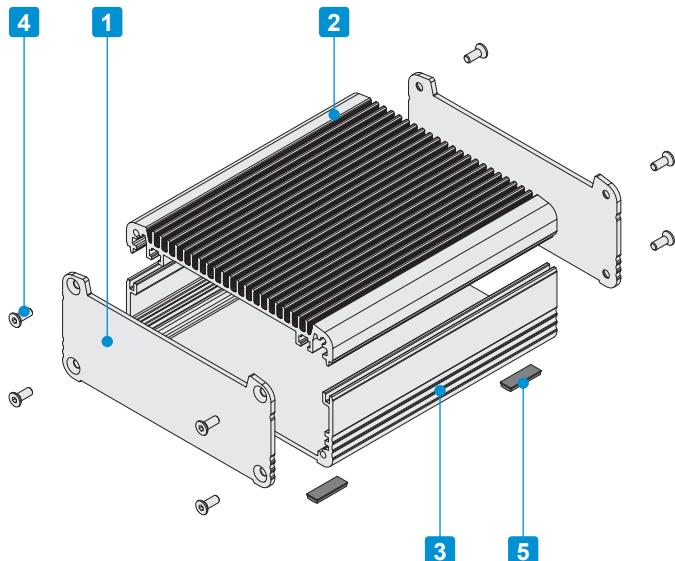


## AUDIO AMPLIFIER

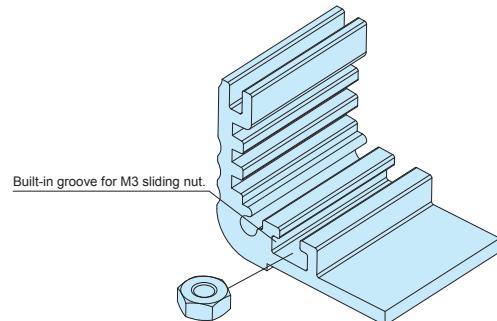


## EXH SERIES

## HEAT-SINK ALUMINIUM ENCLOSURE



- Aluminum enclosure equipped with a highly efficient heat-sink top cover.
- Suitable to be used as a fanless PC, power amplifier, power supply etc. where heat dissipation is required.
- Selectable in 58 different sizes and 4 different color combinations.
- Grooves for M3 sliding nut are built into the heat-sink top cover and bottom frame (140mm or wider).



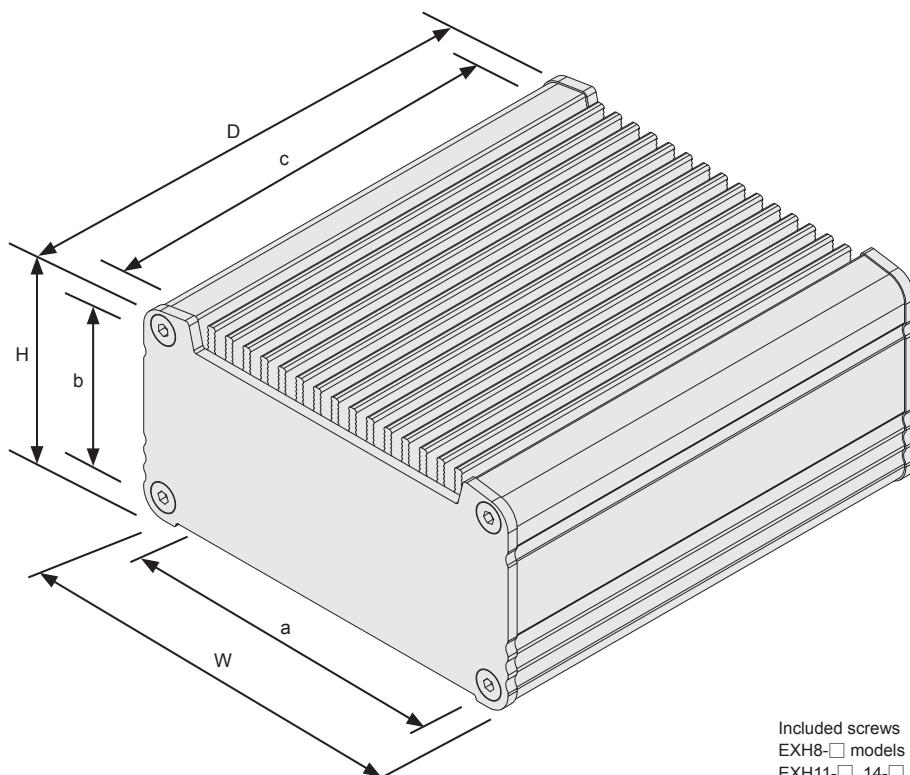
## Components

No.	Part name	Pcs	Material	Color / Finish
1	Panel	2	Aluminium A1050P	Silver • Black / Anodized
2	Heat-sink top cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Bottom frame	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
4	Screw (Hexagonal)	8	Stainless steel	Unfinished
5	Rubber feet	4	Polyurethane	Black

## Color Type

Code	S S Silver / Silver	S B Silver / Black	B S Black / Silver	B B Black / Black
Color				

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



## Included screws

EXH8-□ models : M2.5-8 x 8 pcs  
 EXH11-□, 14-□ models : M3-8 x 8 pcs  
 EXH19-□ models : M4-10 x 8 pcs  
 EXH23-□ models : M5-10 x 8 pcs  
 ※Hexagonal wrench included.

## Product no. / Dimensions

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

Product no.	External dimensions			Internal dimensions			※Thermal resistance rate (°C/W)
	W	H	D	a	b	c	
EXH 8-3- 6□□	80.6	30.7	60	69.6	20.3	56	7.32
EXH 8-3- 9□□	80.6	30.7	90	69.6	20.3	86	5.65
EXH 8-3-12□□	80.6	30.7	120	69.6	20.3	116	4.72
EXH 8-4- 6□□	80.6	40.7	60	69.6	30.3	56	7.32
EXH 8-4- 9□□	80.6	40.7	90	69.6	30.3	86	5.65
EXH 8-4-12□□	80.6	40.7	120	69.6	30.3	116	4.72
EXH 8-6- 6□□	80.6	55.7	60	69.6	45.3	56	7.32
EXH 8-6- 9□□	80.6	55.7	90	69.6	45.3	86	5.65
EXH 8-6-12□□	80.6	55.7	120	69.6	45.3	116	4.72
EXH11-3- 8□□	106	31.1	78	94.6	19.3	74	4.82
EXH11-3-12□□	106	31.1	118	94.6	19.3	114	3.72
EXH11-3-16□□	106	31.1	164	94.6	19.3	160	3.03
EXH11-5- 8□□	106	46.1	78	94.6	34.3	74	4.82
EXH11-5-12□□	106	46.1	118	94.6	34.3	114	3.72
EXH11-5-16□□	106	46.1	164	94.6	34.3	160	3.03
EXH11-6- 8□□	106	61.1	78	94.6	49.3	74	4.82
EXH11-6-12□□	106	61.1	118	94.6	49.3	114	3.72
EXH11-6-16□□	106	61.1	164	94.6	49.3	160	3.03
EXH14-4-10□□	141	36.1	97	129.6	24.3	93	3.4
EXH14-4-14□□	141	36.1	137	129.6	24.3	133	2.75
EXH14-4-19□□	141	36.1	187	129.6	24.3	183	2.27
EXH14-5-10□□	141	51.1	97	129.6	39.3	93	3.4
EXH14-5-14□□	141	51.1	137	129.6	39.3	133	2.75
EXH14-5-19□□	141	51.1	187	129.6	39.3	183	2.27
EXH14-7-10□□	141	71.1	97	129.6	59.3	93	3.4
EXH14-7-14□□	141	71.1	137	129.6	59.3	133	2.75
EXH14-7-19□□	141	71.1	187	129.6	59.3	183	2.27
EXH14-9-10□□	141	91.1	97	129.6	79.3	93	3.4
EXH14-9-14□□	141	91.1	137	129.6	79.3	133	2.75
EXH14-9-19□□	141	91.1	187	129.6	79.3	183	2.27

■ Custom length available.

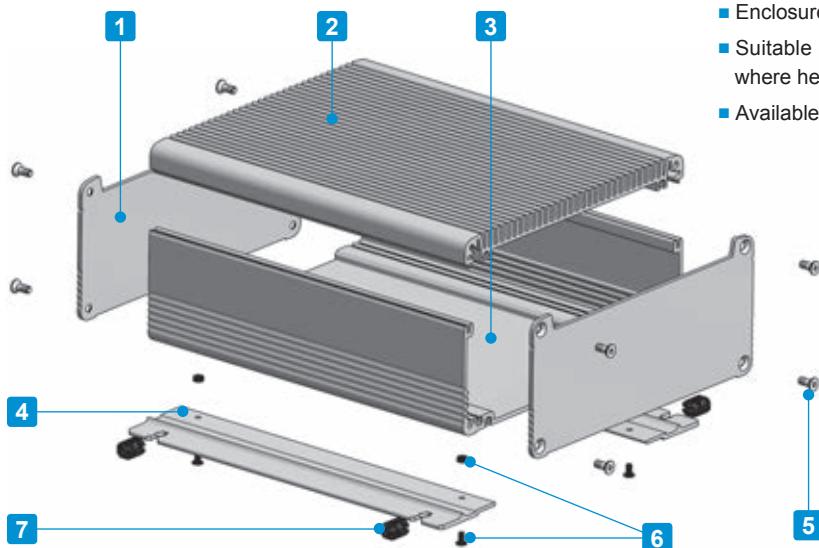
Product no.	External dimensions			Internal dimensions			※Thermal resistance rate (°C/W)
	W	H	D	a	b	c	
NEW EXH19- 4-13□□	186.5	43.5	125	170	26.85	120	1.92
NEW EXH19- 4-18□□	186.5	43.5	177	170	26.85	172	1.56
NEW EXH19- 4-23□□	186.5	43.5	230	170	26.85	225	1.32
NEW EXH19- 4-29□□	186.5	43.5	285	170	26.85	280	1.15
NEW EXH19- 6-13□□	186.5	61.5	125	170	44.85	120	1.92
NEW EXH19- 6-18□□	186.5	61.5	177	170	44.85	172	1.56
NEW EXH19- 6-23□□	186.5	61.5	230	170	44.85	225	1.32
NEW EXH19- 6-29□□	186.5	61.5	285	170	44.85	280	1.15
NEW EXH19- 8-13□□	186.5	81.5	125	170	64.85	120	1.92
NEW EXH19- 8-18□□	186.5	81.5	177	170	64.85	172	1.56
NEW EXH19- 8-23□□	186.5	81.5	230	170	64.85	225	1.32
NEW EXH19- 8-29□□	186.5	81.5	285	170	64.85	280	1.15
NEW EXH19-11-13□□	186.5	106.5	125	170	89.85	120	1.92
NEW EXH19-11-18□□	186.5	106.5	177	170	89.85	172	1.56
NEW EXH19-11-23□□	186.5	106.5	230	170	89.85	225	1.32
NEW EXH19-11-29□□	186.5	106.5	285	170	89.85	280	1.15
NEW EXH23- 5-15□□	232	52	153	215	34.85	147	1.47
NEW EXH23- 5-21□□	232	52	213	215	34.85	207	1.2
NEW EXH23- 5-27□□	232	52	273	215	34.85	267	1.03
NEW EXH23- 5-33□□	232	52	333	215	34.85	327	0.91
NEW EXH23- 8-15□□	232	77	153	215	59.85	147	1.47
NEW EXH23- 8-21□□	232	77	213	215	59.85	207	1.2
NEW EXH23- 8-27□□	232	77	273	215	59.85	267	1.03
NEW EXH23- 8-33□□	232	77	333	215	59.85	327	0.91
NEW EXH23-10-15□□	232	102	153	215	84.85	147	1.47
NEW EXH23-10-21□□	232	102	213	215	84.85	207	1.2
NEW EXH23-10-27□□	232	102	273	215	84.85	267	1.03
NEW EXH23-10-33□□	232	102	333	215	84.85	327	0.91

※Thermal resistance test condition

- Ambient air cooling
- Heat-sink fins are set perpendicular to the ground with temperature at 60°C.
- Anodized aluminum extrusion
- Heat source is applied on the opposite side (inner side) of the fins.

## EXHF SERIES

## FLANGED HEAT-SINK ALUMINIUM ENCLOSURE

Heat  
Resistant

- Equipped with flanged bracket for easy wall mounting.
- Enclosure equipped with a highly efficient heat-sink top cover.
- Suitable to be used as a fanless PC, amplifier, power supply etc. where heat dissipation is required.
- Available in 28 different sizes and 4 different color combinations.

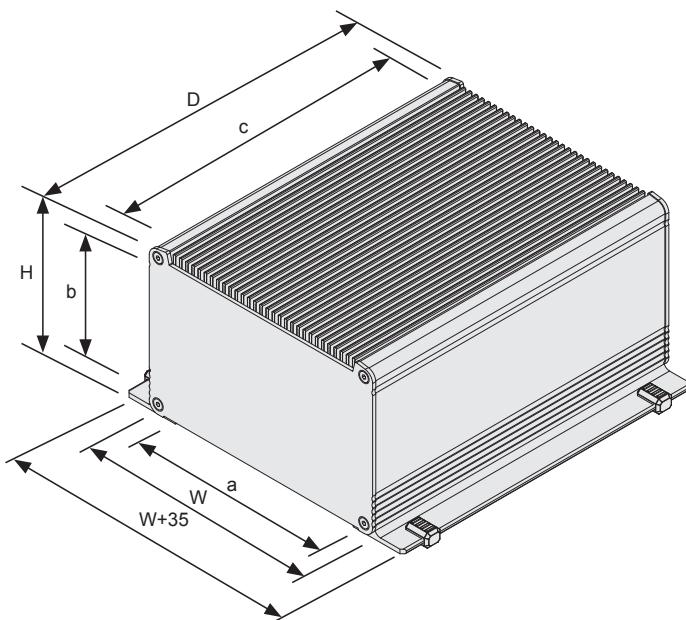
## Components

No.	Part name	Pcs	Material	Color / Finish
1	Panel	2	Aluminium A1050P	Silver • Black / Anodized
2	Heat-sink top cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Bottom frame	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
4	Flange bracket	2	Extruded aluminium A6063S-T5	Silver • Black / Anodized
5	Panel screw (Hexagonal)	8	Stainless steel	Unfinished
6	Flange screw	4	Steel	Trivalent chromate
7	Rubber feet	4	Silicone	Black

## Color Type

Code	S S Silver / Silver	S B Silver / Black	B S Black / Silver	B B Black / Black
Color				

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



Included screws  
EXHF19-□ models : M4-10 x 8 pcs  
EXHF23-□ models : M5-10 x 8 pcs  
※Hexagonal wrench included.

※Thermal resistance test condition  

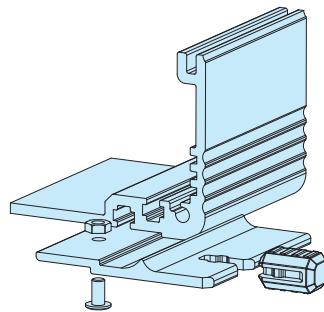
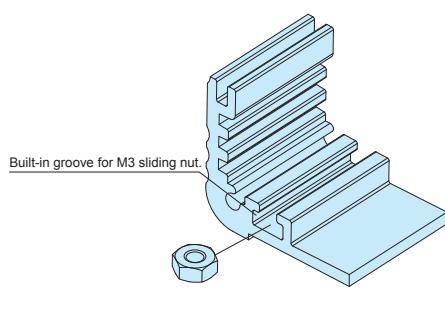
- Ambient air cooling
- Heat-sink fins are set perpendicular to the ground with temperature at 60°C.
- Anodized aluminum extrusion
- Heat source is applied on the opposite side (inner side) of the fins.

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

Product no.	External dimensions			Internal dimensions			※Thermal resistance rate (°C/W)
	W	H	D	a	b	c	
NEW EXHF19- 4-13□□	186.5	45.25	125	170	26.85	120	1.92
NEW EXHF19- 4-18□□	186.5	45.25	177	170	26.85	172	1.56
NEW EXHF19- 4-23□□	186.5	45.25	230	170	26.85	225	1.32
NEW EXHF19- 4-29□□	186.5	45.25	285	170	26.85	280	1.15
NEW EXHF19- 6-13□□	186.5	63.25	125	170	44.85	120	1.92
NEW EXHF19- 6-18□□	186.5	63.25	177	170	44.85	172	1.56
NEW EXHF19- 6-23□□	186.5	63.25	230	170	44.85	225	1.32
NEW EXHF19- 6-29□□	186.5	63.25	285	170	44.85	280	1.15
NEW EXHF19- 8-13□□	186.5	83.25	125	170	64.85	120	1.92
NEW EXHF19- 8-18□□	186.5	83.25	177	170	64.85	172	1.56
NEW EXHF19- 8-23□□	186.5	83.25	230	170	64.85	225	1.32
NEW EXHF19- 8-29□□	186.5	83.25	285	170	64.85	280	1.15
NEW EXHF19-11-13□□	186.5	108.25	125	170	89.85	120	1.92
NEW EXHF19-11-18□□	186.5	108.25	177	170	89.85	172	1.56
NEW EXHF19-11-23□□	186.5	108.25	230	170	89.85	225	1.32
NEW EXHF19-11-29□□	186.5	108.25	285	170	89.85	280	1.15
NEW EXHF23- 5-15□□	232	53.5	153	215	34.85	147	1.47
NEW EXHF23- 5-21□□	232	53.5	213	215	34.85	207	1.2
NEW EXHF23- 5-27□□	232	53.5	273	215	34.85	267	1.03
NEW EXHF23- 5-33□□	232	53.5	333	215	34.85	327	0.91
NEW EXHF23- 8-15□□	232	78.5	153	215	59.85	147	1.47
NEW EXHF23- 8-21□□	232	78.5	213	215	59.85	207	1.2
NEW EXHF23- 8-27□□	232	78.5	273	215	59.85	267	1.03
NEW EXHF23- 8-33□□	232	78.5	333	215	59.85	327	0.91
NEW EXHF23-10-15□□	232	103.5	153	215	84.85	147	1.47
NEW EXHF23-10-21□□	232	103.5	213	215	84.85	207	1.2
NEW EXHF23-10-27□□	232	103.5	273	215	84.85	267	1.03
NEW EXHF23-10-33□□	232	103.5	333	215	84.85	327	0.91

■ Grooves for M3 sliding nut are found on the heat-sink top cover and bottom frame (140mm or wider).

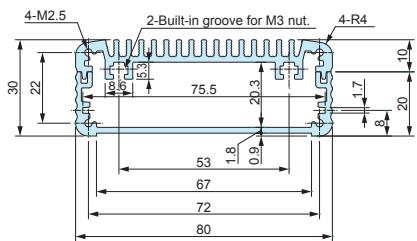
■ Flange bracket is installed as per the diagram below.



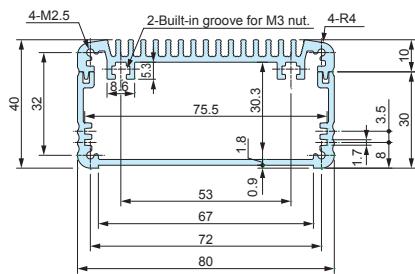
**EXH • EXHF heat-sink top cover / bottom frame**

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

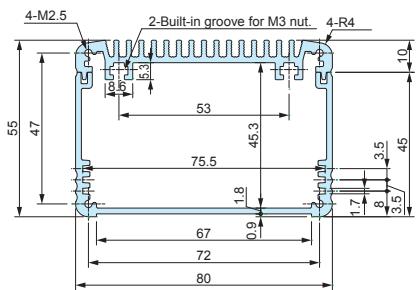
EXH8-3-□



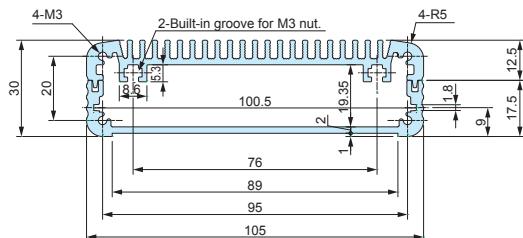
EXH8-4-□



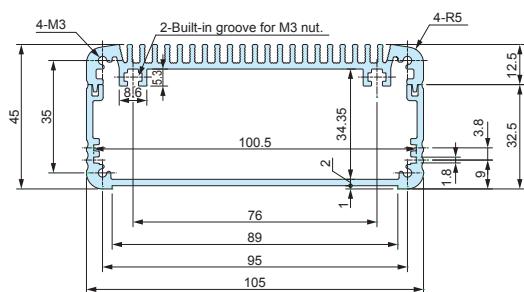
EXH8-6-□



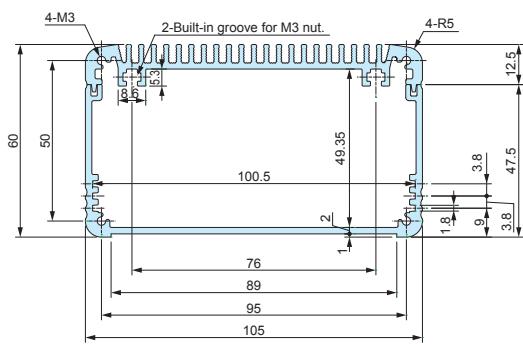
EXH11-3-□



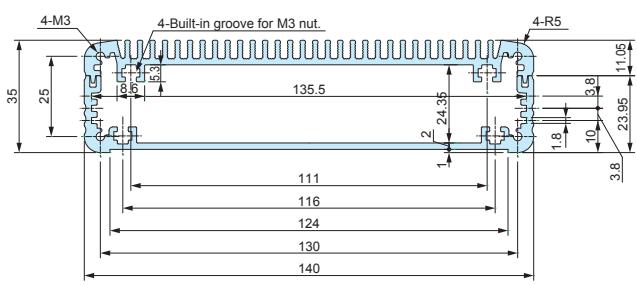
EXH11-5-□



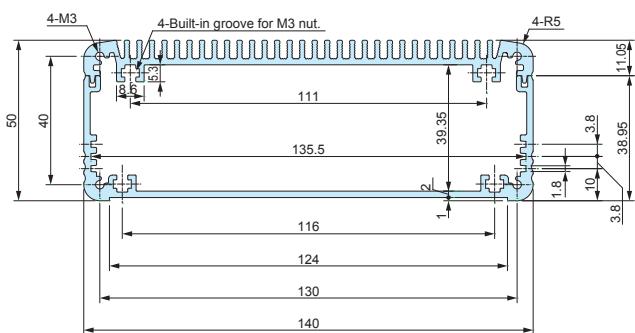
EXH11-6-□



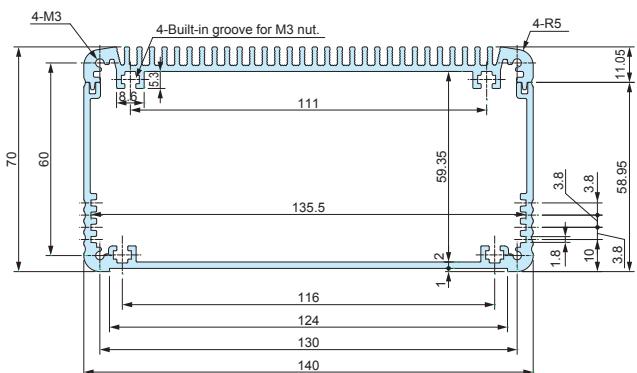
EXH14-4-□



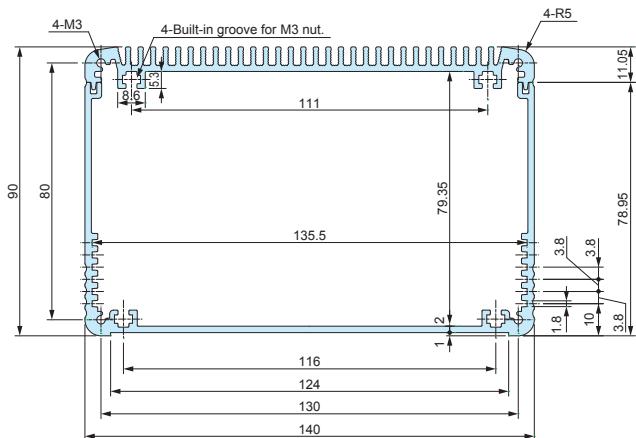
EXH14-5-□



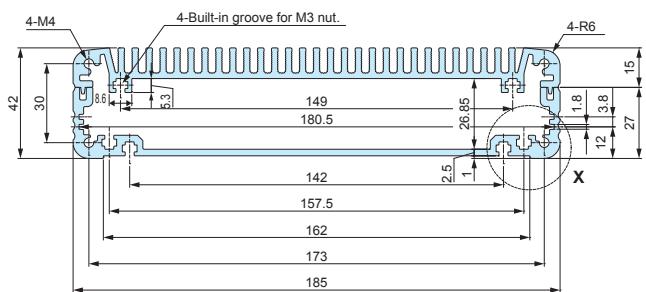
EXH14-7-□



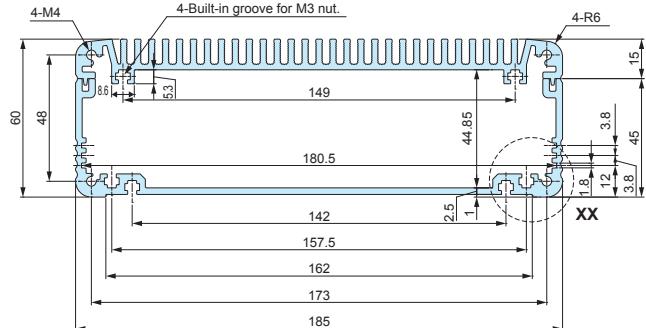
EXH14-9-□



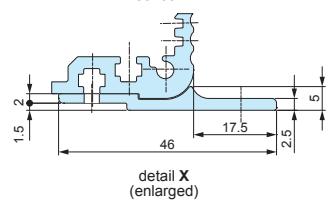
EXH • EXHF19-4-□



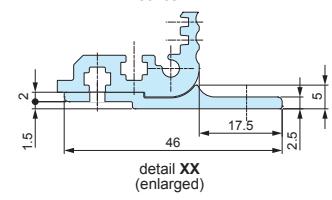
EXH • EXHF19-6-□



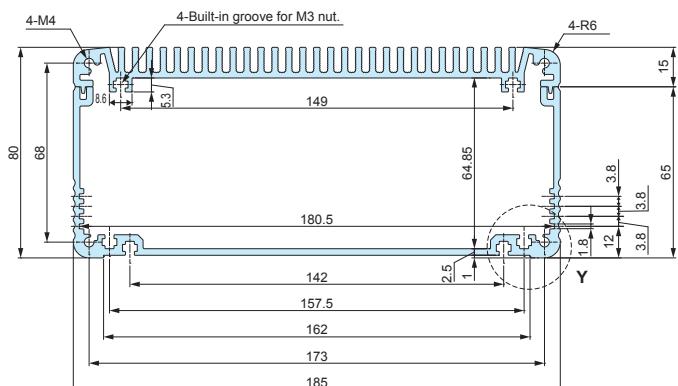
Flange bracket dimensions for EXHF series.



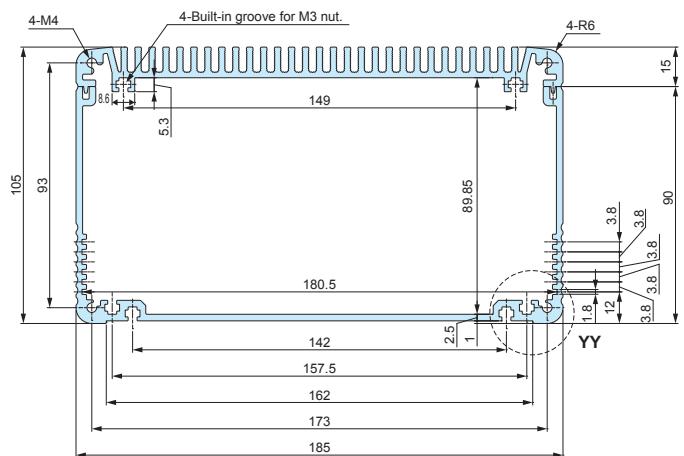
Flange bracket dimensions for EXHF series.



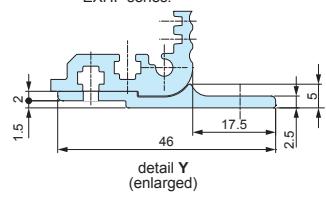
EXH • EXHF19-8-□



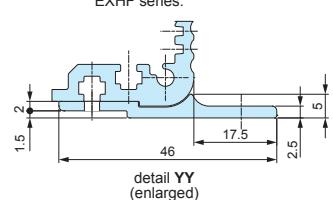
EXH • EXHF19-11-□



Flange bracket dimensions for EXHF series.



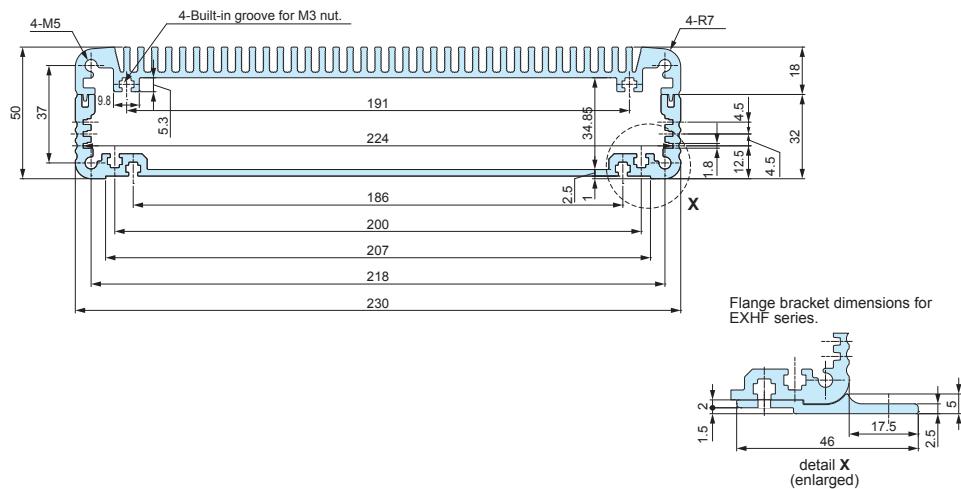
Flange bracket dimensions for EXHF series.



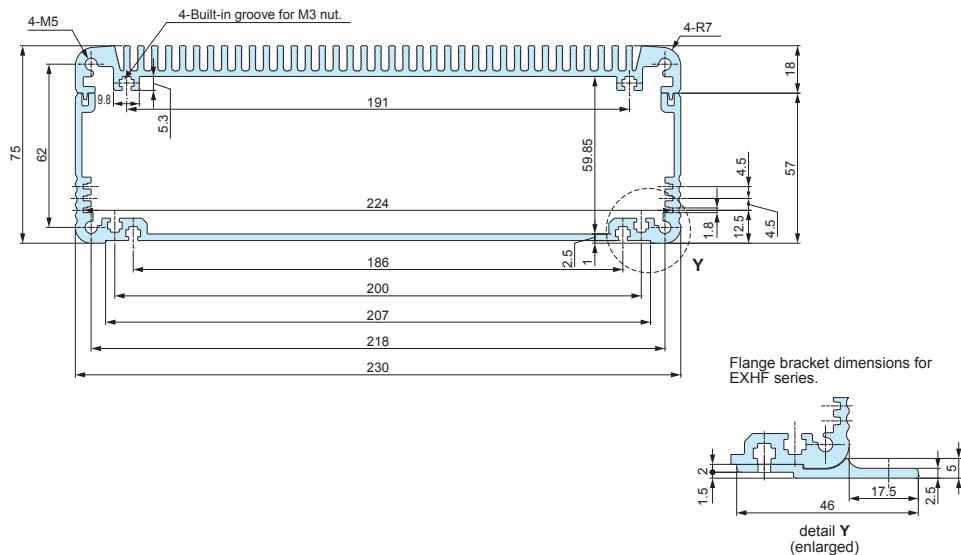
## EXH • EXHF heat-sink top cover / bottom frame

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

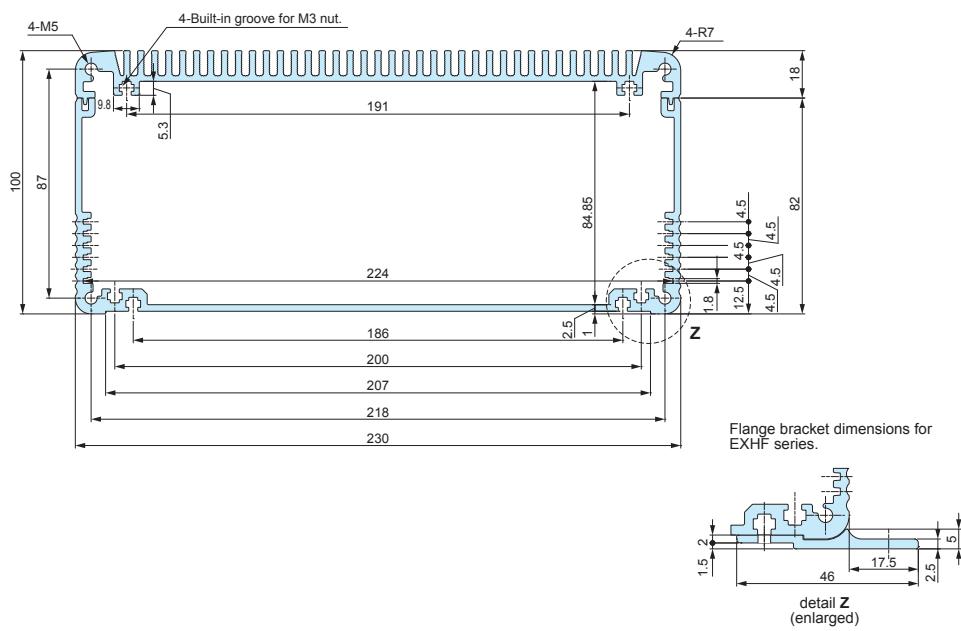
EXH • EXHF23-5-□



EXH • EXHF23-8-□



EXH • EXHF23-10-□



EF SERIES

## WALL MOUNTING BRACKET for EX • EXH

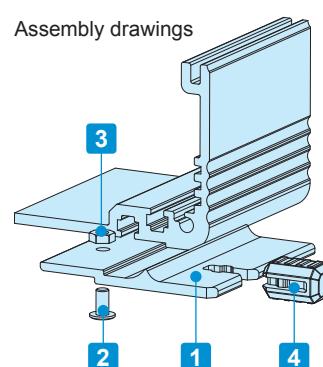
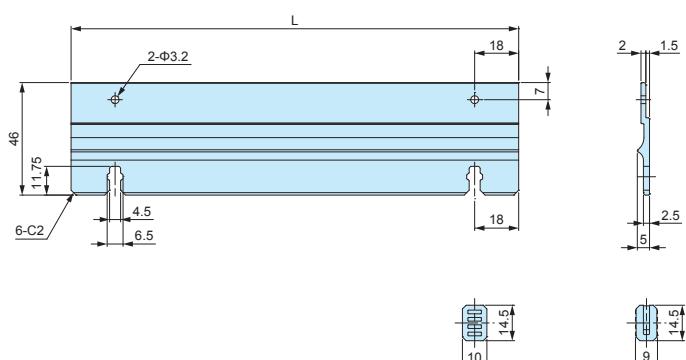
★★ NEW



APPLICATION EXAMPLE



- Wall mounting bracket for EX • EXH series. Applicable only for width 185 and 225mm bottom covers.
- Easy installation by inserting the nuts into built-in grooves on EX • EXH bottom cover.
- Rubber feet are included to mask the mounting cutouts when not used for wall mounting.



## Components

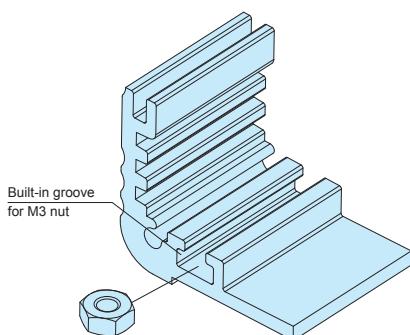
No.	Part name	Pcs	Material	Color / Finish
1	Bracket	2	Extruded aluminium A6063S-T5	Silver • Black / Anodized
2	Screw	4	Steel M3-6	Black trivalent chromate
3	Nut	4	Steel	Black trivalent chromate
4	Rubber feet	4	Silicone	Black

## Product no. / Dimensions

Product no.		L	Suitable enclosure
● Silver	● Black		
NEW EF19-13S	NEW EF19-13B	119.5	EX • EXH19-○-13□□
NEW EF19-18S	NEW EF19-18B	171.5	EX • EXH19-○-18□□
NEW EF19-23S	NEW EF19-23B	224.5	EX • EXH19-○-23□□
NEW EF19-29S	NEW EF19-29B	279.5	EX • EXH19-○-29□□
NEW EF23-15S	NEW EF23-15B	146.5	EX • EXH23-○-15□□
NEW EF23-21S	NEW EF23-21B	206.5	EX • EXH23-○-21□□
NEW EF23-27S	NEW EF23-27B	266.5	EX • EXH23-○-27□□
NEW EF23-33S	NEW EF23-33B	326.5	EX • EXH23-○-33□□

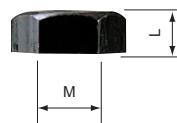
MT-3N

## SLIDING NUT for EXH • EXHF



## Product no. / Dimensions

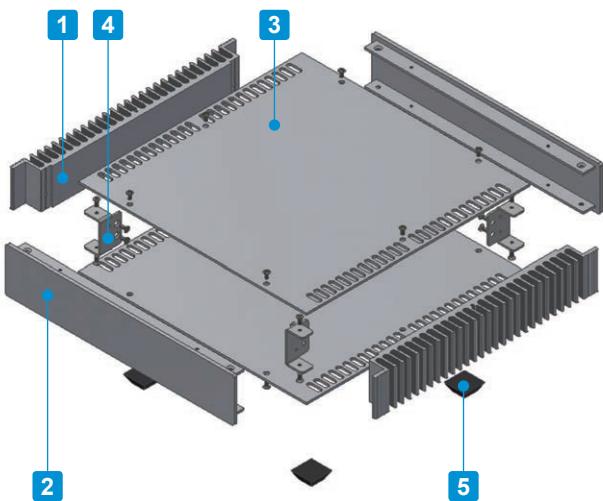
Product no.	M	L	Material	Finish	Pack of
MT-3N	3	2.4	Steel	Black trivalent chromate	50



- Sliding nut can be used on all EXH • EXHF heat-sink top covers, as well as with width 140mm or larger bottom covers.

## HY SERIES

## HEAT-SINK ALUMINIUM ENCLOSURE

Heat  
Resistant

## Components

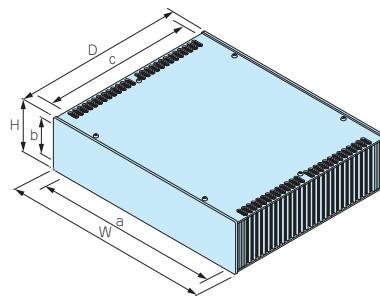
No.	Part name	Pcs	Material	Color / Finish
1	Heat-sink side plate	2	Extruded aluminium A6063S-T5	Silver • Black / Anodized
2	Panel	2	Extruded aluminium A6063S-T5	Silver • Black / Hairline brushed & Anodized
3	Top • Bottom cover	2	Aluminium A1050P t=2.0	Silver • Black / Hairline brushed & Anodized
4	Corner support	4	Steel SPCC t=1.6	Trivalent chromate
5	Rubber feet	4	Polyurethane	Black

※HL = Hairline brushed

## Accessories (Optional parts)

Mounting plate HYC series  
See page 185L-bracket HYCL series  
See page 185Aluminium isolation feet AFS • AFM series  
See page 191 ~ 192TORX screw - for top / bottom cover MR3-5Z series  
See website

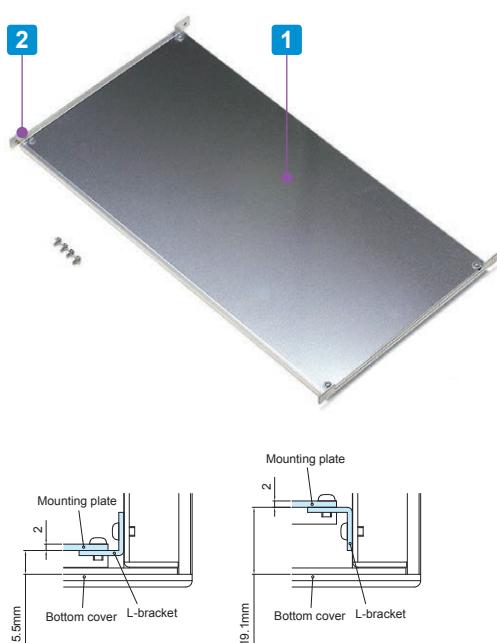
■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



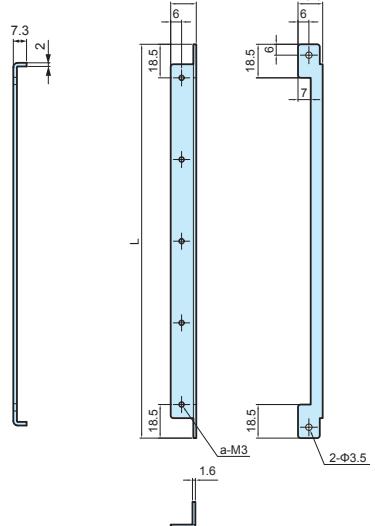
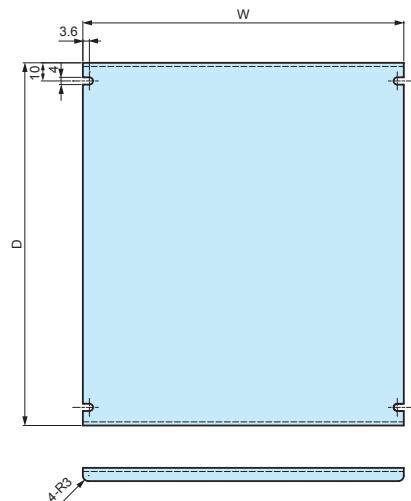
Product no.		Dimensions (External)			Dimensions (Internal)			Weight (kg)
● Silver	● Black	W	H	D	a	b	c	
HY 44-23-23SS	HY 44-23-23BB	230	44	231	186	36	225	1.1
HY 44-23-33SS	HY 44-23-33BB	230	44	330	186	36	324	1.6
HY 44-28-23SS	HY 44-28-23BB	280	44	231	196	36	225	1.4
HY 44-28-33SS	HY 44-28-33BB	280	44	330	196	36	324	1.9
HY 44-33-23SS	HY 44-33-23BB	330	44	231	286	36	225	1.5
HY 44-33-33SS	HY 44-33-33BB	330	44	330	286	36	324	2.2
HY 44-43-23SS	HY 44-43-23BB	430	44	231	386	36	225	1.9
HY 44-43-33SS	HY 44-43-33BB	430	44	330	386	36	324	2.6
HY 70-23-23SS	HY 70-23-23BB	230	70	231	186	62	225	1.6
HY 70-23-33SS	HY 70-23-33BB	230	70	330	186	62	324	2.2
HY 70-28-23SS	HY 70-28-23BB	280	70	231	196	62	225	1.8
HY 70-28-33SS	HY 70-28-33BB	280	70	330	196	62	324	2.5
HY 70-33-23SS	HY 70-33-23BB	330	70	231	286	62	225	2.0
HY 70-33-33SS	HY 70-33-33BB	330	70	330	286	62	324	2.8
HY 70-43-23SS	HY 70-43-23BB	430	70	231	386	62	225	2.3
HY 70-43-33SS	HY 70-43-33BB	430	70	330	386	62	324	3.2
HY 88-23-23SS	HY 88-23-23BB	230	88	231	186	80	225	1.9
HY 88-23-33SS	HY 88-23-33BB	230	88	330	186	80	324	2.6
HY 88-28-23SS	HY 88-28-23BB	280	88	231	196	80	225	2.1
HY 88-28-33SS	HY 88-28-33BB	280	88	330	196	80	324	2.8
HY 88-33-23SS	HY 88-33-23BB	330	88	231	286	80	225	2.3
HY 88-33-33SS	HY 88-33-33BB	330	88	330	286	80	324	3.1
HY 88-43-23SS	HY 88-43-23BB	430	88	231	386	80	225	2.7
HY 88-43-33SS	HY 88-43-33BB	430	88	330	386	80	324	3.6
HY 99-23-23SS	HY 99-23-23BB	230	99	231	186	91	225	2.1
HY 99-23-33SS	HY 99-23-33BB	230	99	330	186	91	324	2.7
HY 99-28-23SS	HY 99-28-23BB	280	99	231	196	91	225	2.3
HY 99-28-33SS	HY 99-28-33BB	280	99	330	196	91	324	3.1
HY 99-33-23SS	HY 99-33-23BB	330	99	231	286	91	225	2.5
HY 99-33-33SS	HY 99-33-33BB	330	99	330	286	91	324	3.4
HY 99-43-23SS	HY 99-43-23BB	430	99	231	386	91	225	2.9
HY 99-43-33SS	HY 99-43-33BB	430	99	330	386	91	324	3.9
HY133-23-23SS	HY133-23-23BB	230	132.5	231	186	124.5	225	2.6
HY133-23-33SS	HY133-23-33BB	230	132.5	330	186	124.5	324	3.4
HY133-28-23SS	HY133-28-23BB	280	132.5	231	196	124.5	225	2.8
HY133-28-33SS	HY133-28-33BB	280	132.5	330	196	124.5	324	3.8
HY133-33-23SS	HY133-33-23BB	330	132.5	231	286	124.5	225	3.0
HY133-33-33SS	HY133-33-33BB	330	132.5	330	286	124.5	324	4.1
HY133-43-23SS	HY133-43-23BB	430	132.5	231	386	124.5	225	3.5
HY133-43-33SS	HY133-43-33BB	430	132.5	330	386	124.5	324	4.7
HY149-23-23SS	HY149-23-23BB	230	149	231	186	141	225	2.8
HY149-23-33SS	HY149-23-33BB	230	149	330	186	141	324	3.8
HY149-28-23SS	HY149-28-23BB	280	149	231	196	141	225	3.1
HY149-28-33SS	HY149-28-33BB	280	149	330	196	141	324	4.2
HY149-33-23SS	HY149-33-23BB	330	149	231	286	141	225	3.3
HY149-33-33SS	HY149-33-33BB	330	149	330	286	141	324	4.5
HY149-43-23SS	HY149-43-23BB	430	149	231	386	141	225	3.8
HY149-43-33SS	HY149-43-33BB	430	149	330	386	141	324	5.1
HY177-23-23SS	HY177-23-23BB	230	177	231	186	169	225	3.4
HY177-23-33SS	HY177-23-33BB	230	177	330	186	169	324	4.5
HY177-28-23SS	HY177-28-23BB	280	177	231	196	169	225	3.6
HY177-28-33SS	HY177-28-33BB	280	177	330	196	169	324	4.8
HY177-33-23SS	HY177-33-23BB	330	177	231	286	169	225	3.9
HY177-33-33SS	HY177-33-33BB	330	177	330	286	169	324	5.2
HY177-43-23SS	HY177-43-23BB	430	177	231	386	169	225	4.5
HY177-43-33SS	HY177-43-33BB	430	177	330	386	169	324	5.8

## HYC SERIES

## MOUNTING PLATE for HY · HYR · HYRH



■ Mounting plate and L-bracket set.



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Mounting plate	1	Aluminium A1050P t=2.0	Unfinished
2	L-bracket	2	Steel SPCC t=1.6	Tivalent chromate
-	Screw	1 set	Steel M3	Tivalent chromate

## Product no. / Dimensions

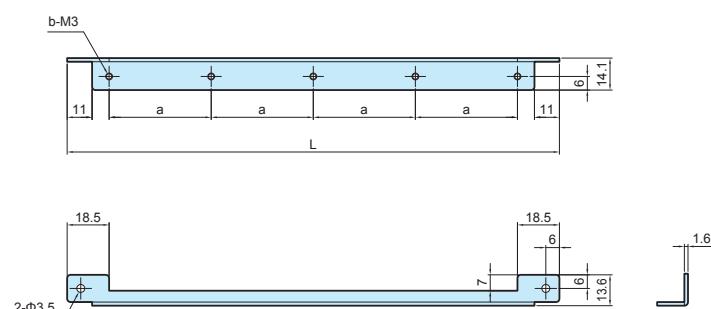
Product no.	W	D	L	a	Suitable models	Weight (g)
HYC23-23	177	200	217	5	HY□-23-23	300
HYC23-28	227	200	217	5	HY□-28-23	350
HYC23-33	277	200	217	5	HY□-33-23	410
HYC23-43	377	200	217	5	HY□-43-23	520
HYC33-23	177	299	316	7	HY□-23-33	450
HYC33-28	227	299	316	7	HY□-28-33	550
HYC33-33	277	299	316	7	HY□-33-33	710
HYC33-43	377	299	316	7	HY□-43-33	800



Clinching stud customization service available.

## HYCL SERIES

## L-bracket for HY · HYR · HYRH



■ Simple L-bracket and screw set.

■ Use with your original mounting plate or PCB.

## Components

No.	Part name	Material	Color / Finish
1	L-bracket	Steel t=1.6	Tivalent chromate
2	Screw	Steel M3	Tivalent chromate

## Product no. / Dimensions

Product no.	L	a	b	Pack of
HYCL-23	217	45	5	2
HYCL-33	316	46.5	7	2

# HY SERIES APPLICATION EXAMPLE

## COMPLETE BALANCED SPECIAL TUNED DC HEADPHONE AMPLIFIER

Product by Sanyo Kasei (Japan)



## ENERGY CREATION POWER CONDITIONER DEVELOPMENT KIT

Product by Smart Energy Laboratory (Japan)



## LINEAR POWER SUPPLY

Product by UpTone Audio (USA)



## INDUSTRIAL FANLESS COMPUTER

Product by Techno Veins (Japan)

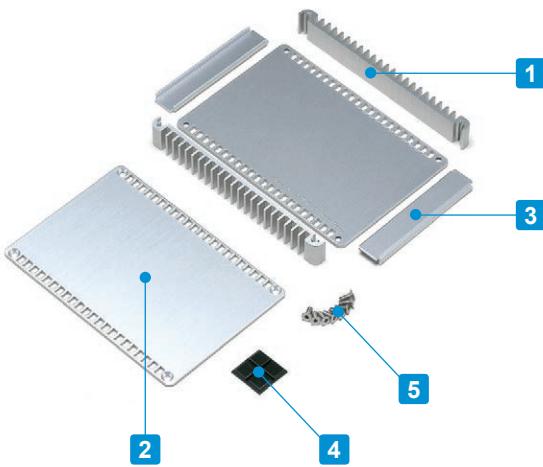


## HIT SERIES

## HEAT-SINK ALUMINIUM CASE



- Heat dissipation and cooling via the utilization of extruded aluminium heat-sink side plates.
- Rounded corners gives it an elegant feel.
- Aluminium extrusion parts provides high structural durability.
- Suitable for use as small-type fanless PC, digital audio equipment, and so on.
- Available in both Silver and Black color types.
- Optional aluminium isolation feet, AFS and AFM series are available. See page 191 ~ 192 for more details.



Application example

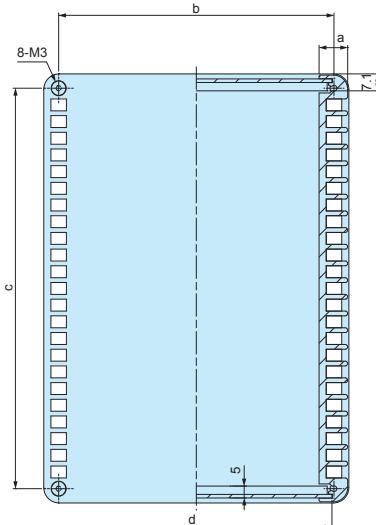
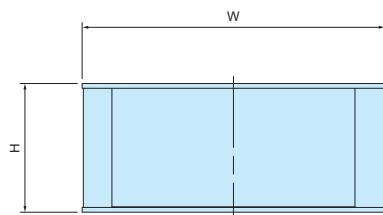


Included screws

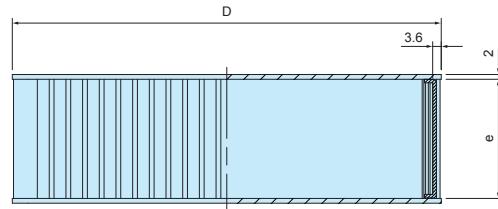
Enclosure (Silver) M3-8 Hexagonal countersunk : Stainless steel : Unfinished x 8 pcs  
 Enclosure (Black) M3-8 Hexagonal countersunk : Steel : Black trivalent chromate x 8 pcs  
 ※Hexagonal wrench included

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Heat-sink side plate	2	Extruded aluminium A6063S-T5	Silver • Black / Anodized
2	Top • Bottom cover	2	Aluminium A1050P t=2.0	Silver • Black / Hairline brushed & Anodized
3	Front • Rear panel	2	Aluminium A1050P t=1.5	Silver • Black / Hairline brushed & Anodized
4	Rubber feet	1 set	Polyurethane	Black
5	Screw	8	Stainless steel (SS color type) Steel (BB color type)	Unfinished Black trivalent chromate (Steel)

**HIT dimensions**

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

**APPLICATION EXAMPLE****FIBER OPTICS EXTENSION UNIT**

Product by Sanritz Automation (Japan)

**AUDIO POWER SUPPLY for MacBook**

Product by AY-densi (Japan)

**Product no. / Dimensions**

■ Thermal resistance calculation is based on the fins being perpendicular to the ground with temperature at 60°C.

Product no.		W	H	D	a	b	c	d	e	※Thermal resistance rate (°C/W)	Weight (g)
● Silver	● Black										
HIT 9-2-13SS	HIT 9-2-13BB	89	20	130	8	81	118.6	78.8	16	9.14	183
HIT 9-4-13SS	HIT 9-4-13BB	89	40	130	8	81	118.6	78.8	36	5.6	255
HIT13-3-13SS	HIT13-3-13BB	130	30	130	8	122	118.6	119.8	26	6.82	289
HIT13-5-13SS	HIT13-5-13BB	130	50	130	8	122	118.6	119.8	46	4.83	370
HIT18-4-13SS	HIT18-4-13BB	180	40	130	8	172	118.6	169.8	36	5.6	414
HIT18-6-13SS	HIT18-6-13BB	180	60	130	8	172	118.6	169.8	56	4.29	503
HIT13-3-18SS	HIT13-3-18BB	128	30	180	12	115.5	168	113.8	26	4.38	411
HIT13-5-18SS	HIT13-5-18BB	128	50	180	12	115.5	168	113.8	46	3.1	535
HIT17-4-18SS	HIT17-4-18BB	174	40	180	12	161.5	168	159.8	36	3.6	578
HIT17-6-18SS	HIT17-6-18BB	174	60	180	12	161.5	168	159.8	56	2.76	719
HIT23-5-18SS	HIT23-5-18BB	228	50	180	12	215.5	168	213.8	46	3.1	772
HIT23-7-18SS	HIT23-7-18BB	228	70	180	12	215.5	168	213.8	66	2.5	928

## HEN SERIES

## HEAT-SINK ALUMINIUM CASE



- Stylish design coupled with hairline brushed finish makes for a luxurious high-end case.
- Heat dissipation and cooling via the utilization of extruded aluminium heat-sink top/bottom cover.
- Available in 18 sizes.
- Sturdy extruded case construction.

## Included screws

Enclosure (Silver) M3-6 countersunk : Steel : Nickel plated x 8 pcs

Enclosure (Black) M3-6 countersunk : Steel : Black trivalent chromate x 8 pcs

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	Extruded aluminium A6063S-T5	Silver • Black / Hairline brushed & Anodized
2	Bottom cover	1	Extruded aluminium A6063S-T5	Silver • Black / Hairline brushed & Anodized
3	Front • Rear panel	2	Aluminium A1050P t=2.0	Silver • Black / Hairline brushed & Anodized
4	Screw	8	Steel countersunk M3-6	Nickel plated • Black trivalent chromate
5	Rubber feet	4	Polyurethane	Black

※HL = Hairline brushed

## Accessories (Optional parts)

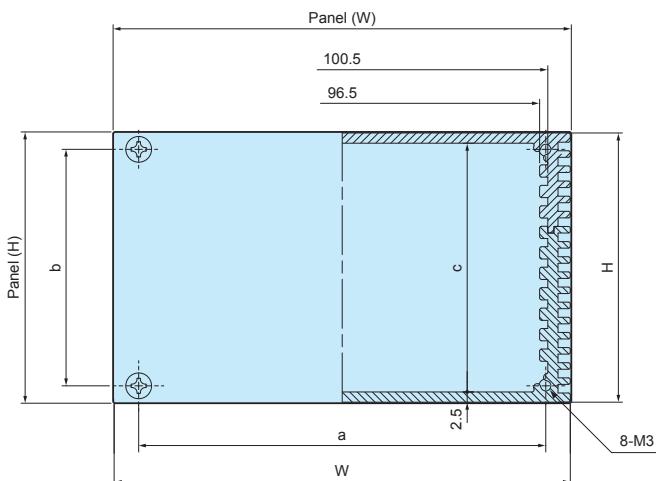


TORX screw MR-2S  
See page 115

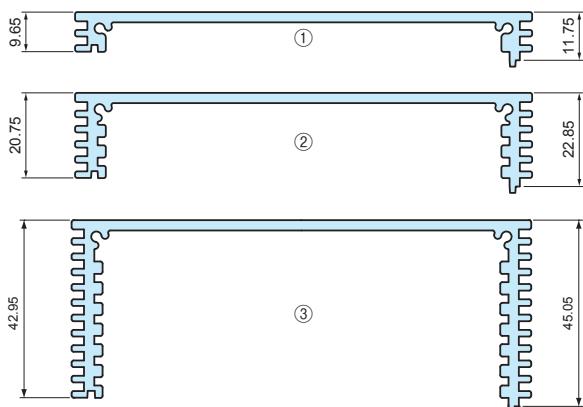
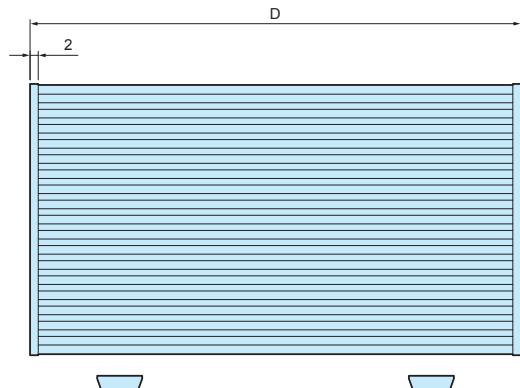


Aluminium isolation feet AFS • AFM series  
See page 191 ~ 192

## HEN dimensions



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



### Cover Type

Cover	Cover length (D-4)	*Thermal resistance rate (°C/W)
①	56	6.7
	116	3.6
	196	2.1
②	56	5
	116	2.6
	196	1.5
③	56	3.3
	116	1.7
	196	0.93

■ Thermal resistance calculation is based on the fins being perpendicular to the ground with temperature at 60°C.

### Product no. / Dimensions

Product no.		W	H	D	Panel (W)	Panel (H)	a	b	c	Cover combination	Weight (g)
● Silver	● Black										
HEN110206S	HEN110206B	111.2	21.4	60	112	21.9	99.2	13.4	16.4	①×2	143
HEN110212S	HEN110212B	111.2	21.4	120	112	21.9	99.2	13.4	16.4		258
HEN110220S	HEN110220B	111.2	21.4	200	112	21.9	99.2	13.4	16.4		411
HEN110306S	HEN110306B	111.2	32.5	60	112	33.0	99.2	24.5	27.5	①×1 ②×1	179
HEN110312S	HEN110312B	111.2	32.5	120	112	33.0	99.2	24.5	27.5		311
HEN110320S	HEN110320B	111.2	32.5	200	112	33.0	99.2	24.5	27.5		488
HEN110406S	HEN110406B	111.2	43.6	60	112	44.1	99.2	35.6	38.6		215
HEN110412S	HEN110412B	111.2	43.6	120	112	44.1	99.2	35.6	38.6	②×2	365
HEN110420S	HEN110420B	111.2	43.6	200	112	44.1	99.2	35.6	38.6		565
HEN110506S	HEN110506B	111.2	54.7	60	112	55.2	99.2	46.7	49.7	①×1 ③×1	250
HEN110512S	HEN110512B	111.2	54.7	120	112	55.2	99.2	46.7	49.7		417
HEN110520S	HEN110520B	111.2	54.7	200	112	55.2	99.2	46.7	49.7		640
HEN110606S	HEN110606B	111.2	65.8	60	112	66.3	99.2	57.8	60.8	②×1 ③×1	286
HEN110612S	HEN110612B	111.2	65.8	120	112	66.3	99.2	57.8	60.8		471
HEN110620S	HEN110620B	111.2	65.8	200	112	66.3	99.2	57.8	60.8		717
HEN110806S	HEN110806B	111.2	88.0	60	112	88.5	99.2	80.8	83.0	③×2	358
HEN110812S	HEN110812B	111.2	88.0	120	112	88.5	99.2	80.8	83.0		577
HEN110820S	HEN110820B	111.2	88.0	200	112	88.5	99.2	80.8	83.0		869

## APPLICATION EXAMPLE      AUDIO POWER SUPPLY

Product by AY-densi (Japan)



**AFS•AFM SERIES****ALUMINIUM ISOLATION FEET**

- The surface treatment and finish allows the feet to exhibit a polished and luxurious feel.
- Non-slip NBR O-ring is present on the underside of the feet.
- Suitable for use in audio devices.

### **Available in both internal and external screw installation type.**

#### External type / Shot blast finish (AFS series)



The external type is secured via screws from the underside / base of the feet to the enclosure. A thread hole is required for direct securing, while a circular hole is required for lock nut securing.

The shot blast finish provides a high quality surface finish look, and pairing well with various types of enclosure surfaces.

Available in both silver and black.

#### Internal type / Reflective finish (AFM series)



The internal type is secured via screws from the inside of the enclosure. A circular hole is required for securing into the pre-made threads in the top-side of the feet.

The reflective surface finish adds a high quality touch to the unit, allow it to have a luxurious look.

Available only in Silver.

## Accessories (Optional parts)

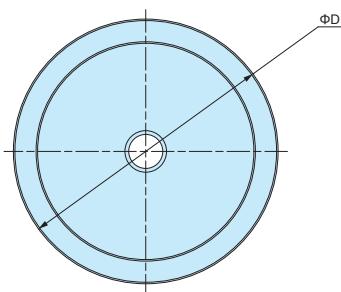
## Product no. / Dimensions

Product no.		D	H	Installation type	C	a	b	Pack of
Silver	Black							
AFS20- 8S	AFS20- 8B	20	8	Internal	Φ3.4	3	9	4
AFS25-10S	AFS25-10B	25	10	Internal	Φ4.5	4	12	4
AFS30-12S	AFS30-12B	30	12	Internal	Φ4.5	5	12	4
AFS35-14S	AFS35-14B	35	14	Internal	Φ4.5	5	12	4
AFS39-16S	AFS39-16B	39	16	Internal	Φ4.5	5	15	4
AFS44-18S	AFS44-18B	44	18	Internal	Φ4.5	5	20	4
AFS55-20S	AFS55-20B	55	20	Internal	Φ5.5	5	20	4
AFM15- 7S	-	15	7	External	M3	4	-	4
AFM20- 9S	-	20	9	External	M3	5	-	4
AFM25-12S	-	25	12	External	M4	7	-	4
AFM30-14S	-	30	14	External	M4	8	-	4
AFM35-16S	-	35	16	External	M4	10	-	4
AFM39-18S	-	39	18	External	M4	10	-	4
AFM44-20S	-	44	20	External	M4	10	-	4
AFM55-22S	-	55	22	External	M5	15	-	4

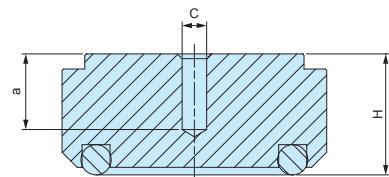
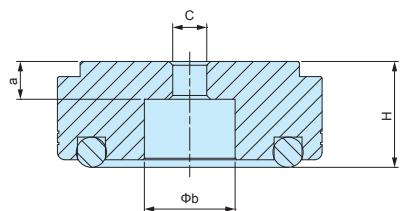
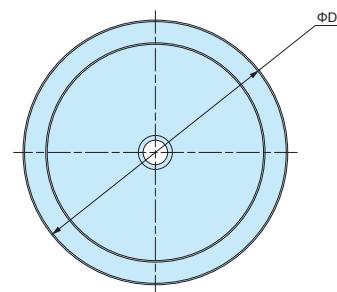
## AFS • AFM dimensions

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

AFS SERIES



AFM SERIES



## APPLICATION EXAMPLE

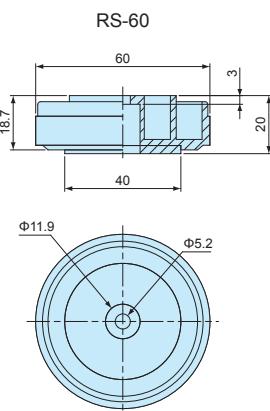
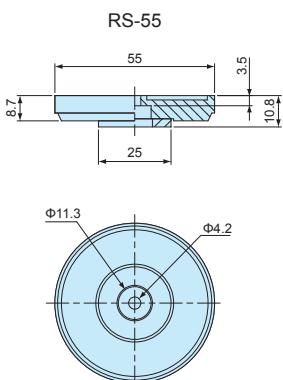
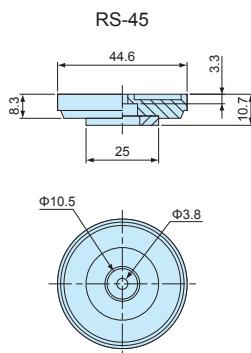
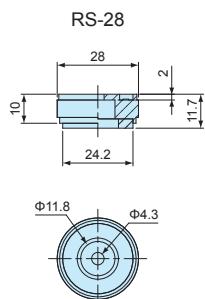


## RS SERIES

## PLATED PLASTIC FEET



- Suitable for audio equipment use.
- Elastomeric foam pad can be found at the underside of the feet.



## Product no. / Dimensions

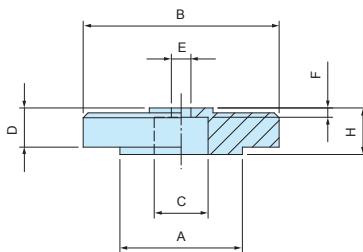
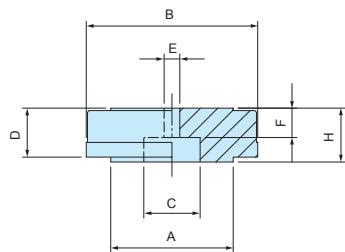
Product no.		Material	Pack of
● Silver	● Gold		
RS-28S	RS-28G	ABS UL94HB / Polyester / EVA	4
RS-45S	RS-45G	ABS UL94HB / Polyester / EVA	4
RS-55S	RS-55G	ABS UL94HB / Polyester / EVA	4
RS-60S	RS-60G	ABS UL94HB / Polyester / EVA	4

## TC SERIES

## ALUMINIUM FEET



- Aluminium material gives it a refined and elegant look.
- Suitable for audio equipment use.
- Elastomeric foam pad can be found on the underside of the feet.



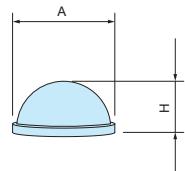
## Product no. / Dimensions

Product no.		A	B	C	D	E	F	H	Material	Pack of
● Silver	● Gold									
TC-1S	TC-1G	25	35	11.5	9.7	3.4	5.6	11.5	ABS UL94HB / Aluminium / EVA	4
TC-2S	TC-2G	25	40	11	10.2	4.1	2.1	12	ABS UL94HB / Aluminium / EVA	4
TC-3S	TC-3G	25	45	11.7	12	4.2	7.5	15	ABS UL94HB / Aluminium / EVA	4

## Accessories (Optional parts)

## TB SERIES

## ADHESIVE RUBBER FEET



■ Adhesive is present on the underside.

## Product no. / Dimensions

■ Material : Rubber

● Black	● White gray	● White	A	H	Pack of
TB- 7	-	-	6.7	4.2	10
TB- 8	-	NEW TB- 8W	8	2.6	10
TB-10	-	-	10	2.8	10
TB-12	-	NEW TB-12W	11.3	5.6	10
TB-14	-	-	14	8	10
TB-16	-	NEW TB-16W	15.9	8	10
TB-21	-	-	21.6	8.5	10
TB-27	TB-27G	-	27.8	7.4	10

※No color code letter comes with Black.

## SJ-P SERIES

## POLYURETHANE RUBBER FEET

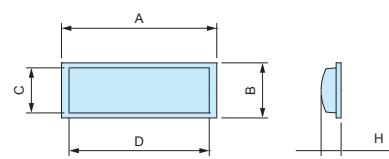
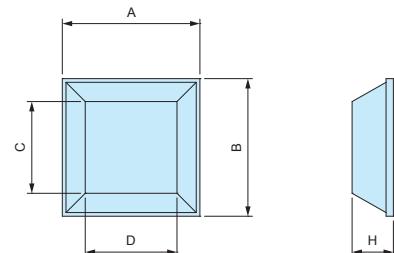


■ Adhesive is present on the underside.

## Product no. / Dimensions

■ Material / Color : Polyurethane / Black

Product no.	A	B	H	C	D	Pack of
SJ-P5007	10.4	10.4	2.5	7.2	7.2	10
SJ-P5008	12.7	12.7	3	9.5	9.5	10
SJ-P5018	12.7	12.7	5.8	7	7	10
SJ-P1004	15	15	4.5	10	10	10
SJ-P5023	20.6	20.6	7.6	12.7	12.7	10
SJ-P1011	15.5	5.5	2	4.5	14.5	10



SJ-P1011

# HIGH END DESIGN Aluminium Case HD SERIES



**Distinctive design,  
suitable for many different devices**

**Industrial Embedded System**



**Raspberry Pi**



**Data Transmitter / Receiver**



**Measurement / Test Equipment**

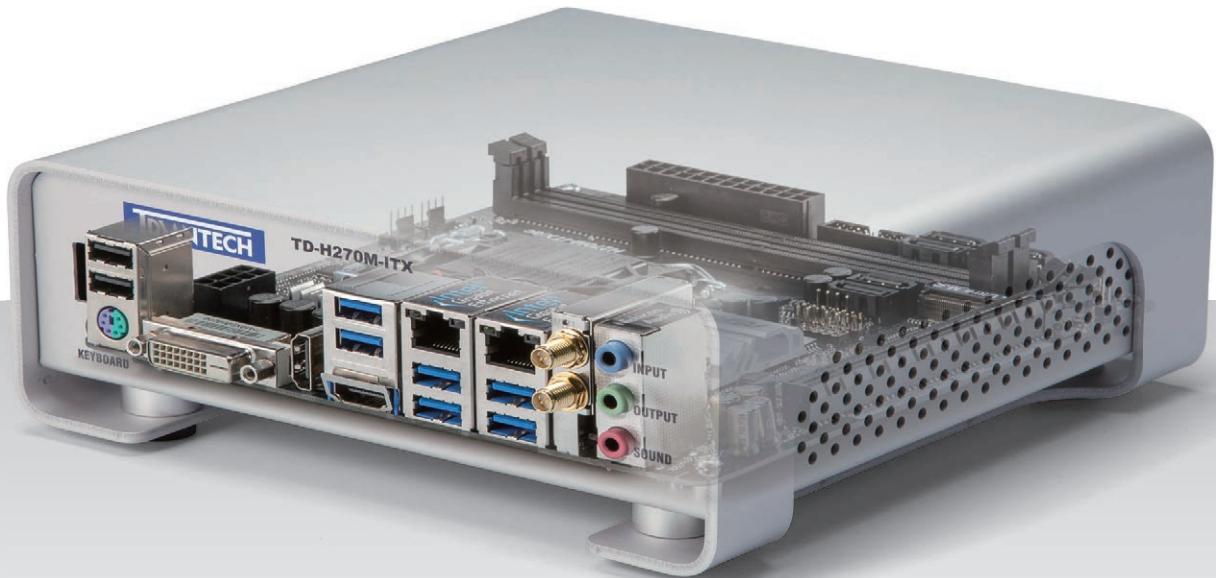


**Audio Amplifier**



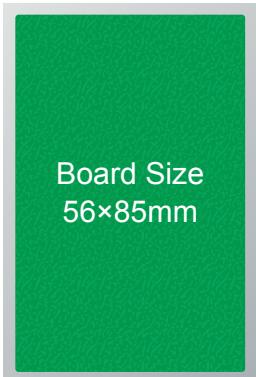
**Power Supply**





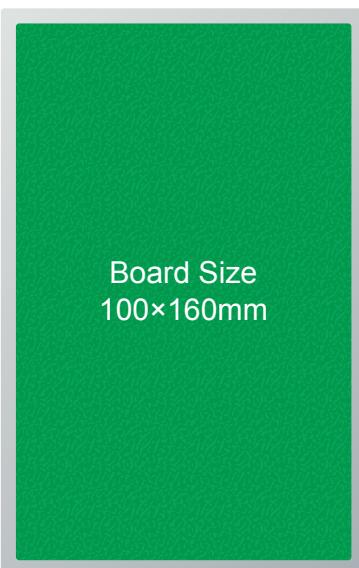
## Compatibility with Standard Board Sizes

**Raspberry Pi**



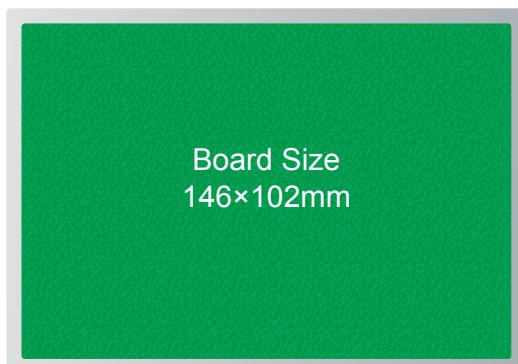
Board Size  
56×85mm

**EURO BOARD**



Board Size  
100×160mm

**3.5 inch Board**



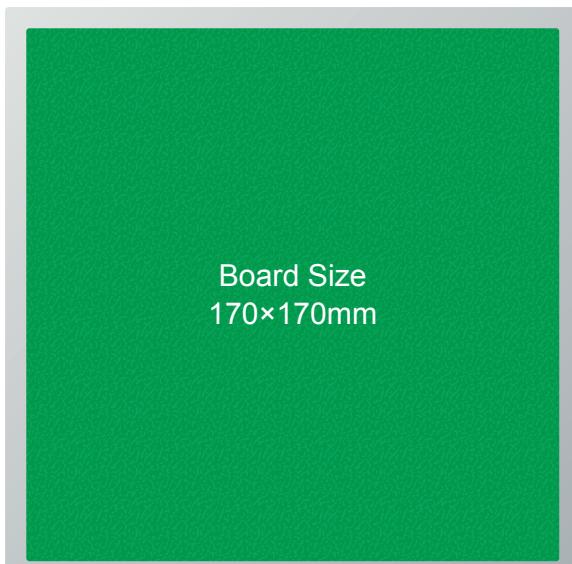
Board Size  
146×102mm

**Mini STX**



Board Size  
140×147mm

**Mini ITX**



Board Size  
170×170mm

● See page 198 and 200 for more details.

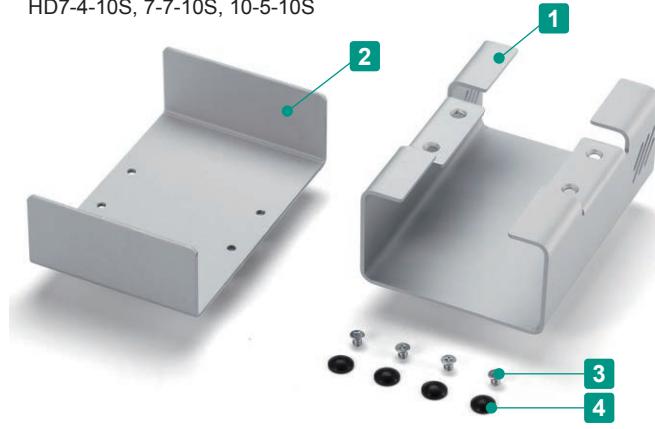
## HD SERIES

## HIGH-END DESIGN ALUMINIUM CASE



- Distinctively designed aluminium case.
- Polished, elegant and sleek metallic silver finish.
- Suitable for embedded system, measurement equipment, data transmitter, audio amplifier, and so on.

HD7-4-10S, 7-7-10S, 10-5-10S



Other models



## Components

HD7-4-10S, 7-7-10S, 10-5-10S

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	Aluminium A1100P	Metallic silver / Painted : Conductive inside
2	Base	1	Aluminium A1100P	Metallic silver / Painted : Conductive inside
3	Screw (M3-4 Flat-head)	4	Steel	Trivalent chromate
4	Rubber feet	4	Rubber	Black

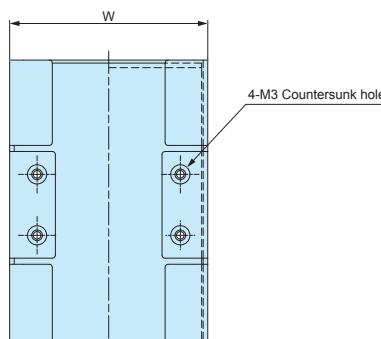
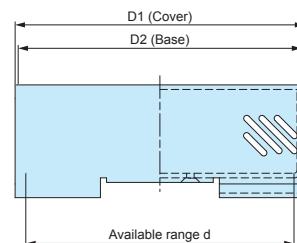
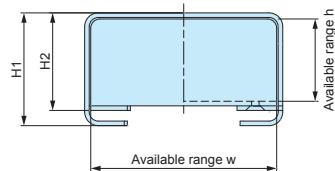
Other models

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	Aluminium A1050P	Metallic silver / Painted
2	Base	1	Aluminium A1050P	Metallic silver / Painted
3	Pillar feet	4	Extruded Aluminium A6063S-T5	Silver / Anodized
4	Rubber feet	4	Rubber	Black
5	Screw (M3-16 Flat-head)	4	Steel	Trivalent chromate
6	Cushion	4	Polyethylene	Black

## HD dimensions

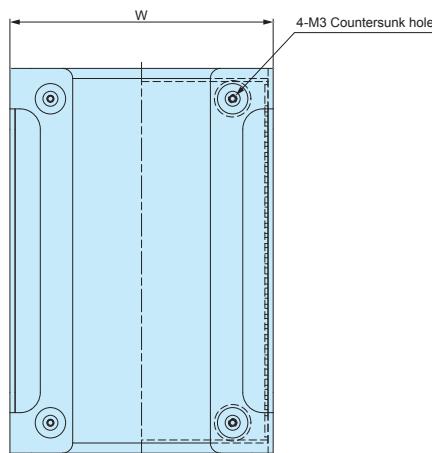
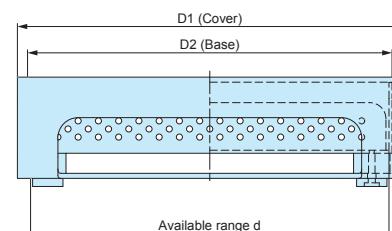
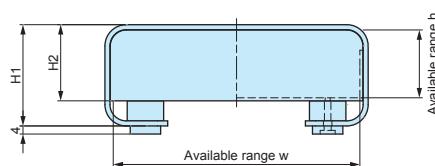
HD7-4-10S • 7-7-10S • 10-5-10S (Conductive models)

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



Included screws  
HD7-4-10S • 7-7-10S • 10-5-10S : M3-4 x 4 pcs

### Other models



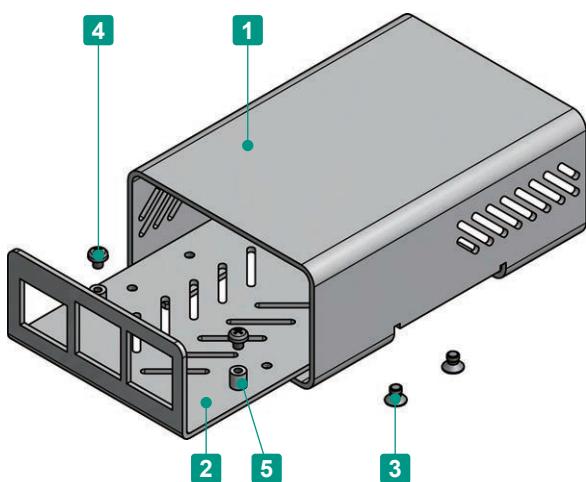
Included screws  
Other models : M3-16 x 4 pcs

### Product no. / Dimensions

Product no.	W	H1	H2	D1	D2	w	h	d	Compatible Board Size	Weight (g)
NEW HD 7- 4-10S	65	37	32	95	93	61	27	90	Raspberry Pi (56 x 85)	94.1
NEW HD 7- 7-10S	65	65	60	95	93	61	55.5	90		129
NEW HD10- 5-10S	95	48	40	95	93	91	35.5	90	—	138.5
NEW HD11- 5-18S	111	50	37.6	175	165	102.4	33.5	162	Euro Board (100 x 160)	386.3
NEW HD11- 7-18S	111	70	57.6	175	165	102.4	53.5	162		447.7
NEW HD15- 7-16S	151	65	52.6	162	152	142.4	48.5	149	Mini STX (140 x 147)	500.8
NEW HD16- 6-12S	157	60	47.6	118	108	148.4	43.5	105	3.5 Inch Board (146 x 102)	382.1
NEW HD16- 5-21S	160	50	37.6	210	200	151.4	33.5	197	—	573.9
NEW HD19- 8-21S	192	75	62.1	210	200	182.4	57.5	197	Mini ITX (170 x 170)	838.1
NEW HD21-14-25S	210	135	122.1	250	240	199.4	117	236	—	1587.8
NEW HD26- 8-20S	260	80	67.1	200	190	249.4	62	186	—	1162.8
NEW HD32-10-23S	320	100	87.1	230	220	309.4	82	216	—	1678

## RPI SERIES

## Raspberry Pi ALUMINIUM CASE



RPI-1F is compatible with VESA formula screw pitch (75 x 75mm / 100 x 100mm) and can be installed on the back side of PC displays, etc.

- Exclusively for use with Raspberry Pi.  
Compatible with Raspberry Pi 2B, 3B and 3B+ boards.
- All aluminium, polished and elegant metallic silver finish.
- 3 types are available: normal, double-layered, and flanged.
- The internal part is made to be conductive.
- Raspberry Pi Board is not included.

Included screws  
M3-4 Flat-head x 4 pcs (for case)  
M2.5-3 Pan-head x 4 pcs (for board)

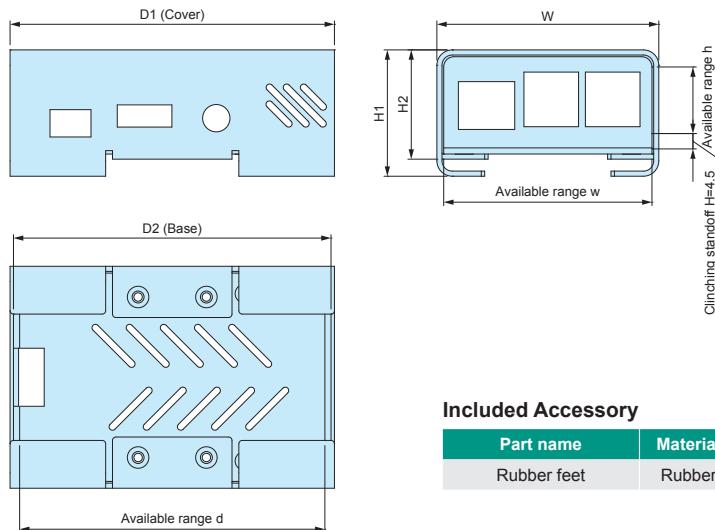
## Components

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	Aluminium A1100P t=1.5	Metallic silver / Painted : Conductive inside
2	Base	1	Aluminium A1100P t=1.5	Metallic silver / Painted : Conductive inside
3	Screw (M3-4 Flat-head)	4	Steel	Trivalent chromate
4	Screw for Board (M2.5-3)	4	Brass	Nickel plated
5	Clinching standoff	4	Steel	Trivalent chromate

## RPI dimensions

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

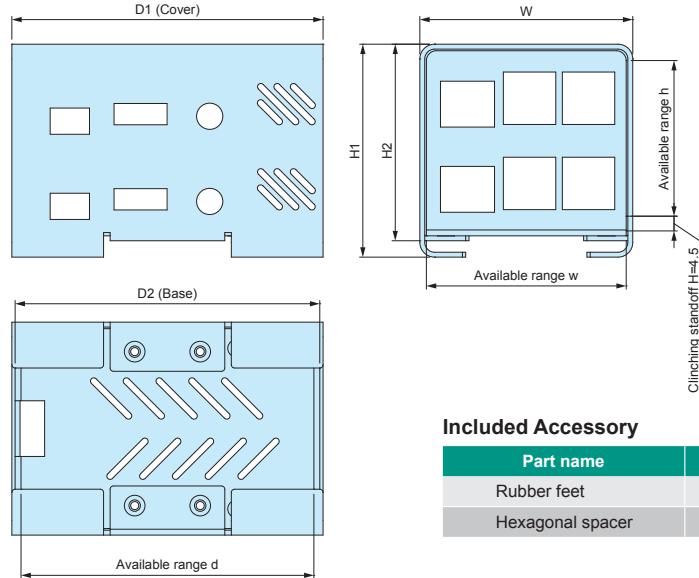
RPI-1



### Included Accessory

Part name	Material	Color / Finish
Rubber feet	Rubber	Black

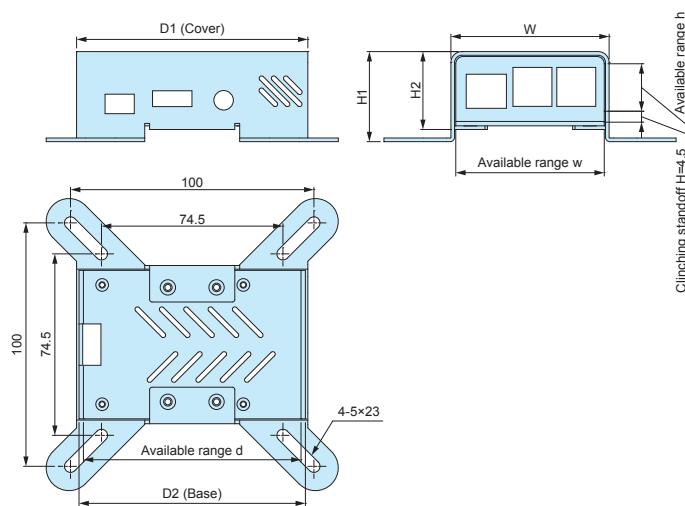
RPI-2



### Included Accessory

Part name	Material	Color / Finish
Rubber feet	Rubber	Black
Hexagonal spacer	Brass	Nickel plated

RPI-1F

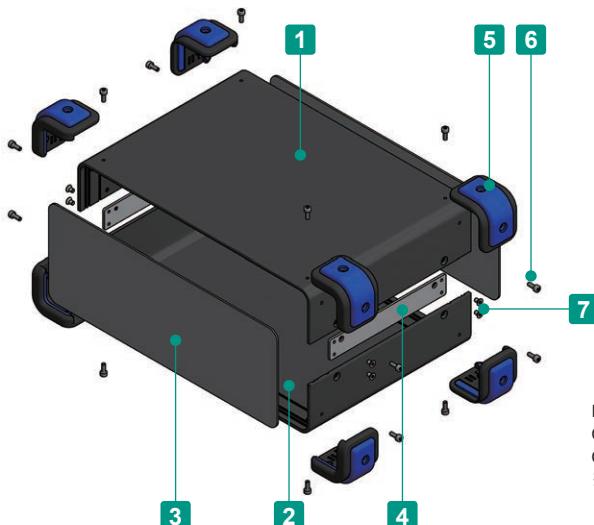


## Components

Product no.	W	H1	H2	D1	D2	w	h	d	Weight (g)
NEW RPI-1	65	37	32	95	93	61	19.5	90	90.5
NEW RPI-2	65	65	60	95	93	61	47.5	90	136
NEW RPI-1F	65	37	32	95	93	61	19.5	90	91.5

## UCG SERIES

## UNIVERSAL ALUMINIUM CASE with CORNER GUARD



- Aluminium case equipped with shockproof and anti-slip corner guards.
- Available in 8 sizes and 5 different corner guard color variations.
- Custom sizes available.

## Included screws

Corner guard screw - M3-8 Hexagonal : Steel : Trivalent chromate x 16 pcs  
Case screw - M3 Hexagonal countersunk : Steel : Trivalent chromate x 12 pcs  
※2 Hexagonal wrenches included. (The larger for corner guard screw, the smaller for case screw)

## Components

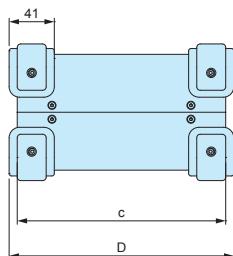
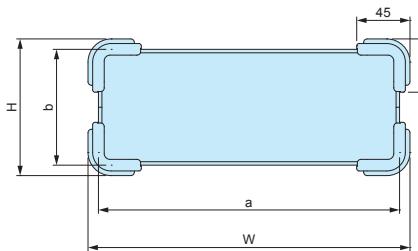
No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	Extruded aluminium A6063s-T5	Black / Painted
2	Bottom cover	1	Extruded aluminium A6063s-T5	Black / Painted
3	Panel	2	Aluminium A1100P t=1.5	Black / Painted
4	Joint plate	2	Steel SPCC t=2.0	Trivalent chromate
5	Corner guard	8	PP + Silicone	Black • Emerald • Gray • Navy • Red
6	Corner guard screw	16	Steel	Trivalent chromate
7	Case screw	12	Steel	Trivalent chromate

## Color Type

Code	B B Black / Black	B E Black / Emerald	B G Black / Gray	B N Black / Navy	B R Black / Red
Color					

**UCG dimensions**

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

**Accessories (Optional parts)**

Mounting plate UCC series  
See website



Elastomer handle FM200 series  
See website

**Product no. / Dimensions**

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

Product no.	W	H	D	a	b	c	Standard Compatible Mounting Plate	Weight (kg)
NEW UCG15- 9-20□□	168	108	214	150	90	200	YES	1.14
NEW UCG18-10-24□□	198	118	254	180	100	240	YES	1.44
NEW UCG18-18-28□□	198	198	294	180	180	280	n/a	2.23
NEW UCG20- 9-14□□	218	108	154	200	90	140	YES	1.13
NEW UCG22-12-16□□	238	138	174	220	120	160	n/a	1.28
NEW UCG26-10-18□□	278	118	194	260	100	180	YES	1.96
NEW UCG32-12-22□□	338	138	234	320	120	220	YES	2.13
NEW UCG38-15-26□□	398	168	274	380	150	260	n/a	3.19

■ Mounting plate can be custom ordered.

**Accessories (Optional parts)****UG-1****CORNER GUARD for UC • UCG**

★★ NEW

**Application example**

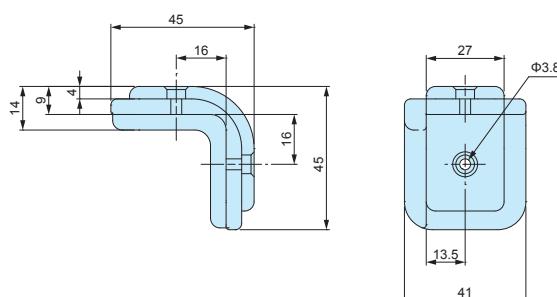
■ Corner guard parts for UC • UCG series.

■ M3 thread holes are required in order to fix on UC series.

■ Available in 5 different color variations.

**UG-1 dimensions**

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

**Components**

No.	Part name	Material
1	Corner guard base	PP
2	Corner guard	Silicone
3	Screw (M3-8 Hexagonal)	Steel

**Product no. / Details****Product no.**

Black	Emerald	Gray	Navy	Red	Weight (g)	Pack of
NEW UG-1B	NEW UG-1E	NEW UG-1G	NEW UG-1N	NEW UG-1R	210.5	8

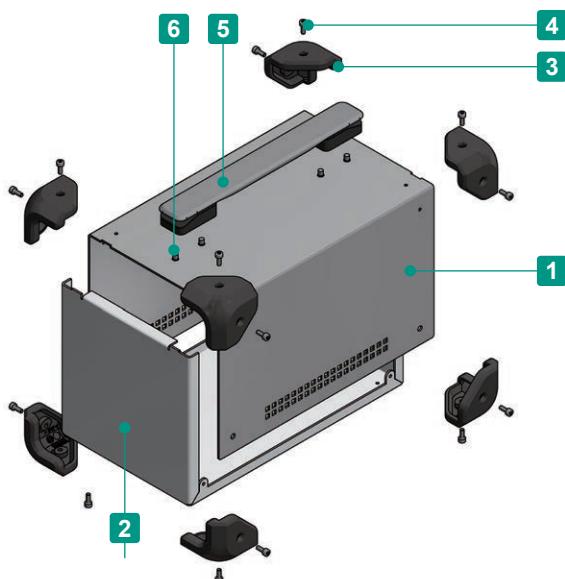
Included screw : M3-8 Hexagonal : Steel : Trivalent chromate x 16 pcs + 2 Hexagonal wrench

## MCG SERIES

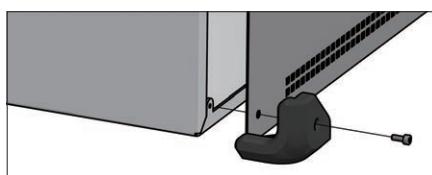
## ALUMINIUM CASE with CORNER GUARD



- Aluminium case equipped with shockproof and anti-slip elastomer corner guards.
- Suitable to be used as a fanless PC, power supply, power storage device etc.  
Carrying handle can withstand a maximum load up to 30.0 kg.
- Corner guards are available in 4 different color variations.
- Custom sizes available.



■ Aluminium case and corner guard with screw fastening.



Included screws

Case / Corner guard - M4-8 Hexagonal : Steel : Black trivalent chromate x 16 or 18 pcs  
Carrying handle - M5-8 : Steel : Trivalent chromate x 4 pcs  
※Hexagonal wrenches included.

**Components**

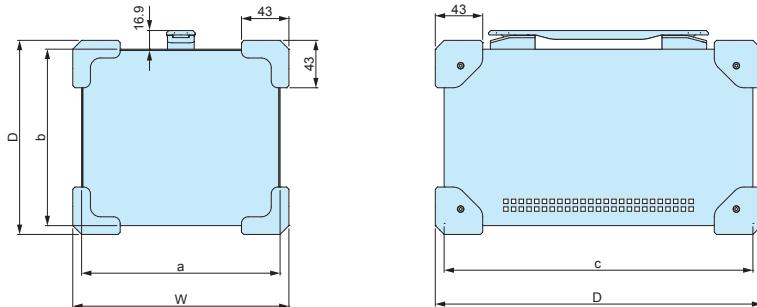
No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	Steel SECC t=10	Black / Painted
			Aluminium A1100P t=1.5	Metallic silver / Painted : Conductive inside
2	Base	1	Aluminium A1050P t=1.5	Black / Painted
			Aluminium A1100P t=1.5	Metallic silver / Painted : Conductive inside
3	Corner guard	8	TPE	Black • Gray • Navy • Red
4	Case / Corner guard screw	16 / 18	Steel	Black trivalent chromate
5	Carrying handle	1	PU • PA6 • ABS • Steel	Black • Gray
6	Carrying handle screw	4	Steel	Trivalent chromate

## Color Type

Code	[B][B][B]	[B][G][B]	[B][N][B]	[B][R][B]
Color				
Code	[S][B][B] Conductive	[S][G][G] Conductive	[S][N][G] Conductive	[S][R][G] Conductive
Color				

## UCG dimensions

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



## Product no. / Dimensions

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

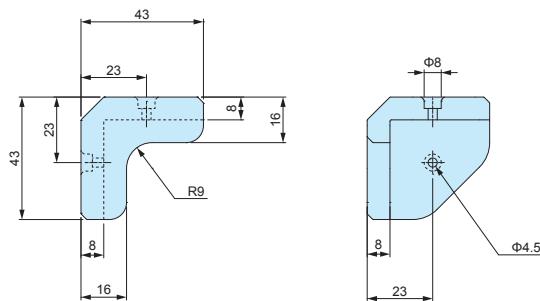
Product no.	W	H	D	a	b	c	Weight (kg)	
							[B][B][B] models	[S][ ][ ][ ] models
NEW MCG14-14-23□□□	156	156	246	140	140	230	1.2	0.9
NEW MCG18-16-28□□□	196	176	296	180	160	280	1.8	1.3
NEW MCG21-14-24□□□	226	156	256	210	140	240	1.6	1.2
NEW MCG26-18-30□□□	276	196	316	260	180	300	2.3	1.6

## Accessories (Optional parts)

## MG-1

## CORNER GUARD

★★ NEW



- Corner guard part for MCG case.
- Corner guard can be installed on other enclosures than UCG series.
- M4 thread holes are required for installation.
- Available in 4 different color variations.

## Components

No.	Part name	Material
1	Corner guard	TPE
2	Screw (M4-8 Hexagonal)	Steel

## Product no. / Details

Product no.				Weight (g)	Pack of
● Black	● Gray	● Navy	● Red		
NEW MG-1B	NEW MG-1G	NEW MG-1N	NEW MG-1R	124	8

Included screw : M4-8 Hexagonal : Steel : Black trivalent chromate x 18 pcs + Hexagonal wrench

# FC SERIES ALUMINIUM CONTROL BOX

FC and FCW series are applicable for various purposes such as control and switch box, touch panel display, monitor box, and so on.

## APPLICATION EXAMPLE

### ULTRASONIC FLAW DETECTOR

Product by NOVOTEST (Ukraine)



### COIL WINDING MACHINE

Product by TNK (Japan)



### 4-AXIS ROBOT CONTROLLER

Product by KDS (Japan)

### STREAMING VIDEO PROVIDER



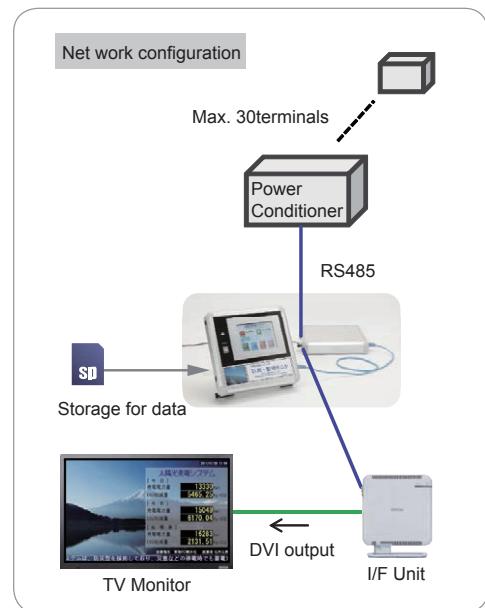
Product by StreamingVideoProvider (UK)

### HAND-CARRY CONTROL BOX



Product by Coms (Japan)

## SOLAR MONITORING SYSTEM

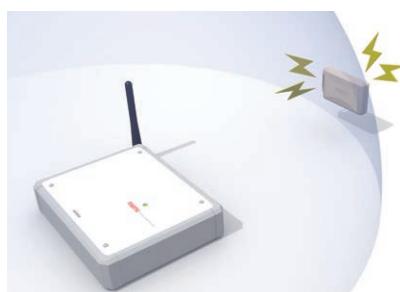


**4 CHANNEL EDGE NODE**  
Product by SHINWA (Japan)



## ACTIVE RFID TAG READER • TRIGGER

Product by Matrix (Japan)



## COMPACT SOLAR POWER SUPPLY

Product by Elenagic (Japan)



## FC SERIES

## ALUMINIUM CONTROL BOX



## Technical Data

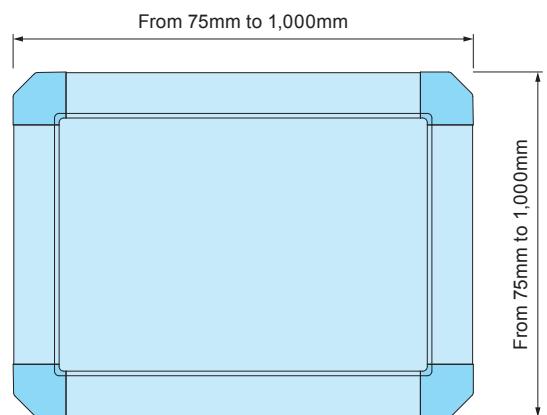
Protection class: IP40

- 175 different sizes in 4 different color variations available.
- Simple designed aluminium utility box composed of extruded aluminium frames, aluminium panels and ABS corner joints.
- Suitable for touch panel display, industrial control equipment, and various other devices.

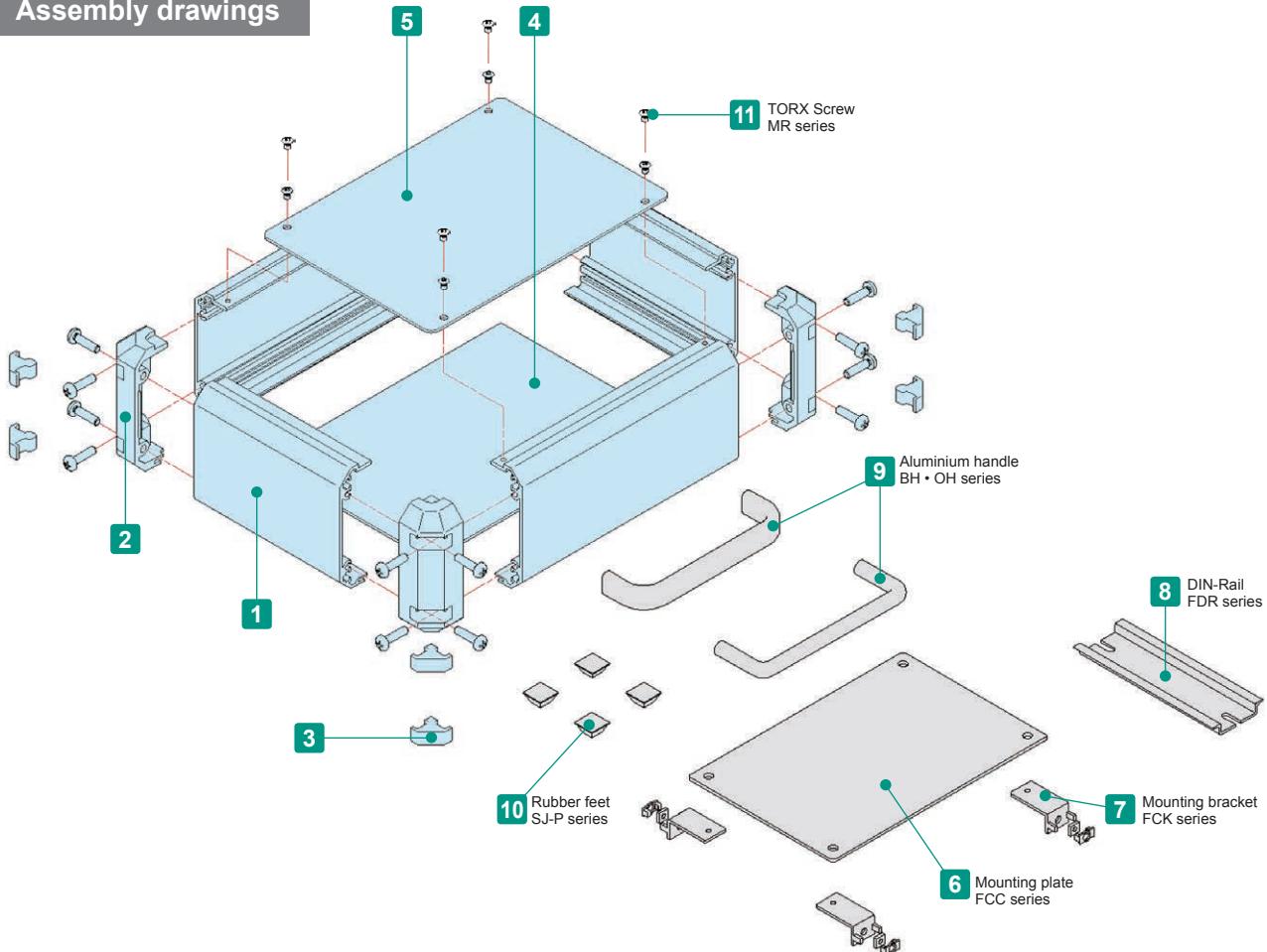
## Custom width / length available in 1mm intervals



- Flexible frame width / length from 75mm to 1,000mm in 1mm intervals.
- No minimum order quantity and short lead time for small quantity order.



## Assembly drawings



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Frame	4	Extruded aluminium A6063S-T5	Silver • Black / Anodized
2	Corner block	4	ABS UL94HB	Light gray • Black
3	Blind plug	8	TPE	Light gray • Black
4	Slide panel	1	Aluminium A1050P t=1.5	Silver / Hairline brushed & Anodized
			Aluminium A1100P t=1.5	Black / painted
5	Screwed panel	1	Aluminium A1050P t=1.5	Silver / Hairline brushed & Anodized
			Aluminium A1100P t=1.5	Black / painted

## Accessories (Optional parts)



**6** Mounting plate FCC series  
See page 219 ~ 220

**7** Mounting bracket FCK series  
See page 220

**8** DIN-Rail FDR series  
See website

**9** Aluminium handle BH • OH series  
See website

**10** Rubber feet SJ-P series  
See page 194



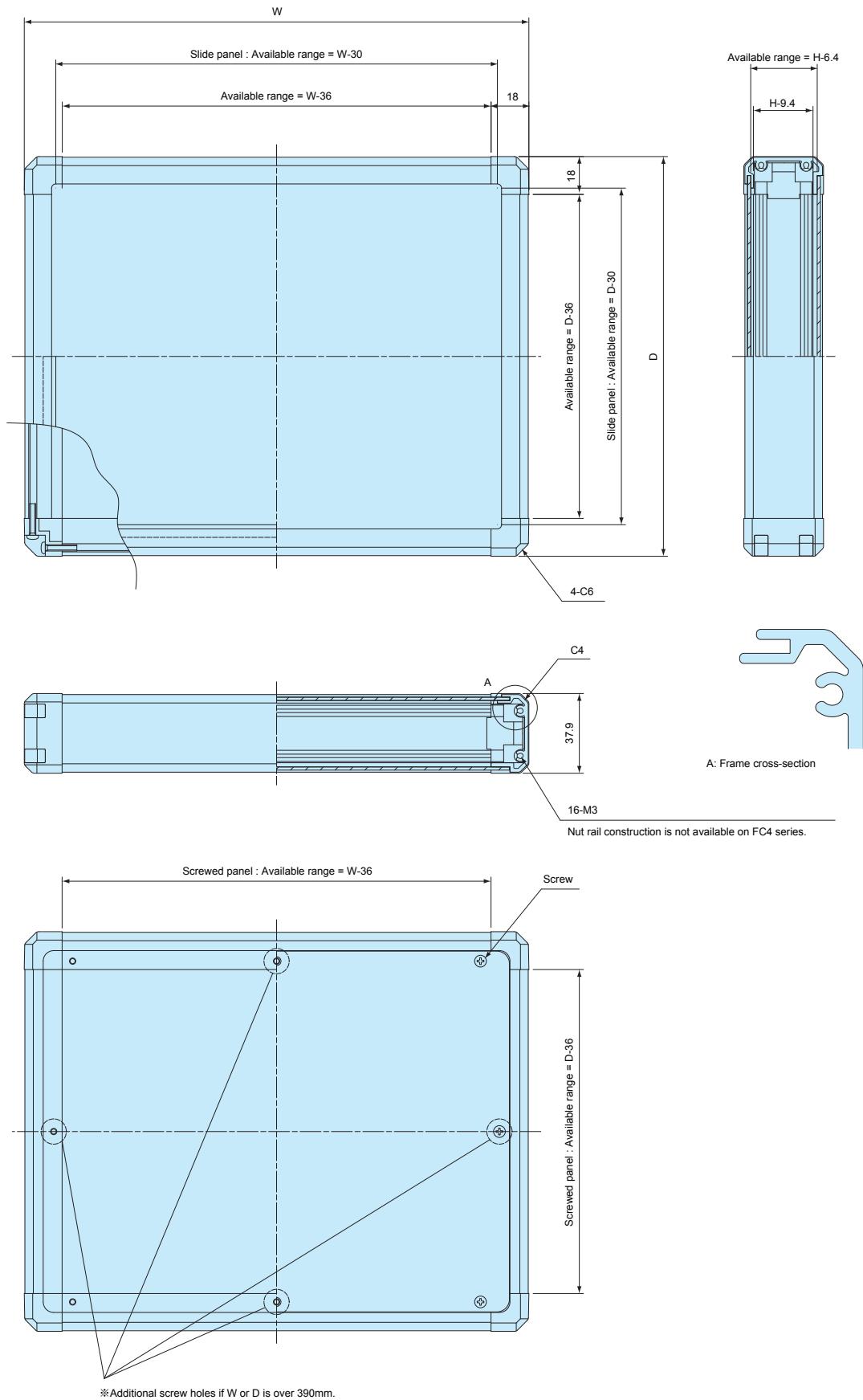
**11** TORX screw MR3-5Z  
See website

**FC dimensions**

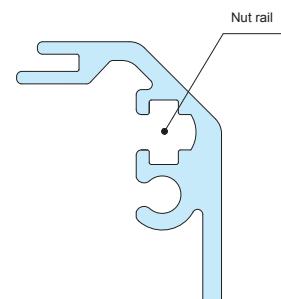
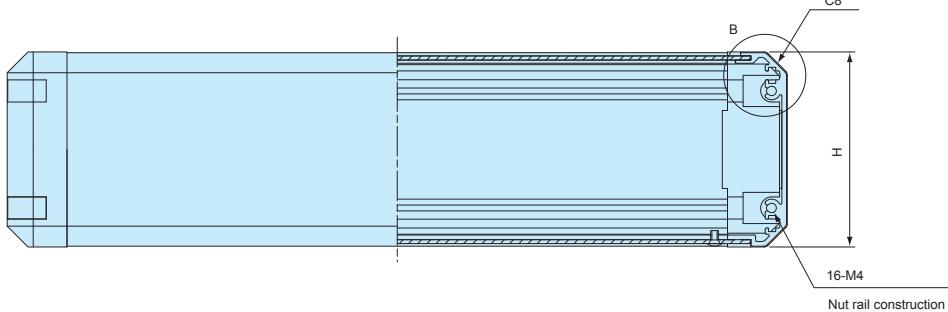
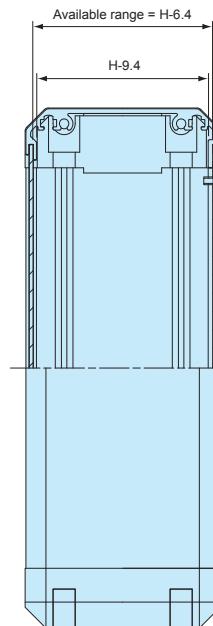
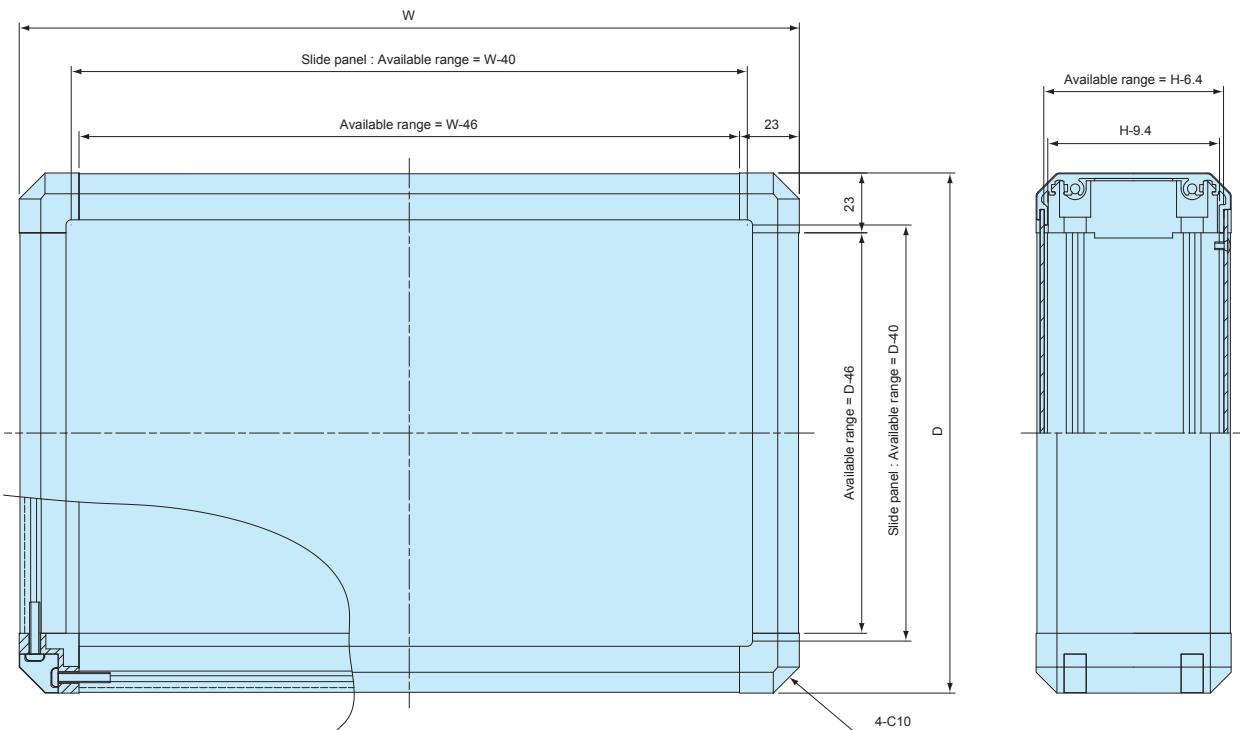
■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.

**FC4 models**

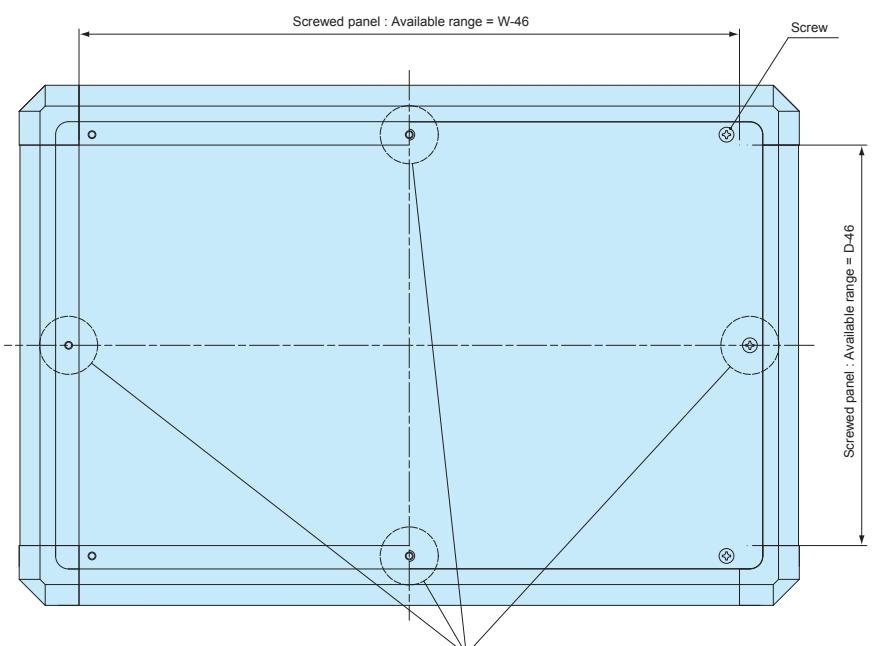
■ Refer to page 211 ~ 212 for enclosure dimensions.



## FC5 • FC6 • FC8 • FC10 • FC13 • FC15 models



A: Frame cross-section



※Additional screw holes if W or D is over 400mm.

## Color Type

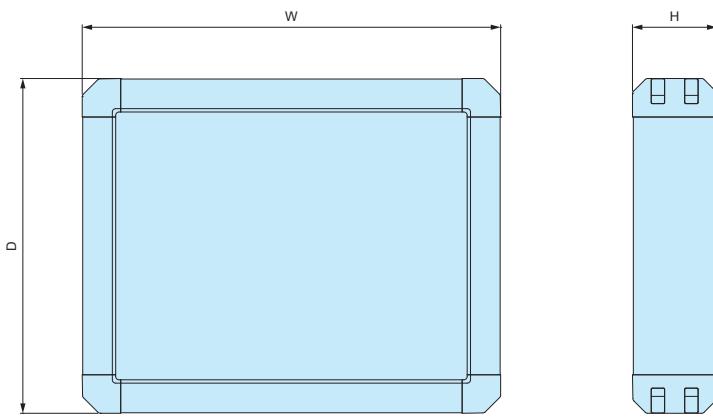
GS		BS		BX		BB	
Panel	Silver	Panel	Silver	Panel	Silver	Panel	Black
Frame	Silver	Frame	Silver	Frame	Black	Frame	Black
Corner	Light gray	Corner	Black	Corner	Black	Corner	Black

## Product no. / Dimensions

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

Product no.	H	W	D	Weight (kg)	Panel mount screw pcs
FC4- 9- 9□	37.9	90	90	0.17	4
FC4-14- 9□	37.9	140	90	0.24	4
FC4-14-14□	37.9	140	140	0.33	4
FC4-19- 9□	37.9	190	90	0.31	4
FC4-19-14□	37.9	190	140	0.50	4
FC4-19-19□	37.9	190	190	0.53	4
FC4-24-14□	37.9	240	140	0.51	4
FC4-24-19□	37.9	240	190	0.64	4
FC4-24-24□	37.9	240	240	0.78	4
FC4-29-14□	37.9	290	140	0.60	4
FC4-29-19□	37.9	290	190	0.75	4
FC4-29-24□	37.9	290	240	0.91	4
FC4-29-29□	37.9	290	290	1.07	4
FC4-34-19□	37.9	340	190	0.87	4
FC4-34-24□	37.9	340	240	1.04	4
FC4-34-29□	37.9	340	290	0.94	4
FC4-39-19□	37.9	390	190	0.97	6
FC4-39-24□	37.9	390	240	1.17	6
FC4-39-29□	37.9	390	290	1.37	6
FC4-39-39□	37.9	390	390	1.77	8
FC4-49-24□	37.9	490	240	1.39	6
FC4-49-29□	37.9	490	290	1.64	6
FC4-49-39□	37.9	490	390	2.12	8
FC4-59-29□	37.9	590	290	1.92	6
FC4-59-39□	37.9	590	390	2.46	8
FC5-10-10□	50.4	100	100	0.24	4
FC5-15-10□	50.4	150	100	0.33	4
FC5-15-15□	50.4	150	150	0.44	4
FC5-20-10□	50.4	200	100	0.42	4
FC5-20-15□	50.4	200	150	0.55	4
FC5-20-20□	50.4	200	200	0.68	4
FC5-25-15□	50.4	250	150	0.66	4
FC5-25-20□	50.4	250	200	0.81	4
FC5-25-25□	50.4	250	250	0.97	4
FC5-30-15□	50.4	300	150	0.77	4
FC5-30-20□	50.4	300	200	0.94	4
FC5-30-25□	50.4	300	250	1.11	4
FC5-30-30□	50.4	300	300	1.29	4
FC5-35-20□	50.4	350	200	1.07	4
FC5-35-25□	50.4	350	250	1.26	4
FC5-35-30□	50.4	350	300	1.46	4
FC5-40-20□	50.4	400	200	1.20	6
FC5-40-25□	50.4	400	250	1.42	6
FC5-40-30□	50.4	400	300	1.64	6

Product no.	H	W	D	Weight (kg)	Panel mount screw pcs
FC5-40-40□	50.4	400	400	2.07	8
FC5-50-25□	50.4	500	250	1.66	6
FC5-50-30□	50.4	500	300	1.92	6
FC5-50-40□	50.4	500	400	2.44	8
FC5-60-30□	50.4	600	300	2.22	6
FC5-60-40□	50.4	600	400	2.81	8
FC6-10-10□	62.9	100	100	0.26	4
FC6-15-10□	62.9	150	100	0.35	4
FC6-15-15□	62.9	150	150	0.47	4
FC6-20-10□	62.9	200	100	0.45	4
FC6-20-15□	62.9	200	150	0.58	4
FC6-20-20□	62.9	200	200	0.72	4
FC6-25-15□	62.9	250	150	0.70	4
FC6-25-20□	62.9	250	200	0.85	4
FC6-25-25□	62.9	250	250	1.01	4
FC6-30-15□	62.9	300	150	0.81	4
FC6-30-20□	62.9	300	200	0.99	4
FC6-30-25□	62.9	300	250	1.16	4
FC6-30-30□	62.9	300	300	1.35	4
FC6-35-20□	62.9	350	200	1.12	4
FC6-35-25□	62.9	350	250	1.32	4
FC6-35-30□	62.9	350	300	1.52	4
FC6-40-20□	62.9	400	200	1.25	6
FC6-40-25□	62.9	400	250	1.47	6
FC6-40-30□	62.9	400	300	1.70	6
FC6-40-40□	62.9	400	400	2.15	8
FC6-50-25□	62.9	500	250	1.72	6
FC6-50-30□	62.9	500	300	1.99	6
FC6-50-40□	62.9	500	400	2.52	8
FC6-60-30□	62.9	600	300	2.29	6
FC6-60-40□	62.9	600	400	2.43	8
FC8-10-10□	75.4	100	100	0.28	4
FC8-15-10□	75.4	150	100	0.38	4
FC8-15-15□	75.4	150	150	0.50	4
FC8-20-10□	75.4	200	100	0.48	4
FC8-20-15□	75.4	200	150	0.62	4
FC8-20-20□	75.4	200	200	0.76	4
FC8-25-15□	75.4	250	150	0.74	4
FC8-25-20□	75.4	250	200	0.90	4
FC8-25-25□	75.4	250	250	1.07	4
FC8-30-15□	75.4	300	150	0.86	4
FC8-30-20□	75.4	300	200	1.04	4
FC8-30-25□	75.4	300	250	1.23	4
FC8-30-30□	75.4	300	300	1.42	4



Product no.	H	W	D	Weight (kg)	Panel mount screw pcs	Product no.	H	W	D	Weight (kg)	Panel mount screw pcs
FC 8-35-20□	75.4	350	200	1.19	4	FC13-25-20□	125.4	250	200	1.08	4
FC 8-35-25□	75.4	350	250	1.39	4	FC13-25-25□	125.4	250	250	1.27	4
FC 8-35-30□	75.4	350	300	1.51	4	FC13-30-15□	125.4	300	150	1.04	4
FC 8-40-20□	75.4	400	200	1.32	6	FC13-30-20□	125.4	300	200	1.24	4
FC 8-40-25□	75.4	400	250	1.46	6	FC13-30-25□	125.4	300	250	1.44	4
FC 8-40-30□	75.4	400	300	1.78	6	FC13-30-30□	125.4	300	300	1.66	4
FC 8-40-40□	75.4	400	400	2.24	8	FC13-35-20□	125.4	350	200	1.40	4
FC 8-50-25□	75.4	500	250	1.81	6	FC13-35-25□	125.4	350	250	1.63	4
FC 8-50-30□	75.4	500	300	2.08	6	FC13-35-30□	125.4	350	300	1.86	4
FC 8-50-40□	75.4	500	400	2.62	8	FC13-40-20□	125.4	400	200	1.56	6
FC 8-60-30□	75.4	600	300	2.39	6	FC13-40-25□	125.4	400	250	1.81	6
FC 8-60-40□	75.4	600	400	3.00	8	FC13-40-30□	125.4	400	300	2.06	6
FC10-10-10□	100.4	100	100	0.31	4	FC13-40-40□	125.4	400	400	2.56	8
FC10-15-10□	100.4	150	100	0.43	4	FC13-50-25□	125.4	500	250	2.09	6
FC10-15-15□	100.4	150	150	0.56	4	FC13-50-30□	125.4	500	300	2.38	6
FC10-20-10□	100.4	200	100	0.54	4	FC13-50-40□	125.4	500	400	2.96	8
FC10-20-15□	100.4	200	150	0.70	4	FC13-60-30□	125.4	600	300	2.89	6
FC10-20-20□	100.4	200	200	0.85	4	FC13-60-40□	125.4	600	400	3.36	8
FC10-25-15□	100.4	250	150	0.83	4	FC15-10-10□	150.4	100	100	0.40	4
FC10-25-20□	100.4	250	200	1.01	4	FC15-15-10□	150.4	150	100	0.54	4
FC10-25-25□	100.4	250	250	1.19	4	FC15-15-15□	150.4	150	150	0.70	4
FC10-30-15□	100.4	300	150	0.97	4	FC15-20-10□	150.4	200	100	0.68	4
FC10-30-20□	100.4	300	200	1.16	4	FC15-20-15□	150.4	200	150	0.85	4
FC10-30-25□	100.4	300	250	1.36	4	FC15-20-20□	150.4	200	200	1.04	4
FC10-30-30□	100.4	300	300	1.57	4	FC15-25-15□	150.4	250	150	1.02	4
FC10-35-20□	100.4	350	200	1.32	4	FC15-25-20□	150.4	250	200	1.22	4
FC10-35-25□	100.4	350	250	1.54	4	FC15-25-25□	150.4	250	250	1.42	4
FC10-35-30□	100.4	350	300	1.77	4	FC15-30-15□	150.4	300	150	1.17	4
FC10-40-20□	100.4	400	200	1.47	6	FC15-30-20□	150.4	300	200	1.40	4
FC10-40-25□	100.4	400	250	1.72	6	FC15-30-25□	150.4	300	250	1.62	4
FC10-40-30□	100.4	400	300	1.96	6	FC15-30-30□	150.4	300	300	1.85	4
FC10-40-40□	100.4	400	400	2.45	8	FC15-35-20□	150.4	350	200	1.58	4
FC10-50-25□	100.4	500	250	1.99	6	FC15-35-25□	150.4	350	250	1.82	4
FC10-50-30□	100.4	500	300	2.27	6	FC15-35-30□	150.4	350	300	2.07	4
FC10-50-40□	100.4	500	400	2.84	8	FC15-40-20□	150.4	400	200	1.76	6
FC10-60-30□	100.4	600	300	2.60	6	FC15-40-25□	150.4	400	250	2.02	6
FC10-60-40□	100.4	600	400	2.70	8	FC15-40-30□	150.4	400	300	2.29	6
FC13-10-10□	125.4	100	100	0.35	4	FC15-40-40□	150.4	400	400	2.83	8
FC13-15-10□	125.4	150	100	0.47	4	FC15-50-25□	150.4	500	250	2.32	6
FC13-15-15□	125.4	150	150	0.61	4	FC15-50-30□	150.4	500	300	2.63	6
FC13-20-10□	125.4	200	100	0.59	4	FC15-50-40□	150.4	500	400	3.25	8
FC13-20-15□	125.4	200	150	0.75	4	FC15-60-30□	150.4	600	300	2.98	6
FC13-20-20□	125.4	200	200	0.92	4	FC15-60-40□	150.4	600	400	3.66	8
FC13-25-15□	125.4	250	150	0.90	4						

## FCW SERIES

## OPEN-CLOSING CONTROL BOX

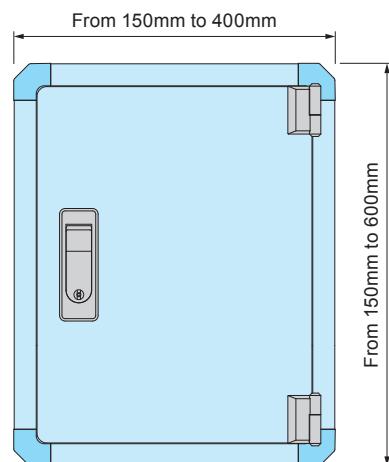


- 108 different sizes in 4 different color variations available.
- Easy access to the inside of the case with open/closing cover.
- Both with and without key lock types are available.
- Suitable for touch panel display, industrial control equipment and many others.

## Technical Data

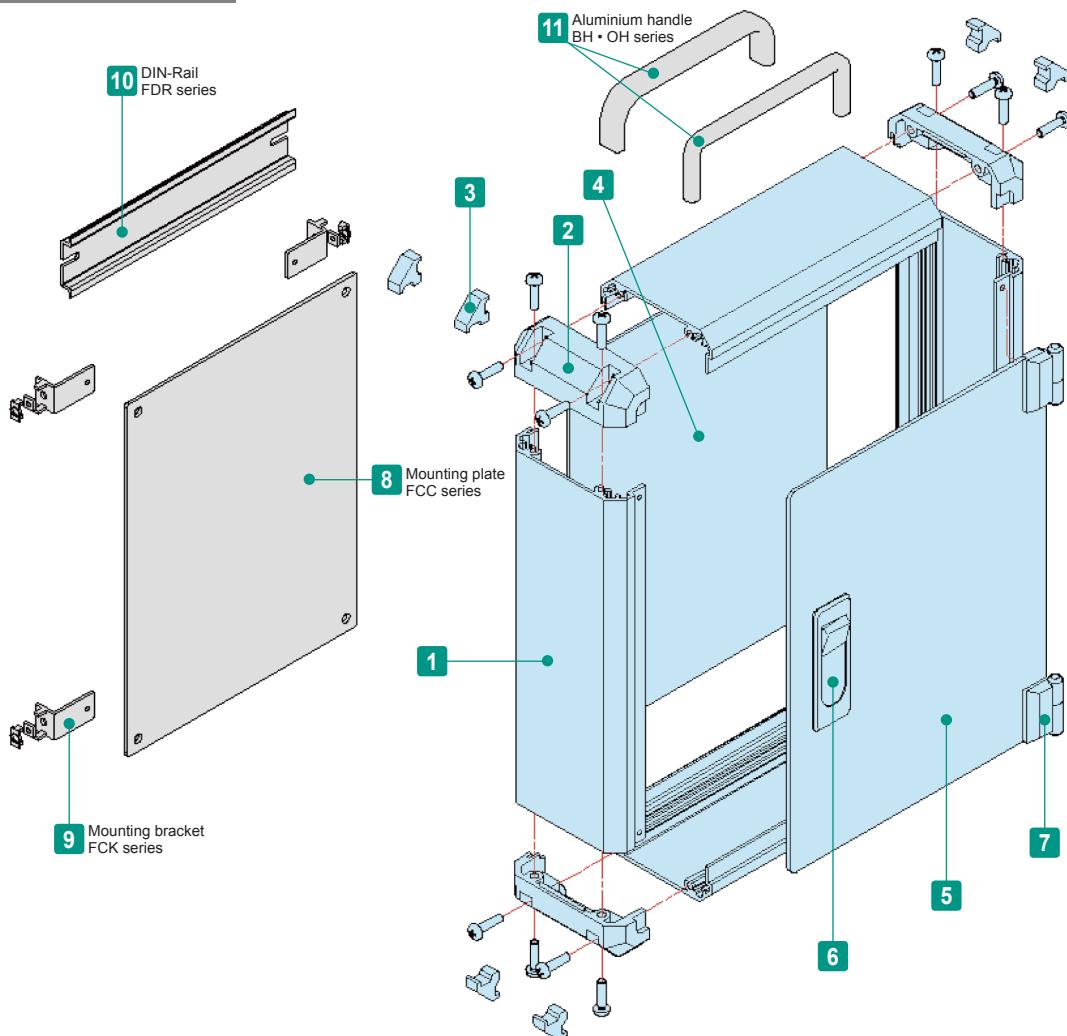
Protection class: IP40

## Custom width / length available



- Flexible frame width / length in 1mm intervals.
- No minimum order quantity and short lead time for small quantity order.

## Assembly drawings



### Included screws

M4-15 pan head, trivalent chromate / black trivalent chromate x 16 pcs  
 M3-5 pan head, trivalent chromate / black trivalent chromate x 2 pcs or 3 pcs  
 M3-5 countersunk trivalent chromate / black trivalent chromate x 2 pcs or 3 pcs  
 M4-8 trivalent chromate with washer x 2 pcs or 4 pcs  
 M4-6 trivalent chromate with washer x 2 pcs or 4 pcs

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Frame	4	Extruded aluminium A6063S-T5	Silver • Black / Anodized
2	Corner block	4	ABS UL94HB	Light gray • Black
3	Blind plug	8	TPE	Light gray • Black
4	Slide panel	1	Aluminium A1050P t=1.5	Silver / Hairline brushed & Anodized
			Aluminium A1100P t=1.5	Black / Painted
5	Open-closing panel	1	Aluminium A1050P t=2.0	Silver / Hairline brushed & Anodized
			Aluminium A1050P t=2.0	Black / Anodized
6	Flat handle	1 set	Diecast zinc	Silver • Black / Painted
7	Hinge	1 set	Diecast zinc	Silver • Black / Painted
-	Panel protection pad	6	Polyolefin foam	Black

## Accessories (Optional parts)



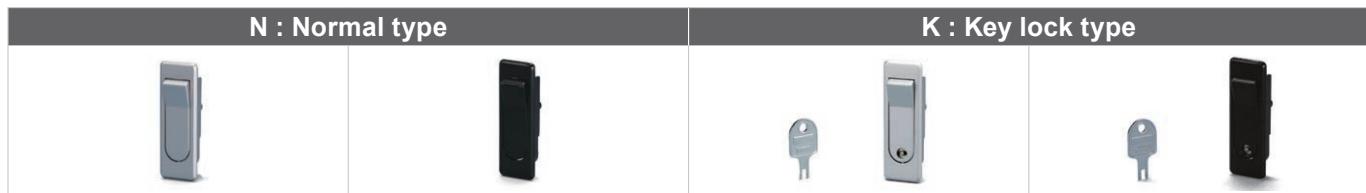
**8** Mounting plate FCC series  
See page 219 ~ 220

**9** Mounting bracket FCK series  
See page 220

**10** DIN-Rail FDR series  
See website

**11** Aluminium handle BH • OH series  
See website

## Flat Handle Type



## Color Type

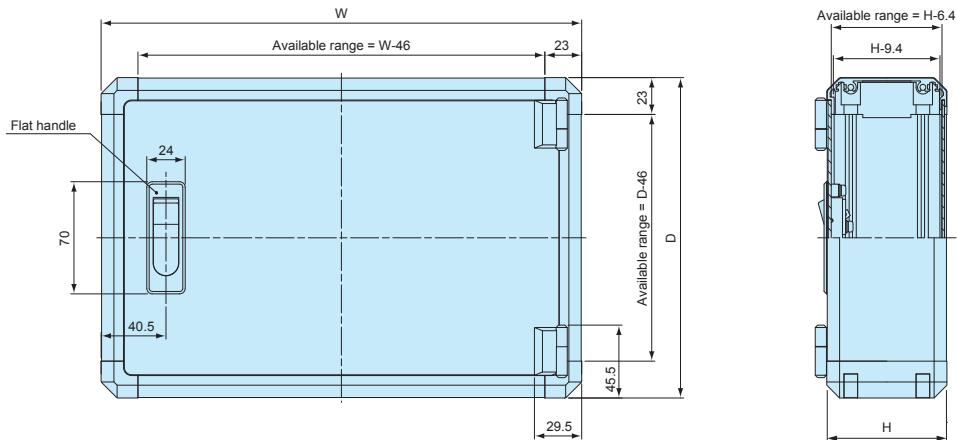
GS	BS	BX	BB
Panel	Silver	Panel	Silver
Frame	Silver	Frame	Silver
Corner	Light gray	Corner	Black
Flat handle	Silver	Flat handle	Silver
		Flat handle	Black
		Black	Flat handle
			Black

## FCW dimensions

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

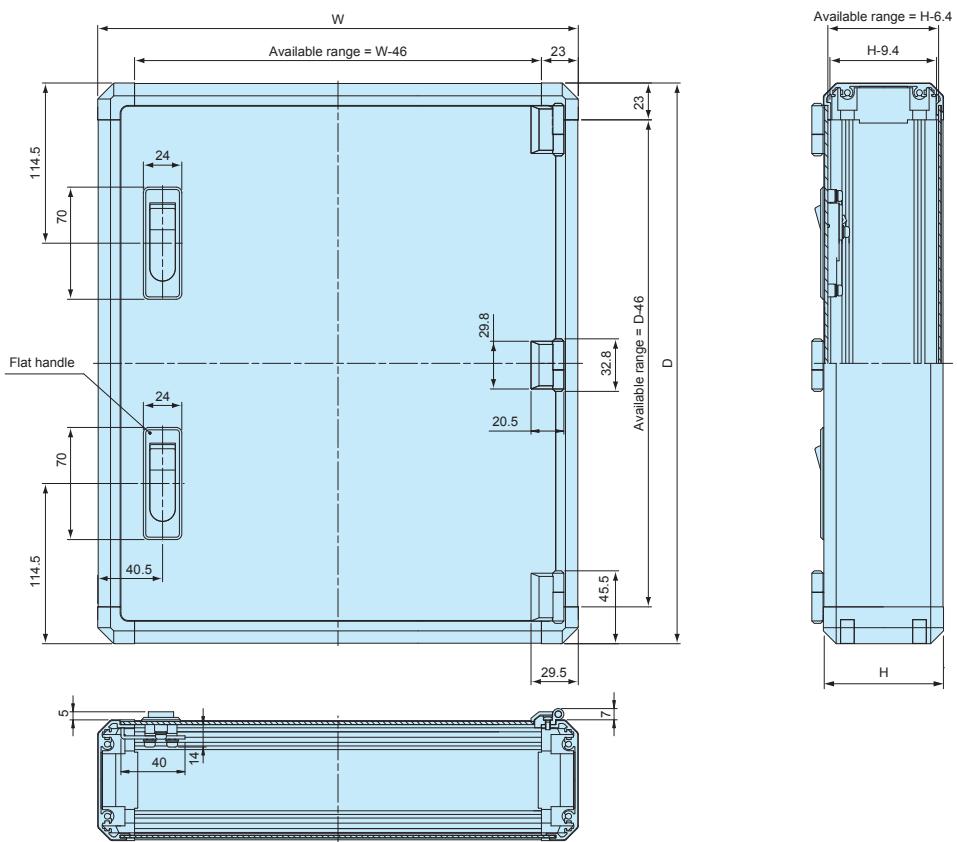
## Handle - 1 pc / Hinge - 2 pcs type

Not applicable for FCW□-30-50, FCW□-40-50, and FCW□-40-60 models.



## Handle - 2 pcs / Hinge - 3 pcs type

Applicable for FCW□-30-50, FCW□-40-50, and FCW□-40-60 models.



Specify your order with complete combination product number as per below

# FCW 5 - 20 - 15



Flat Handle Type  
( N or K )



Color Code  
( GS, BS, BX, or BB )

## Product no. / Dimensions

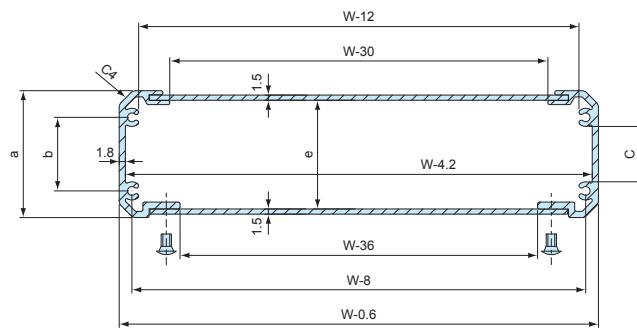
Product no.	H	W	D	Weight (kg)	Flat handle / Hinge pcs
FCW5-15-20□□	50.4	150	200	0.69	1/2
FCW5-15-25□□	50.4	150	250	0.80	1/2
FCW5-20-15□□	50.4	200	150	0.69	1/2
FCW5-20-20□□	50.4	200	200	0.83	1/2
FCW5-20-25□□	50.4	200	250	0.97	1/2
FCW5-20-30□□	50.4	200	300	1.11	1/2
FCW5-25-25□□	50.4	250	250	1.14	1/2
FCW5-25-30□□	50.4	250	300	1.30	1/2
FCW5-25-40□□	50.4	250	400	1.63	1/2
FCW5-30-20□□	50.4	300	200	1.11	1/2
FCW5-30-30□□	50.4	300	300	1.50	1/2
FCW5-30-40□□	50.4	300	400	1.87	1/2
FCW5-30-50□□	50.4	300	500	2.28	2/3
FCW5-35-25□□	50.4	350	250	1.47	1/2
FCW5-40-30□□	50.4	400	300	1.88	1/2
FCW5-40-40□□	50.4	400	400	2.37	1/2
FCW5-40-50□□	50.4	400	500	2.82	2/3
FCW5-40-60□□	50.4	400	600	3.28	2/3
FCW6-15-20□□	62.9	150	200	0.72	1/2
FCW6-15-25□□	62.9	150	250	0.84	1/2
FCW6-20-15□□	62.9	200	150	0.72	1/2
FCW6-20-20□□	62.9	200	200	0.86	1/2
FCW6-20-25□□	62.9	200	250	1.01	1/2
FCW6-20-30□□	62.9	200	300	1.16	1/2
FCW6-25-25□□	62.9	250	250	1.18	1/2
FCW6-25-30□□	62.9	250	300	1.35	1/2
FCW6-25-40□□	62.9	250	400	1.69	1/2
FCW6-30-20□□	62.9	300	200	1.16	1/2
FCW6-30-30□□	62.9	300	300	1.55	1/2
FCW6-30-40□□	62.9	300	400	1.93	1/2
FCW6-30-50□□	62.9	300	500	2.35	2/3
FCW6-35-25□□	62.9	350	250	1.46	1/2
FCW6-40-30□□	62.9	400	300	1.94	1/2
FCW6-40-40□□	62.9	400	400	2.44	1/2
FCW6-40-50□□	62.9	400	500	2.94	2/3
FCW6-40-60□□	62.9	400	600	3.36	2/3
FCW8-15-20□□	75.4	150	200	0.76	1/2
FCW8-15-25□□	75.4	150	250	0.88	1/2
FCW8-20-15□□	75.4	200	150	0.76	1/2
FCW8-20-20□□	75.4	200	200	0.91	1/2
FCW8-20-25□□	75.4	200	250	1.06	1/2
FCW8-20-30□□	75.4	200	300	1.21	1/2
FCW8-25-25□□	75.4	250	250	1.24	1/2
FCW8-25-30□□	75.4	250	300	1.41	1/2
FCW8-25-40□□	75.4	250	400	1.76	1/2
FCW8-30-20□□	75.4	300	200	1.21	1/2
FCW8-30-30□□	75.4	300	300	1.62	1/2
FCW8-30-40□□	75.4	300	400	2.02	1/2
FCW8-30-50□□	75.4	300	500	2.44	2/3
FCW8-35-25□□	75.4	350	250	1.59	1/2
FCW8-40-30□□	75.4	400	300	2.02	1/2
FCW8-40-40□□	75.4	400	400	2.53	1/2
FCW8-40-50□□	75.4	400	500	3.05	2/3
FCW8-40-60□□	75.4	400	600	3.47	2/3

Product no.	H	W	D	Weight (kg)	Flat handle / Hinge pcs
FCW10-15-20□□	100.4	150	200	0.83	1/2
FCW10-15-25□□	100.4	150	250	0.97	1/2
FCW10-20-15□□	100.4	200	150	0.83	1/2
FCW10-20-20□□	100.4	200	200	1.00	1/2
FCW10-20-25□□	100.4	200	250	1.17	1/2
FCW10-20-30□□	100.4	200	300	1.33	1/2
FCW10-25-25□□	100.4	250	250	1.36	1/2
FCW10-25-30□□	100.4	250	300	1.55	1/2
FCW10-25-40□□	100.4	250	400	1.93	1/2
FCW10-30-20□□	100.4	300	200	1.34	1/2
FCW10-30-30□□	100.4	300	300	1.77	1/2
FCW10-30-40□□	100.4	300	400	2.20	1/2
FCW10-30-50□□	100.4	300	500	2.64	2/3
FCW10-35-25□□	100.4	350	250	1.74	1/2
FCW10-40-30□□	100.4	400	300	2.21	1/2
FCW10-40-40□□	100.4	400	400	2.74	1/2
FCW10-40-50□□	100.4	400	500	3.27	2/3
FCW10-40-60□□	100.4	400	600	3.71	2/3
FCW13-15-20□□	125.4	150	200	0.89	1/2
FCW13-15-25□□	125.4	150	250	1.04	1/2
FCW13-20-15□□	125.4	200	150	0.89	1/2
FCW13-20-20□□	125.4	200	200	1.06	1/2
FCW13-20-25□□	125.4	200	250	1.32	1/2
FCW13-20-30□□	125.4	200	300	1.41	1/2
FCW13-25-25□□	125.4	250	250	1.44	1/2
FCW13-25-30□□	125.4	250	300	1.63	1/2
FCW13-25-40□□	125.4	250	400	2.02	1/2
FCW13-30-20□□	125.4	300	200	1.41	1/2
FCW13-30-30□□	125.4	300	300	1.94	1/2
FCW13-30-40□□	125.4	300	400	2.30	1/2
FCW13-30-50□□	125.4	300	500	2.74	2/3
FCW13-35-25□□	125.4	350	250	1.83	1/2
FCW13-40-30□□	125.4	400	300	2.30	1/2
FCW13-40-40□□	125.4	400	400	2.86	1/2
FCW13-40-50□□	125.4	400	500	3.39	2/3
FCW13-40-60□□	125.4	400	600	3.84	2/3
FCW15-15-20□□	150.4	150	200	0.96	1/2
FCW15-15-25□□	150.4	150	250	1.07	1/2
FCW15-20-15□□	150.4	200	150	0.91	1/2
FCW15-20-20□□	150.4	200	200	1.18	1/2
FCW15-20-25□□	150.4	200	250	1.37	1/2
FCW15-20-30□□	150.4	200	300	1.57	1/2
FCW15-25-25□□	150.4	250	250	1.59	1/2
FCW15-25-30□□	150.4	250	300	1.80	1/2
FCW15-25-40□□	150.4	250	400	2.23	1/2
FCW15-30-20□□	150.4	300	200	1.57	1/2
FCW15-30-30□□	150.4	300	300	2.05	1/2
FCW15-30-40□□	150.4	300	400	2.53	1/2
FCW15-30-50□□	150.4	300	500	2.99	2/3
FCW15-35-25□□	150.4	350	250	2.02	1/2
FCW15-40-30□□	150.4	400	300	2.53	1/2
FCW15-40-40□□	150.4	400	400	3.12	1/2
FCW15-40-50□□	150.4	400	500	3.68	2/3
FCW15-40-60□□	150.4	400	600	4.14	2/3

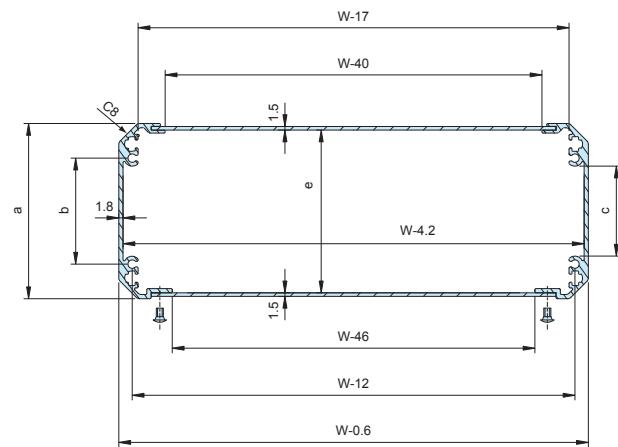
## FC • FCW cross-section view

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

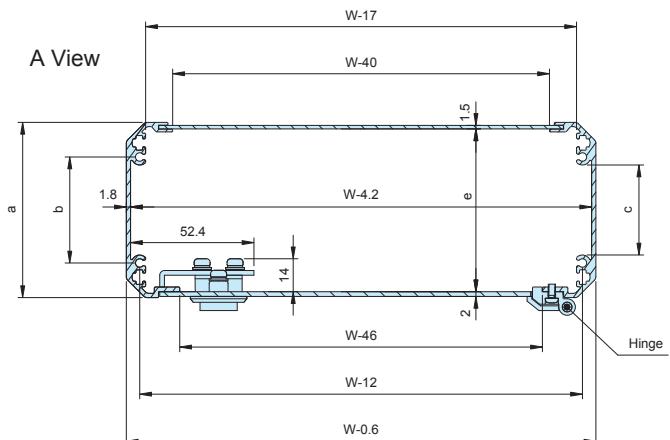
FC4 models



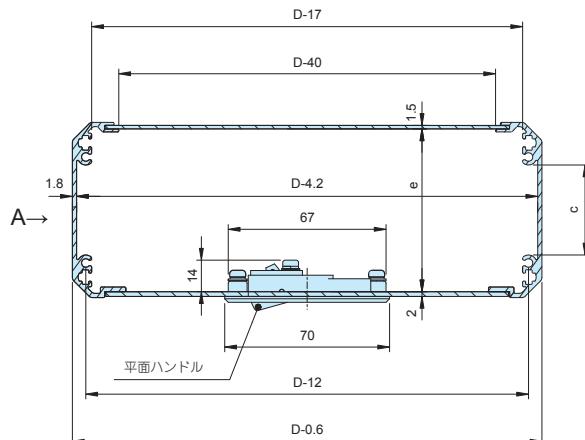
FC5 • FC6 • FC8 • FC10 • FC13 • FC15 models



FCW series



W Cross-section



D cross-section

Box height	a	b	c	e
37.9	36.9	21.4	16.1	31.5
50.4	49.4	20	13.2	44
62.9	61.9	32.5	25.7	56.5
75.4	74.4	45	38.2	69
100.4	99.4	70	63.2	94
125.4	124.4	95	88.2	119
150.4	149.4	120	113.2	144

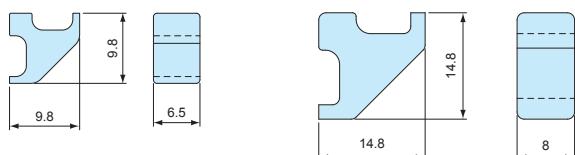
## Accessories (Optional parts)

## FC-BK SERIES

## BLIND PLUG

- Spare / Replacement bling plug for FC • FCW series.

FC-BK-S□ (FC4 models) FC-BK-□ (Other FC models • FCW series)

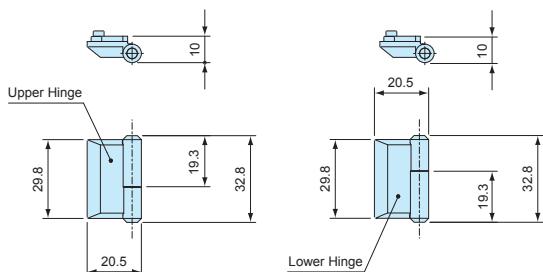


Product no.	Material	Color	Pack of
FC-BK-SG	TPE	Light gray	1 set (4 pcs)
FC-BK-SB	TPE	Black	1 set (4 pcs)
FC-BK-G	TPE	Light gray	1 set (4 pcs)
FC-BK-B	TPE	Black	1 set (4 pcs)

## FW SERIES

## HINGE for FCW

- Spare / Replacement hinge for FCW series.

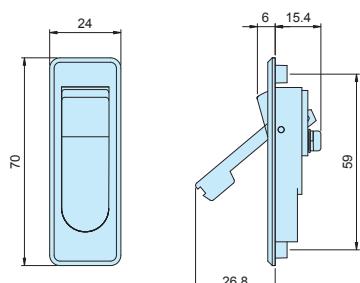


Product no.	Material	Color / Finish	Pack of
FW-2S	Diecast zinc	Silver / Painted	1 set (Upper/Lower)
FW-2B	Diecast zinc	Black / Painted	1 set (Upper/Lower)

## PH-88 SERIES

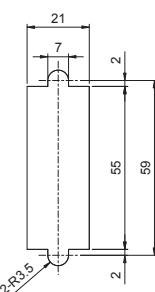
## FLAT HANDLE for FCW

- Spare / Replacement flat handle for FCW series.



Normal type (without Key)

Key-lock type (with Key)

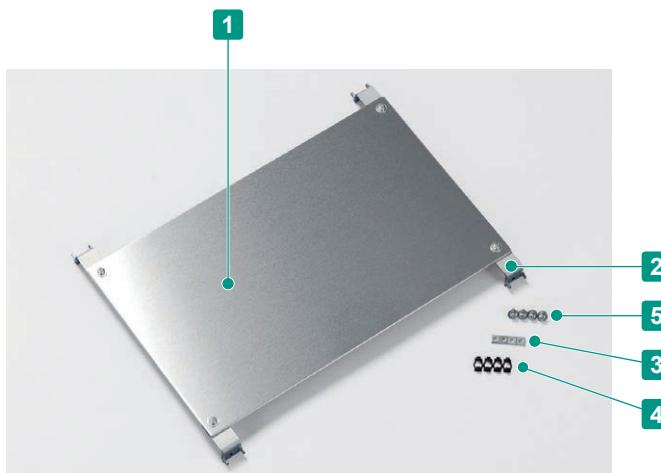


Mounting hole dimensions

Product no.	Key	Material	Color / Finish
PH-88A-2S	without	Diecast zinc	Silver / Painted
PH-88A-2B	without	Diecast zinc	Black / Painted
PH-88 -2S	with	Diecast zinc	Silver / Painted
PH-88 -2B	with	Diecast zinc	Black / Painted

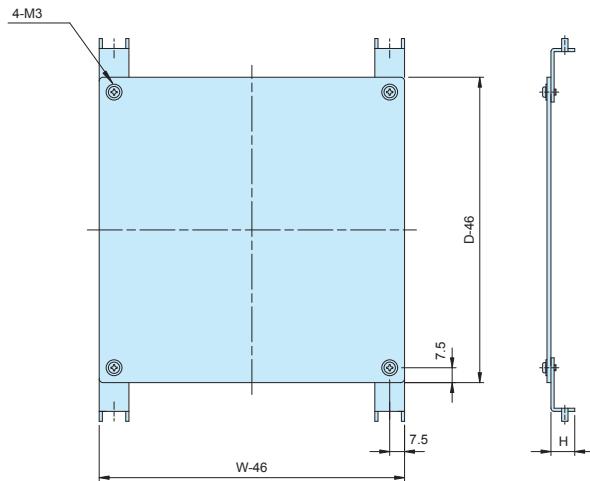
## FCC SERIES

## MOUNTING PLATE for FC • FCW

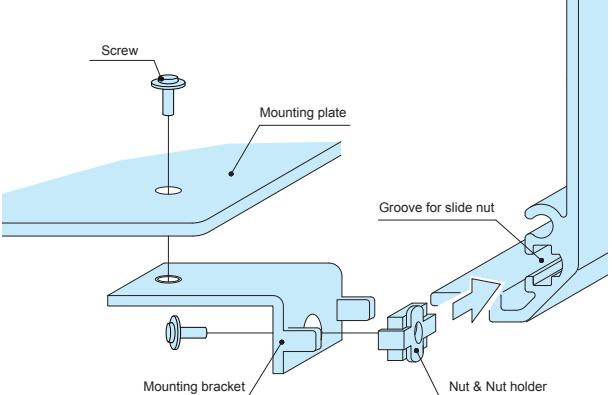
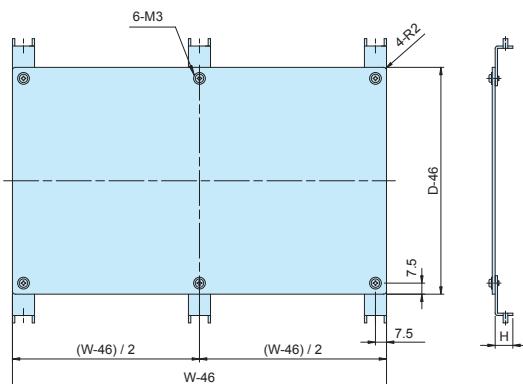


- The mounting bracket comes in 2 different height versions, 12mm and 22mm.
- Use 22mm height version when set on the open/close panel side of FCW series.
- Not suitable for FC4 (H = 37.9mm)
- Mounting brackets (FCK) are included with FCC series.
- DXF/DWG/PDF drawings available on our website.

For box size (W x D or D x W) 100 x 100mm to 350 x 300mm



For box size (W x D or D x W) 400/500/600 x 200/250/300 mm



#### How to assemble

- ①Slide a M3 nut and nut holder into the groove on the frame.
- ②Screw the mounting bracket into the nut holder.
- ③Screw the mounting plate onto the mounting bracket.

#### Components

No.	Part name	Material	Color / Finish
1	Mounting plate	Aluminium A1050P t=2.0	Unfinished
2	Mounting bracket	Steel SECC t=1.6	Zinc coated
3	M3 nut	Steel SPCC t=1.6	Trivalent chromate
4	Nut holder	POM	Black
5	Screw	Steel M3-6	Trivalent chromate

#### Product no. / Dimensions

Product no.	H	Box W x D or D x W	Product no.	H	Box W x D or D x W
FCC10-10-1	12	100×100	FCC10-10-2	22	100×100
FCC15-10-1	12	150×100	FCC15-10-2	22	150×100
FCC15-15-1	12	150×150	FCC15-15-2	22	150×150
FCC20-10-1	12	200×100	FCC20-10-2	22	200×100
FCC20-15-1	12	200×150	FCC20-15-2	22	200×150
FCC20-20-1	12	200×200	FCC20-20-2	22	200×200
FCC25-15-1	12	250×150	FCC25-15-2	22	250×150
FCC25-20-1	12	250×200	FCC25-20-2	22	250×200
FCC25-25-1	12	250×250	FCC25-25-2	22	250×250
FCC30-15-1	12	300×150	FCC30-15-2	22	300×150
FCC30-20-1	12	300×200	FCC30-20-2	22	300×200
FCC30-25-1	12	300×250	FCC30-25-2	22	300×250
FCC30-30-1	12	300×300	FCC30-30-2	22	300×300
FCC35-20-1	12	350×200	FCC35-20-2	22	350×200
FCC35-25-1	12	350×250	FCC35-25-2	22	350×250
FCC35-30-1	12	350×300	FCC35-30-2	22	350×300

Included screws: M3-6 pan head trivalent chromate with flat washer x 8 pcs

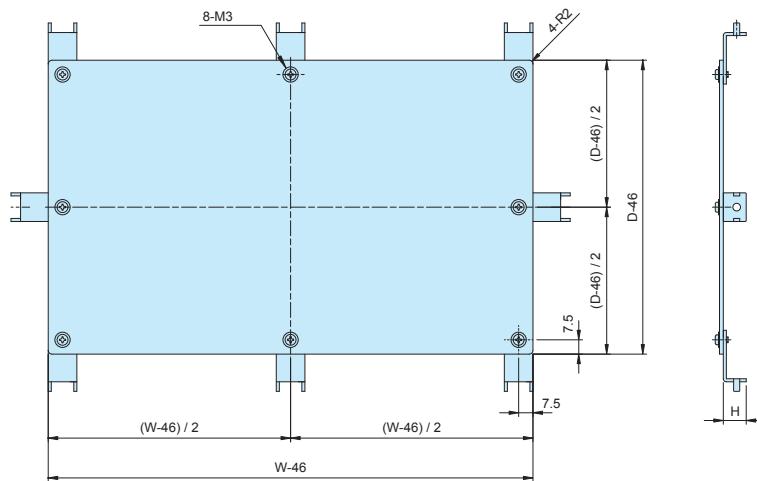
#### Product no. / Dimensions

Product no.	H	Box W x D or D x W	Product no.	H	Box W x D or D x W
FCC40-20-1	12	400×200	FCC40-20-2	22	400×200
FCC40-25-1	12	400×250	FCC40-25-2	22	400×250
FCC40-30-1	12	400×300	FCC40-30-2	22	400×300
FCC50-25-1	12	500×250	FCC50-25-2	22	500×250
FCC50-30-1	12	500×300	FCC50-30-2	22	500×300
FCC60-30-1	12	600×300	FCC60-30-2	22	600×300

Included screws: M3-6 pan head trivalent chromate with flat washer x 12 pcs

For box size (W x D or D x W) 400/500/600 x 400mm

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



## Product no. / Dimensions

Product no.	H	Box W x D or D x W	Product no.	H	Box W x D or D x W
FCC40-40-1	12	400x400	FCC40-40-2	22	400x400
FCC50-40-1	12	500x400	FCC50-40-2	22	500x400
FCC60-40-1	12	600x400	FCC60-40-2	22	600x400

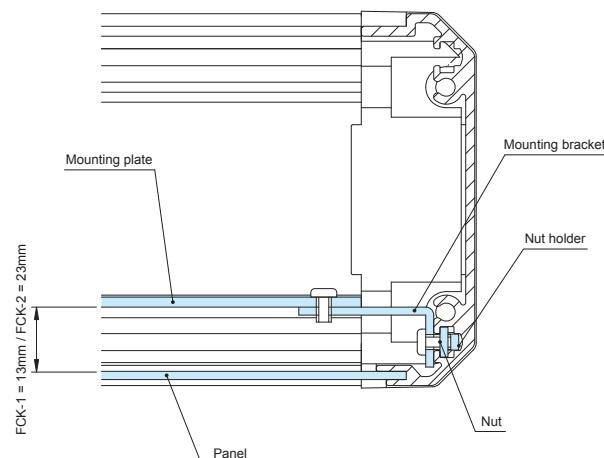
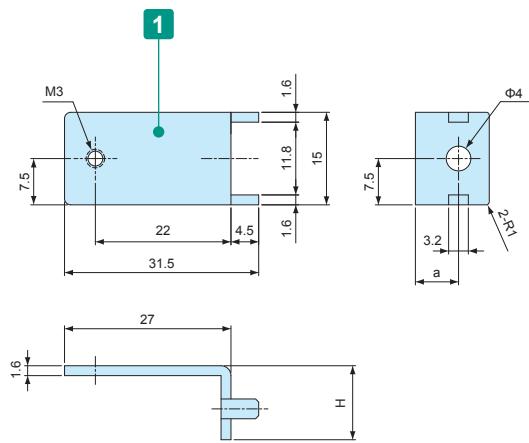
Included screws: M3-6 pan head trivalent chromate with flat washer x 16 pcs

## Accessories (Optional parts)

## FCK SERIES

## MOUNTING BRACKET

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



- 2 mounting brackets for PCB or DIN-Rail.
- FCK mounting bracket comes with FCC mounting plate.  
Additional FCK is not necessary when purchasing FCC series.
- Not suitable for FC4 (H = 37.9mm).

## Components

No.	Part name	Material	Color / Finish
1	Mounting bracket	Steel SECC t=1.6	Zinc coated
2	Nut holder	POM	Black
3	M3 nut	Steel SPCC t=1.6	Trivalent chromate

## Product no. / Dimensions

Product no.	H	a	Pack of
FCK-1	12	7	10
FCK-2	22	17	10

Included screws: M3-6 pan head trivalent chromate with flat washer x 20 pcs

# MS SERIES

# APPLICATION EXAMPLE

The desktop metal type MS series enclosure is suitable for use as measuring instruments, testing equipment, power supply controller, etc.

A wide variety of 3 different colors and 176 different sizes are available.

## DIAGNOSTIC DEVICE



Digital panel recorder by Cors (Japan) can display, analyze, save and transmit measured data.



Product by Cors (Japan)

- Digital panel recorder by Cors (Japan) is embedded onto the MS enclosure.
- Measuring an electric flow on the machine to analyze the machine conditions. Suitable even for machines in severe environment.
- Measured data can be displayed, transmitted and also saved on SD card as CSV format.

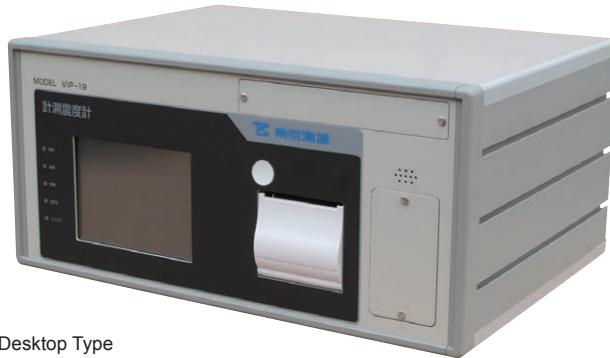
## X-RAY FLORESCENCE ANALYZER



Product by SinmatrikX (Japan)

- Processor to withdraw max ability of SDD detector from low to high energy X-ray.
- Best used for fluorescence analysis with low noise, high capacity, wide range and high speed.
- Used as a radiation detector and fluorescence analysis.

## INTENSITY METER



Desktop Type



Rack Mount Type

Product by TOKYO SOKUSHIN (Japan)

- Multi-channel input type seismic monitor.
- Display seismic intensity, scale of intensity and peak acceleration on the color LCD.

## PIEZO CONTROLLER



## STEPPING PIEZO CONTROLLER



## LANGEVIN TRANSDUCER (BLT) CONTROLLER



Product by MESS-TEK (Japan)

### PIEZO CONTROLLER

- A device used for precise positioning at the micron/nano meter level with PIEZO actuator.
- Used for semiconductor manufacturing, and biotechnology fields where precise positioning is required.

### LANGEVIN TRANSDUCER (BLT) CONTROLLER

- A controller for Langevin Transducer used for ultrasonic experiments where precise work is required.
- Automatically adjust the resonant frequency of the transducer while working.

## QUENCHING DEPTH INDICATOR



## STEEL DETECTOR



Product by Denshijiki Industry (Japan)

- The survey instrument which does quenching depth measurement in steel without destroying it.
- 6 probe sensors can analyze the internal texture of the steel and calculate the depth of quenching accurately.
- STEEL DETECTOR can calculate weld quality, hardness, material quality and quenching depth in steel.
- 4 probe sensors can analyze the transformation of the steel and detect welding quality, hardness, material quality and quenching depth.

# MS SERIES

## APPLICATION EXAMPLE

### EMBEDDED PCB CHECKER

Product by KYOSAITECHNOS (Japan)



- A device to test parts on a PCB under de-energized conditions.
- Easy operation to determine the waveform on the display.

### PRECISION PROGRAMMABLE RESISTANCE BOX / RTD SIMULATOR

Product by Alpha Electronics (Japan)



- Easily able to set to any desired resistance value using a PC.
- Automated inspection to minimize inspection time while avoiding human error.

### REFERENCE SIGNAL DISTRIBUTOR

Product by Freqtime (Japan)



- A desktop device for the distribution of a signal to 8 ports.

## FIBER OPTIC THERMOMETER Product by Anritsu Meter (Japan)



- Enables the measurement of temperature in environments subjected to high-frequency waves, microwaves, or high voltages-areas where electric type thermometers are ineffective.
- Fiber optic thermometer offering a wide measurement range.
- 1 and 4 channel versions are available. Calibration function enables an accuracy range of around +/- 0.5°C.

## PRECISION PLATINUM RESISTANCE THERMOMETER



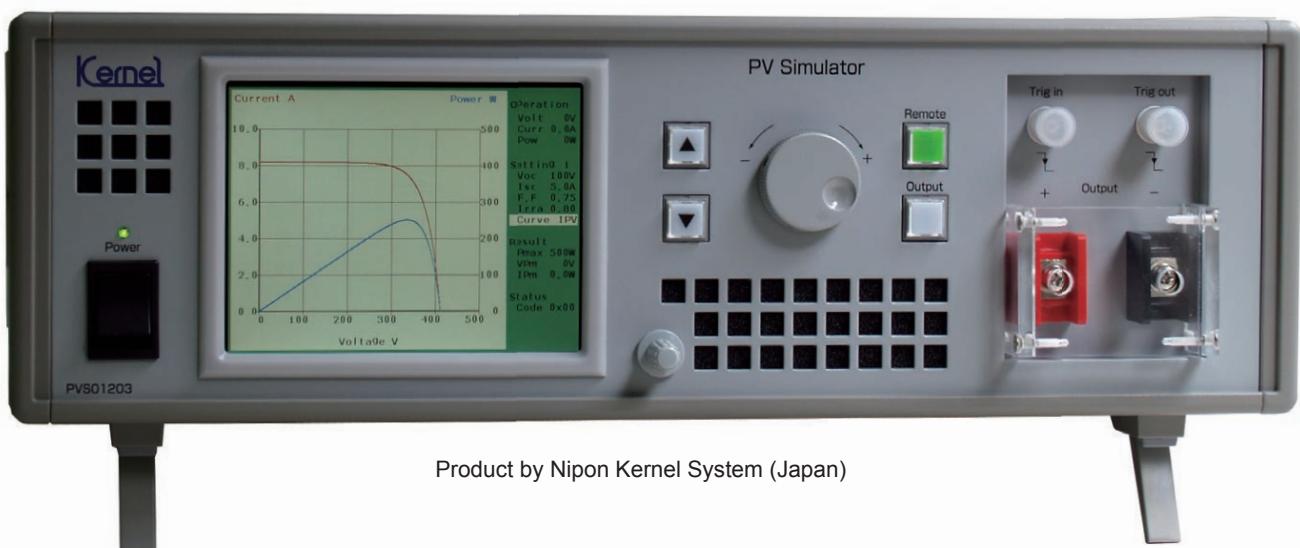
Product by Anritsu Meter (Japan)

## ANALOG OUTPUT THERMOMETER



Product by Anritsu Meter (Japan)

## PORTABLE PV SIMULATOR



Product by Nipon Kernel System (Japan)

- Compact and portable solar cell simulator with color LCD.
- I-V curve character is calculated according to Semiconductor formula. Setting can be changed during operation. 4 parameters (Voc, Isc, F.F., Irra) can be set individually.
- Large input voltage range (AC85 ~ 264[V]). Only the film condenser of the low volume is connected at output terminal.

## MS SERIES

## DESKTOP ENCLOSURE

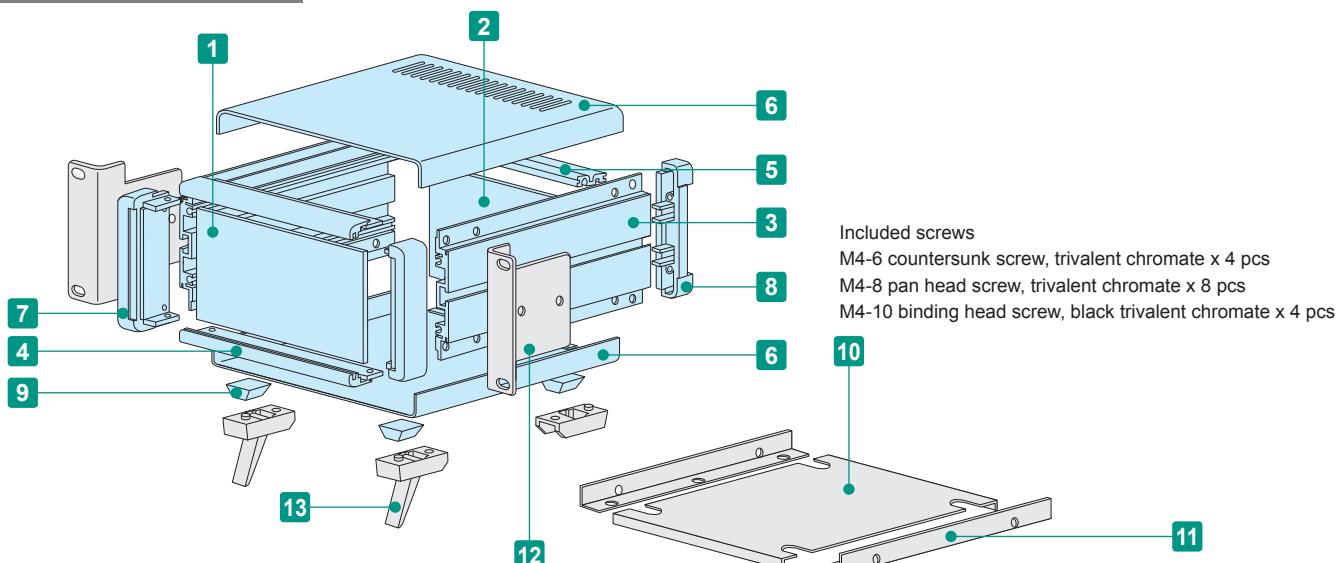


- Available in 3 different colors and 176 different sizes.
- Screws are hidden out of view for a sophisticated and elegant look.
- Suitable for use as measuring instruments, testing equipment, power supply controller, etc.



Variations of MS series, MSN, MSY and MSR series are also available. See website for more details.

## Assembly drawings



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Front panel	1	Aluminium A1050P t=2.0	Silver • Black / Hairline brushed & Anodized
2	Rear panel	1	Aluminium A1050P t=2.0	Silver • Black / Anodized
3	Side frame	2	Extruded aluminium A6063S-T5	Gray • Black / Painted
4	Front frame	2	Extruded aluminium A6063S-T5	Gray • Black / Painted
5	Rear frame	2	Extruded aluminium A6063S-T5	Silver / Anodized
6	Top • Bottom cover	1 each	Steel SPCC t=1.0	Light gray • Black / Painted
7	Corner block	2	Diecast aluminium ADC12	Gray • Black / Painted
8	Rear feet	2	ABS UL94V-0	Gray • Black
9	Rubber feet	4	Polyurethane	Black

■ Front • Rear panels comes with a protective sheet cover.

## Accessories (Optional parts)



**10** Mounting plate MSC series  
See page 229



**11** L-bracket MSCL series  
See page 229



**12** Rack mounting MSM series  
See page website

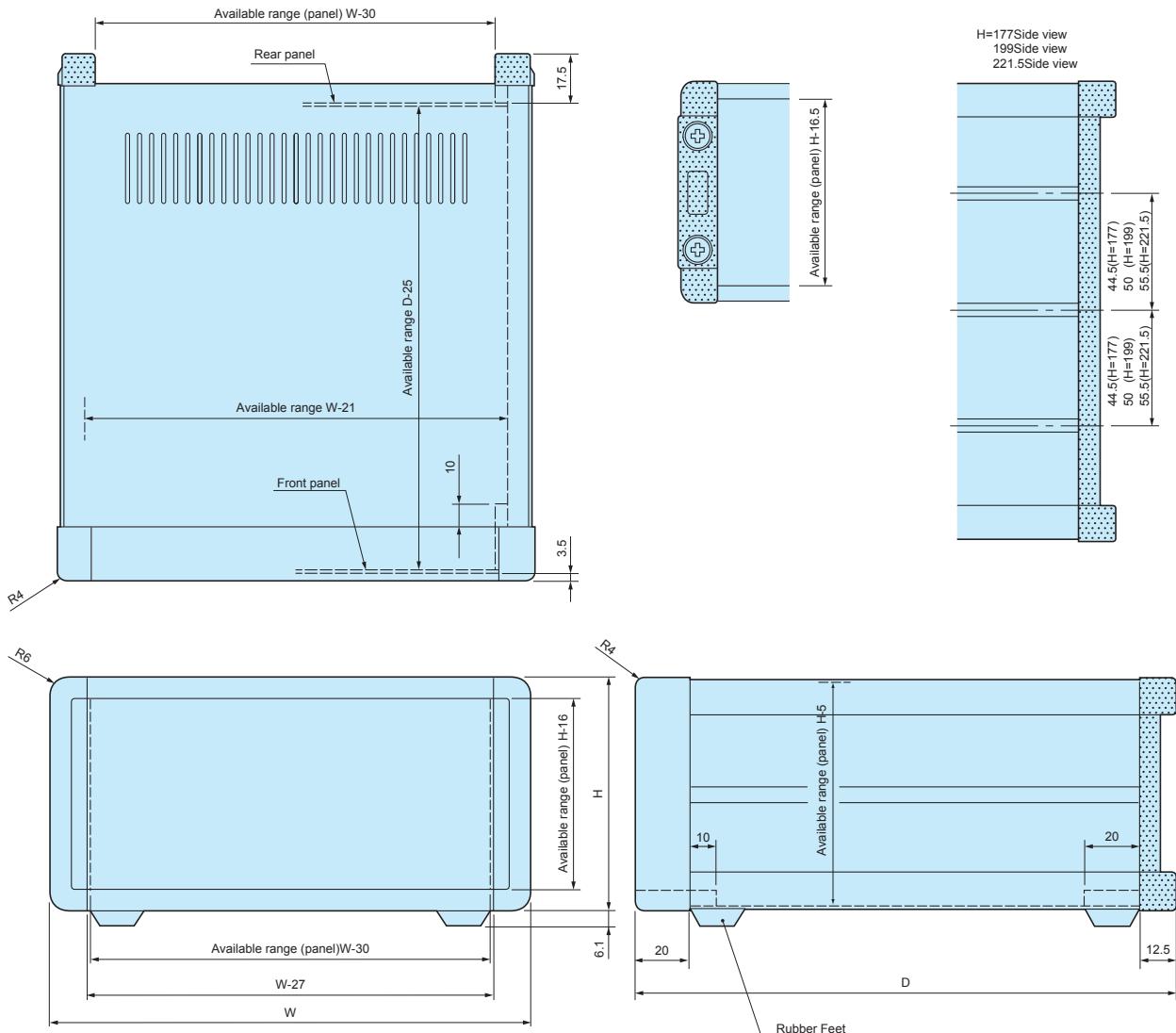


**13** Tilt leg TL series  
See page 230

Cable hook CBF series  
See page 230

### MS dimensions

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



■ Top • Bottom cover of sizes 160x160, 160x230, 160x280, 210x160 do not have ventilation holes.

#### Color Type

● G



Panel

Silver

● B



Panel

Black

● BS



Panel

Silver

Top • Bottom cover

Black

Side frame

Black

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

## Product no. / Dimensions

Product no.	H	W	D	Weight (kg)
MS 66-16-16□	66	160	160	1.0
MS 66-16-23□	66	160	230	1.3
MS 66-16-28□	66	160	280	1.6
MS 66-21-16□	66	210	160	1.2
MS 66-21-23□	66	210	230	1.6
MS 66-21-28□	66	210	280	1.8
MS 66-21-35□	66	210	350	2.2
MS 66-26-23□	66	260	230	1.8
MS 66-26-28□	66	260	280	2.1
MS 66-26-35□	66	260	350	2.6
MS 66-32-23□	66	320	230	2.1
MS 66-32-28□	66	320	280	2.5
MS 66-32-35□	66	320	350	3.0
MS 66-32-45□	66	320	450	3.7
MS 66-37-23□	66	370	230	2.4
MS 66-37-28□	66	370	280	2.8
MS 66-37-35□	66	370	350	3.3
MS 66-37-45□	66	370	450	4.1
MS 66-43-23□	66	430	230	2.7
MS 66-43-28□	66	430	280	3.1
MS 66-43-35□	66	430	350	3.7
MS 66-43-45□	66	430	450	4.6
MS 88-16-16□	88	160	160	1.1
MS 88-16-23□	88	160	230	1.5
MS 88-16-28□	88	160	280	1.7
MS 88-21-16□	88	210	160	1.3
MS 88-21-23□	88	210	230	1.8
MS 88-21-28□	88	210	280	2.1
MS 88-21-35□	88	210	350	2.5
MS 88-26-23□	88	260	230	2.0
MS 88-26-28□	88	260	280	2.5
MS 88-26-35□	88	260	350	2.8
MS 88-32-23□	88	320	230	2.3
MS 88-32-28□	88	320	280	2.8
MS 88-32-35□	88	320	350	3.2
MS 88-32-45□	88	320	450	4.0
MS 88-37-23□	88	370	230	2.6
MS 88-37-28□	88	370	280	3.0
MS 88-37-35□	88	370	350	3.6
MS 88-37-45□	88	370	450	4.4
MS 88-43-23□	88	430	230	2.9
MS 88-43-28□	88	430	280	3.4
MS 88-43-35□	88	430	350	4.0
MS 88-43-45□	88	430	450	5.0

Product no.	H	W	D	Weight (kg)
MS 99-16-16□	99	160	160	1.1
MS 99-16-23□	99	160	230	1.5
MS 99-16-28□	99	160	280	1.8
MS 99-21-16□	99	210	160	1.4
MS 99-21-23□	99	210	230	1.8
MS 99-21-28□	99	210	280	2.1
MS 99-21-35□	99	210	350	2.5
MS 99-26-23□	99	260	230	2.0
MS 99-26-28□	99	260	280	2.4
MS 99-26-35□	99	260	350	2.8
MS 99-32-23□	99	320	230	2.4
MS 99-32-28□	99	320	280	2.8
MS 99-32-35□	99	320	350	3.3
MS 99-32-45□	99	320	450	4.0
MS 99-37-23□	99	370	230	2.6
MS 99-37-28□	99	370	280	3.0
MS 99-37-35□	99	370	350	3.6
MS 99-37-45□	99	370	450	4.5
MS 99-43-23□	99	430	230	3.0
MS 99-43-28□	99	430	280	3.4
MS 99-43-35□	99	430	350	4.1
MS 99-43-45□	99	430	450	5.0
MS133-16-16□	133	160	160	1.3
MS133-16-23□	133	160	230	1.7
MS133-16-28□	133	160	280	2.0
MS133-21-16□	133	210	160	1.6
MS133-21-23□	133	210	230	2.1
MS133-21-28□	133	210	280	2.4
MS133-21-35□	133	210	350	2.9
MS133-26-23□	133	260	230	2.4
MS133-26-28□	133	260	280	2.8
MS133-26-35□	133	260	350	3.3
MS133-32-23□	133	320	230	2.7
MS133-32-28□	133	320	280	3.2
MS133-32-35□	133	320	350	3.7
MS133-32-45□	133	320	450	4.5
MS133-37-23□	133	370	230	3.0
MS133-37-28□	133	370	280	3.5
MS133-37-35□	133	370	350	4.1
MS133-37-45□	133	370	450	5.0
MS133-43-23□	133	430	230	3.4
MS133-43-28□	133	430	280	3.9
MS133-43-35□	133	430	350	4.6
MS133-43-45□	133	430	450	5.6

**Product no. / Dimensions**

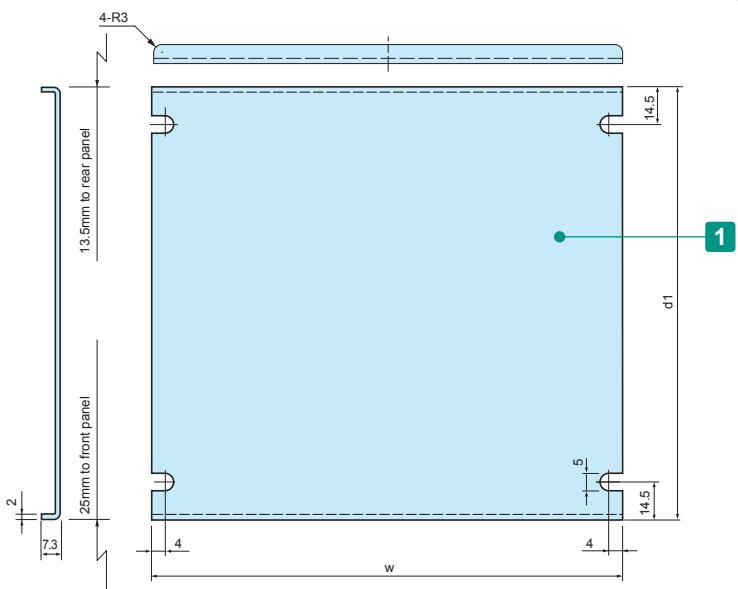
<b>Product no.</b>	<b>H</b>	<b>W</b>	<b>D</b>	<b>Weight (kg)</b>
MS149-16-16□	149	160	160	1.4
MS149-16-23□	149	160	230	1.8
MS149-16-28□	149	160	280	2.1
MS149-21-16□	149	210	160	1.6
MS149-21-23□	149	210	230	2.1
MS149-21-28□	149	210	280	2.4
MS149-21-35□	149	210	350	2.9
MS149-26-23□	149	260	230	2.4
MS149-26-28□	149	260	280	2.8
MS149-26-35□	149	260	350	3.3
MS149-32-23□	149	320	230	2.7
MS149-32-28□	149	320	280	3.2
MS149-32-35□	149	320	350	3.8
MS149-32-45□	149	320	450	4.6
MS149-37-23□	149	370	230	3.0
MS149-37-28□	149	370	280	3.5
MS149-37-35□	149	370	350	4.1
MS149-37-45□	149	370	450	5.1
MS149-43-23□	149	430	230	3.4
MS149-43-28□	149	430	280	3.9
MS149-43-35□	149	430	350	4.6
MS149-43-45□	149	430	450	5.6
MS177-16-16□	177	160	160	1.6
MS177-16-23□	177	160	230	2.2
MS177-16-28□	177	160	280	2.5
MS177-21-16□	177	210	160	1.9
MS177-21-23□	177	210	230	2.7
MS177-21-28□	177	210	280	3.1
MS177-21-35□	177	210	350	3.6
MS177-26-23□	177	260	230	3.0
MS177-26-28□	177	260	280	3.4
MS177-26-35□	177	260	350	4.0
MS177-32-23□	177	320	230	3.3
MS177-32-28□	177	320	280	3.9
MS177-32-35□	177	320	350	4.5
MS177-32-45□	177	320	450	5.5
MS177-37-23□	177	370	230	3.6
MS177-37-28□	177	370	280	4.2
MS177-37-35□	177	370	350	4.9
MS177-37-45□	177	370	450	6.0
MS177-43-23□	177	430	230	4.0
MS177-43-28□	177	430	280	4.6
MS177-43-35□	177	430	350	5.4
MS177-43-45□	177	430	450	6.6

<b>Product no.</b>	<b>H</b>	<b>W</b>	<b>D</b>	<b>Weight (kg)</b>
MS199-16-16□	199	160	160	1.9
MS199-16-23□	199	160	230	2.4
MS199-16-28□	199	160	280	2.7
MS199-21-16□	199	210	160	2.1
MS199-21-23□	199	210	230	2.7
MS199-21-28□	199	210	280	3.1
MS199-21-35□	199	210	350	3.7
MS199-26-23□	199	260	230	3.1
MS199-26-28□	199	260	280	3.5
MS199-26-35□	199	260	350	4.1
MS199-32-23□	199	320	230	3.4
MS199-32-28□	199	320	280	3.9
MS199-32-35□	199	320	350	4.7
MS199-32-45□	199	320	450	5.7
MS199-37-23□	199	370	230	3.8
MS199-37-28□	199	370	280	4.3
MS199-37-35□	199	370	350	5.1
MS199-37-45□	199	370	450	6.0
MS199-43-23□	199	430	230	4.2
MS199-43-28□	199	430	280	4.8
MS199-43-35□	199	430	350	5.6
MS199-43-45□	199	430	450	6.9
MS222-16-16□	222	160	160	2.0
MS222-16-23□	222	160	230	2.5
MS222-16-28□	222	160	280	2.8
MS222-21-16□	222	210	160	2.2
MS222-21-23□	222	210	230	2.8
MS222-21-28□	222	210	280	3.2
MS222-21-35□	222	210	350	3.8
MS222-26-23□	222	260	230	3.2
MS222-26-28□	222	260	280	3.6
MS222-26-35□	222	260	350	4.3
MS222-32-23□	222	320	230	3.6
MS222-32-28□	222	320	280	4.1
MS222-32-35□	222	320	350	4.9
MS222-32-45□	222	320	450	6.0
MS222-37-23□	222	370	230	3.9
MS222-37-28□	222	370	280	4.5
MS222-37-35□	222	370	350	5.3
MS222-37-45□	222	370	450	6.4
MS222-43-23□	222	430	230	4.4
MS222-43-28□	222	430	280	5.0
MS222-43-35□	222	430	350	5.9
MS222-43-45□	222	430	450	7.2

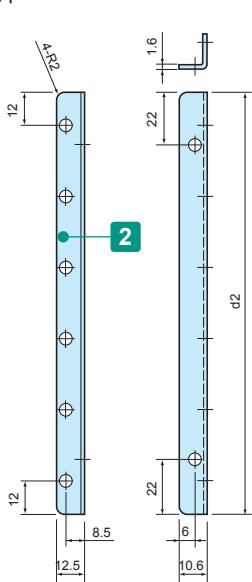
## MSC SERIES

## MOUNTING PLATE for MS

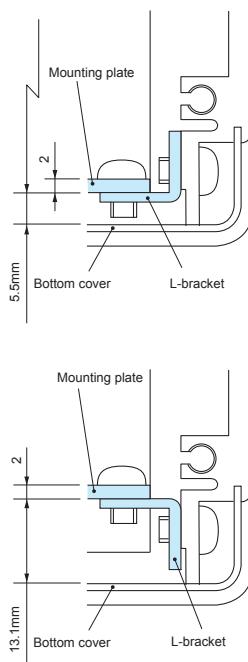
■ DXF/DWG/PDF drawings available on our website.



■ 1 set = Mounting plate + L-bracket



Mounting example



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Mounting plate	1	Aluminium A1050P t=2.0	Unfinished
2	L-bracket	2	Steel SPCC	Trivalent chromate

Included screws: M4-6 pan head, trivalent chromate x8

## Product no. / Dimensions

Product no.	w	d1	d2	Enclosure WxD	Weight (g)
MSC16-16	130	96.5	91.5	160 × 160	120
MSC16-23	130	166.5	161.5	160 × 230	210
MSC16-28	130	216.5	211.5	160 × 280	270
MSC21-16	180	96.5	91.5	210 × 160	150
MSC21-23	180	166.5	161.5	210 × 230	250
MSC21-28	180	216.5	211.5	210 × 280	330
MSC21-35	180	286.5	281.5	210 × 350	430
MSC26-23	230	166.5	161.5	260 × 230	300
MSC26-28	230	216.5	211.5	260 × 280	390
MSC26-35	230	286.5	281.5	260 × 350	510
MSC32-23	290	166.5	161.5	320 × 230	360

Product no.	w	d1	d2	Enclosure WxD	Weight (g)
MSC32-28	290	216.5	211.5	320 × 280	460
MSC32-35	290	286.5	281.5	320 × 350	600
MSC32-45	290	386.5	381.5	320 × 450	810
MSC37-23	340	166.5	161.5	370 × 230	410
MSC37-28	340	216.5	211.5	370 × 280	520
MSC37-35	340	286.5	281.5	370 × 350	680
MSC37-45	340	386.5	381.5	370 × 450	910
MSC43-23	400	166.5	161.5	430 × 230	460
MSC43-28	400	216.5	211.5	430 × 280	590
MSC43-35	400	286.5	281.5	430 × 350	770
MSC43-45	400	386.5	381.5	430 × 450	1,040

## MSCL SERIES

## L-BRACKET for MS

■ Use with your original mounting plate or PCB.

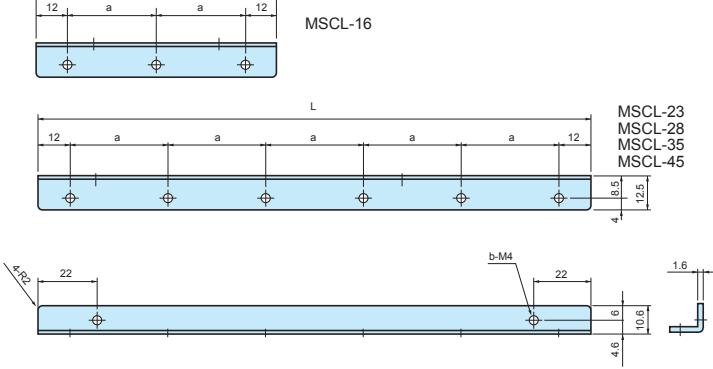
■ 1 pair of L-bracket are included with each MSC mounting plate.

## Components

Part name	Material	Color / Finish
L-bracket	Steel SPCC	Trivalent chromate

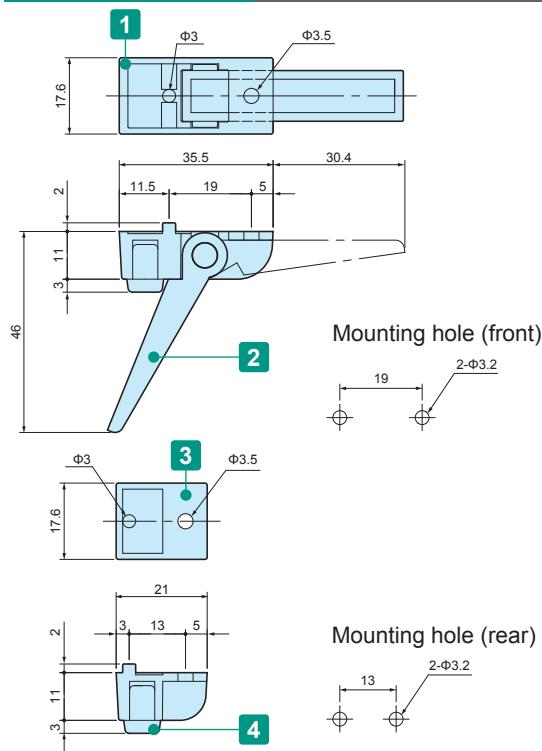
## Product no. / Dimensions

Product no.	L	a	b	Sales unit
MSCL-16	91.5	33.75	5	1 set (2 pcs)
MSCL-23	161.5	27.5	8	1 set (2 pcs)
MSCL-28	211.5	37.5	8	1 set (2 pcs)
MSCL-35	281.5	51.5	8	1 set (2 pcs)
MSCL-45	381.5	71.5	8	1 set (2 pcs)

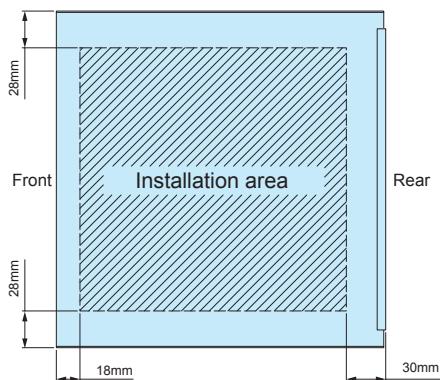


## TL SERIES

## TILT LEG



## MS SERIES INSTALLATION AREA



## Components

\* Maximum load = 7 kg

No.	Part name	Pcs	Material	Color / Finish
1	Front feet	2	ABS UL94HB	Black • Gray • Light gray
2	Leg	2	ABS UL94HB	Black • Gray • Light gray
3	Rear feet	2	ABS UL94HB	Black • Gray • Light gray
4	Rubber feet	4	EPDM	Gray • Black
-	Screw	4	Steel	Black trivalent chromate

■ Included screws: M3-8 and M3 nut (with washer) set.

## Product no. / Dimensions

Product no.	Color (body)	Color (rubber feet)	Sales unit
● TL-45BB	Black	Black	1 set
● TL-45GG	Gray	Gray	1 set
● TL-45SG	Light gray	Gray	1 set

■ EPDM (black) may have its color migrate onto the placement surface.



## CBF SERIES

## CABLE HOOK

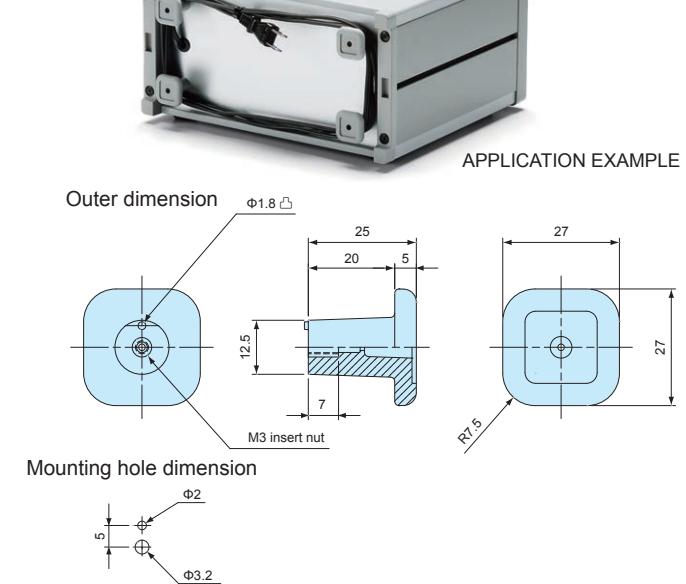


- Used for wrapping and securing cords and wires.
- Can be used with a variety of different enclosure series and models.
- Requires a panel thickness of between 1.0 ~ 3.0mm.

## Product no. / Dimensions

Product no.	Material	Pack of
● Gray CBF-1G	● Black CBF-1B	POM 4

■ Included screws: M3-8 trivalent chromate (with washer) x 4 pcs



## CF SERIES

## SLOPED ENCLOSURE



- Simple designed box with 10° angle of inclination for operational ease.
- Both the Slide or Screwed panel side can be utilized as a front panel.
- Rubber feet can be attached in any position based on your design requirements.



Low-cost digital printed overlay customization is available with a short lead time.  
Refer to page Custom 1 ~ 2 for more details.

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Side plate	2	ABS UL94V-0	Black • Gray
2	Front frame	1	Extruded aluminium A6063S-T5	Black • Silver / Anodized
3	Rear frame	1	Extruded aluminium A6063S-T5	Black • Silver / Anodized
4	Slide panel	1	Aluminium A1100P t=1.5	Black / Painted
			Aluminium A1100P t=1.5	Silver / Hairline brushed & Anodized
5	Screwed panel	1	Aluminium A1100P t=1.5	Black / Painted
			Aluminium A1100P t=1.5	Silver / Hairline brushed & Anodized
6	Screw	12	Steel	Black trivalent chromate • Nickel plated
7	Rubber feet	4	Rubber	Black

■ Please peel off the protection sheet cover on both panels before application.

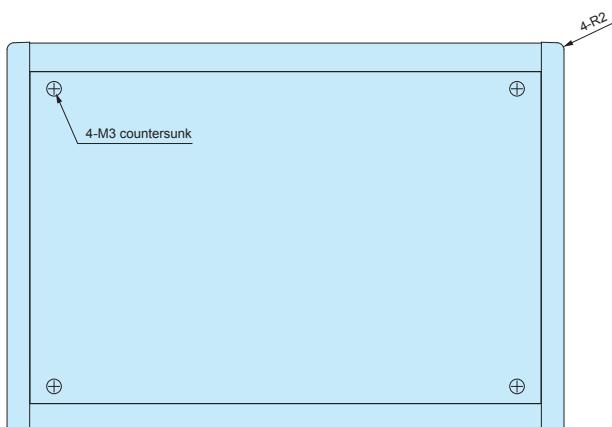
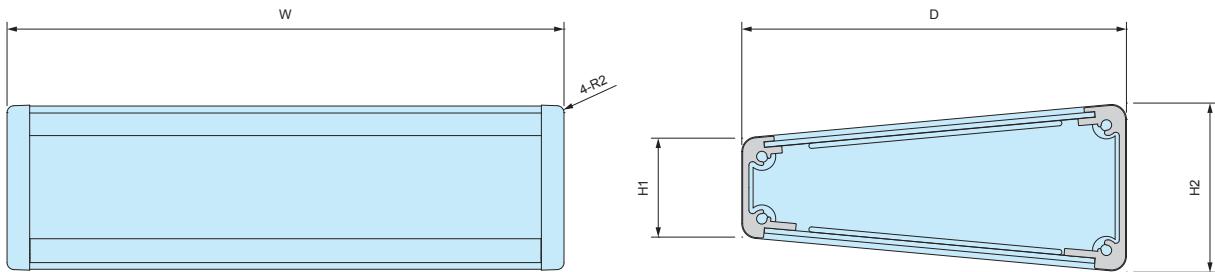
## Product no. / Dimensions

Product no.		W	H1	H2	D	Weight (kg)
● Black	● Gray/Silver					
CF 7-11BB	CF 7-11GS	70	28.4	48.6	110.5	0.15
CF11-11BB	CF11-11GS	110	28.4	48.6	110.5	0.21
CF16-11BB	CF16-11GS	160	28.4	48.6	110.5	0.29
CF22-11BB	CF22-11GS	220	28.4	48.6	110.5	0.38
CF28-11BB	CF28-11GS	280	28.4	48.6	110.5	0.47
CF12-18BB	CF12-18GS	120	32.4	66.7	180.5	0.38
CF18-18BB	CF18-18GS	180	32.4	66.7	180.5	0.53
CF27-18BB	CF27-18GS	270	32.4	66.7	180.5	0.76
CF35-18BB	CF35-18GS	350	32.4	66.7	180.5	0.97
CF43-18BB	CF43-18GS	430	32.4	66.7	180.5	1.17

Product no.		W	H1	H2	D	Weight (kg)
● Black	● Gray/Silver					
CF15-23BB	CF15-23GS	150	39.8	80	230	0.52
CF21-23BB	CF21-23GS	210	39.8	80	230	0.7
CF27-23BB	CF27-23GS	270	39.8	80	230	0.88
CF36-23BB	CF36-23GS	360	39.8	80	230	1.14
CF45-23BB	CF45-23GS	450	39.8	80	230	1.41
CF21-28BB	CF21-28GS	210	50	99	280	0.93
CF28-28BB	CF28-28GS	280	50	99	280	1.17
CF36-28BB	CF36-28GS	360	50	99	280	1.46
CF45-28BB	CF45-28GS	450	50	99	280	1.77

**CF dimensions**

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



## Included screws

CF□-11 models

M3-5 slotted raised countersunk - Black trivalent chromate x 4 pcs

M3-5 slotted raised countersunk - Nickel plated x 4 pcs

M3-10 countersunk - Black trivalent chromate x 8 pcs

CF□-18, CF□-23, and CF□-28 models

M3-5 slotted raised countersunk - Black trivalent chromate x 4 pcs

M3-5 slotted raised countersunk - Nickel plated x 4 pcs

M4-12 countersunk - Black trivalent chromate x 8 pcs

**Accessories (Optional parts)****MR SERIES****TORX SCREW KIT**

■ Material / Finish : Steel / Nickel plated.

- TORX screw kit for CF series x 1 unit.
- Recommended for aesthetic purposes, or for tamper-resistance.
- Requires the use of a specialized screwdriver.

**Suitable Enclosures**

Product no.	Suitable enclosures
MR-3CS	CF□-11 models
MR-4CS	CF□-18, CF□-23, and CF□-28 models

**Product no. / Dimensions**

Product no.	Included screws	TORX head no.	Pack of
MR-3CS	M3-10 countersunk x 8 pcs • M3-5 slotted raised countersunk x 4 pcs	T10 (M3)	1 set (for 1 unit)
MR-4CS	M4-12 countersunk x 8 pcs • M3-5 slotted raised countersunk x 4 pcs	T10 (M3) • T20 (M4)	1 set (for 1 unit)

## TD SERIES

## DIECAST ALUMINIUM BOX



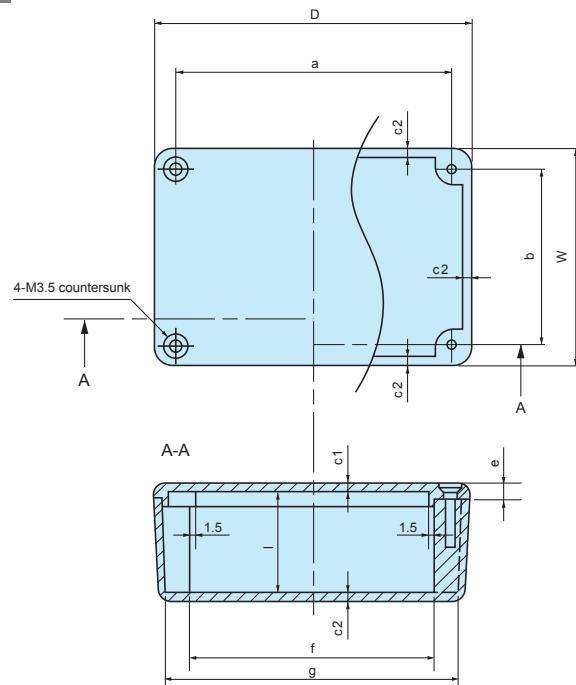
- Tough diecast aluminium box.
- Available in 13 sizes and 2 color types.
- Black painted and unfinished boxes are available.
- Conductivity can be achieved by utilization of the contact between the unfinished inner surfaces (only applicable to "N" type).
- Recommended for electric guitar effect pedals.

## Components

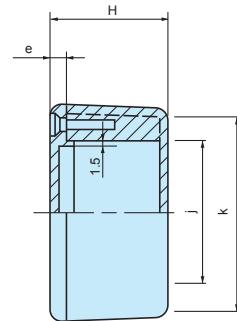
No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	Diecast aluminium ADC12	Black • Natural / Painted • Unfinished
2	Base	1	Diecast aluminium ADC12	Black • Natural / Painted • Unfinished
3	Screw	4	Steel M3.5	Nickel plated • Black trivalent chromate

## TD dimensions

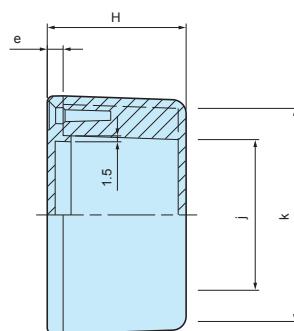
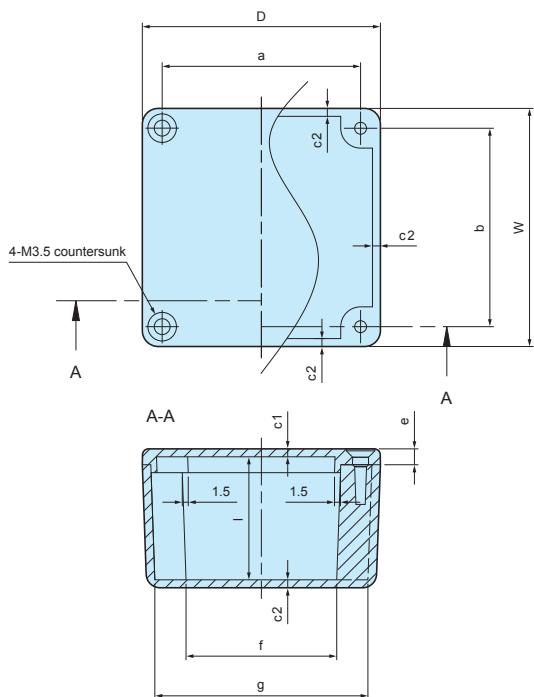
TD 4- 6-3  
4- 9-3  
5- 8-3  
6-11-3  
7-10-3  
8-11-5  
9-12-4  
10-13-4  
10-15-4  
12-18-5



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



TD 6- 6-4  
8- 8-4  
11-11-5



### Product no. / Dimensions

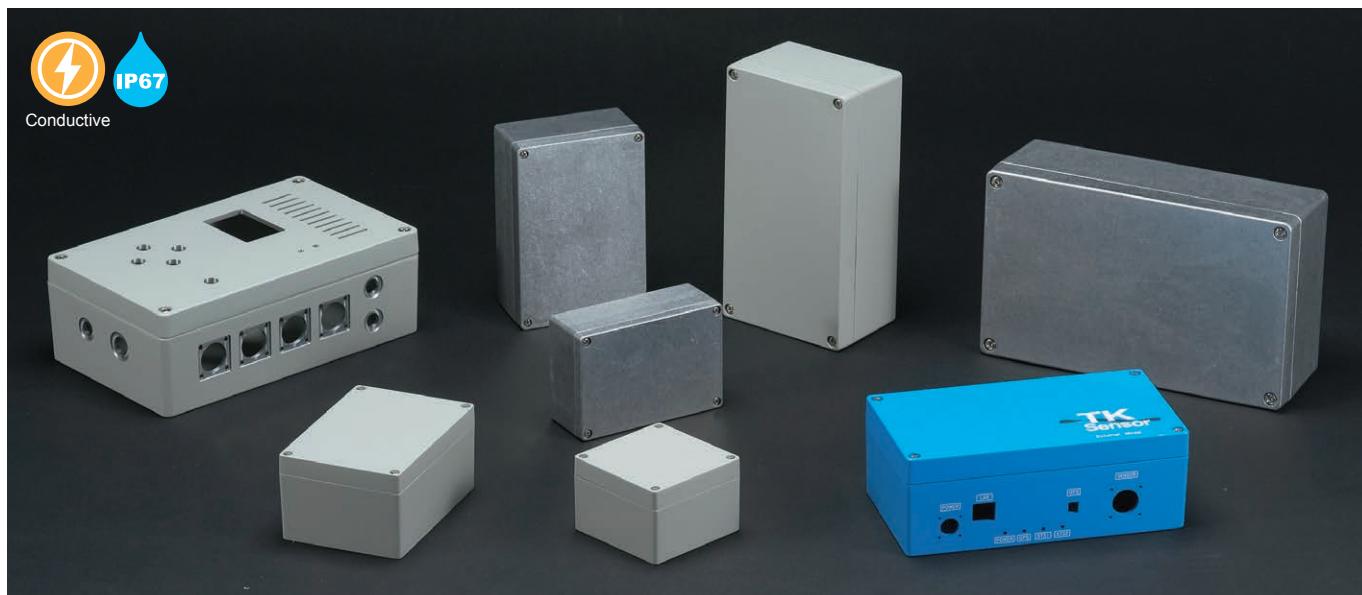
Product no.		W	H	D	a	b	c1	c2	e	f	g	j	k	l	Weight (g)
● Black	● Unfinished ● Conductive														
TD 4- 6-3B	TD 4- 6-3N	40	27	60	50	30	2	2	4	39.5	53.5	20	33.5	23	56
TD 4- 9-3B	TD 4- 9-3N	40.5	32	94.5	84.5	30.5	2.25	2.25	4	74.5	87	20.5	33	27.5	97
TD 5- 8-3B	TD 5- 8-3N	55	30.5	80	70	45	2	2	4.5	58.5	72.5	33.5	47.5	26	95
TD 6- 6-4B	TD 6- 6-4N	60	35	60	50	50	2	2	4	37	51	37	51	31	90
TD 6-11-3B	TD 6-11-3N	64.5	31.8	115.5	105	54	2.25	2.25	4.25	92.5	106.5	42	55.5	27	164.5
TD 7-10-3B	TD 7-10-3N	70	32.5	100	90	60	2.5	2	4.5	78	92	48	62	28	135
TD 8- 8-4B	TD 8- 8-4N	80	40	80	70	70	2	2	4	56.5	70.5	56.5	70.5	36	145
TD 8-11-5B	TD 8-11-5N	86	47.5	113.5	103	75.5	2.25	2.25	4.25	89.5	103	62	75.5	43	226
TD 9-12-4B	TD 9-12-4N	85	35	120	110	75	2	2	4	98.5	112	63.5	77	31	185
TD10-13-4B	TD10-13-4N	95.5	37.8	130.5	120	85	2.25	2.25	4.25	107.5	121	72.5	86	33	263
TD10-15-4B	TD10-15-4N	100	40	150	140	90	2.5	2.5	4	128.5	142	78	92	35	320
TD11-11-5B	TD11-11-5N	110	45	110	100	100	2.5	2.5	4	86	99	86	99	41	280
TD12-18-5B	TD12-18-5N	120	50	180	170	110	2.5	2.5	4	156	171	97.5	110	45	455

## BDN SERIES

## IP67 DIECAST ALUMINIUM BOX



Conductive



## Technical Data

Protection class: IP67  
Operating temperature: -40°C ~ +105°C  
Recommended torque: 1.0N • m (10kgf • cm)



- 8 different sizes available for both light gray powder coated and unfinished models.
- O-ring gasket is good for maintaining both waterproof and dustproof functionality.
- Shock resistant diecast aluminium box.
- Conductivity can be achieved by utilization of the contact between the unfinished inner surfaces (only applicable to "N" type).

## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	Diecast aluminium ADC12	Light gray • Natural / Powder coated • Unfinished
2	Base	1	Diecast aluminium ADC12	Light gray • Natural / Powder coated • Unfinished
3	O-ring gasket	1	Silicone	Black
4	Screw	4	Stainless steel	Unfinished
5	Earthing screw	2	Steel M4-5	Copper plated

## Accessories (Optional parts)



Wall mounting bracket CK series  
See page 256



Mounting plate FTB series  
See website



Pole mounting bracket SSK series  
See page 257 ~ 258



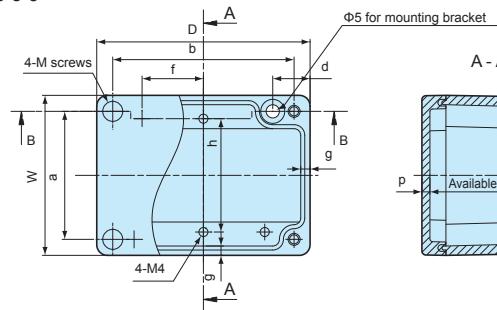
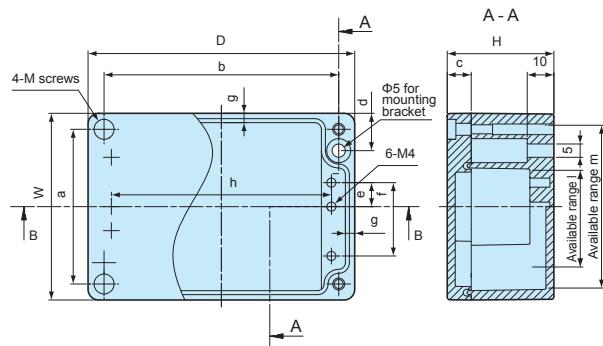
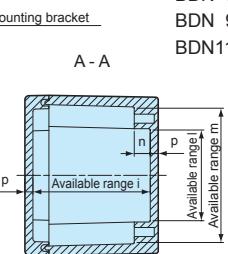
DIN-Rail FDR series  
See website



Cable gland  
See page 265 ~ 272

## BDN dimensions

BDN 6-8-5

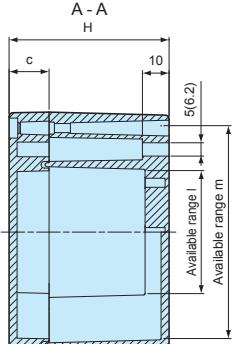
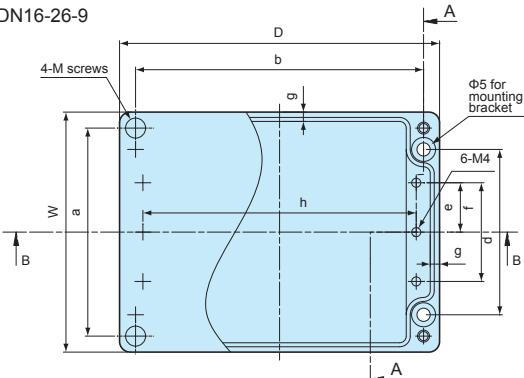
BDN 7-10-4  
BDN 9-13-5  
BDN11-16-6

BDN 9- 9-6

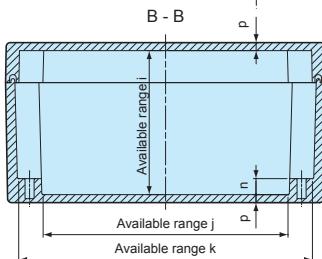
BDN10-14-7

BDN12-22-8

BDN16-26-9



※Dimension in ( ) = BDN12-22-8  
BDN16-26-9



### Product no. / Dimensions

Product no.		Dimensions						Weight (g)
● Light gray	● Unfinished Conductive	W	D	H	a	b	c	
BDN 6- 8-5G	BDN 6- 8-5N	60	80	50	48	68	9	240
BDN 7-10-4G	BDN 7-10-4N	70	100	40	58	88	9	250
BDN 9- 9-6G	BDN 9- 9-6N	90	90	60	78	78	15	395
BDN 9-13-5G	BDN 9-13-5N	90	130	50	78	118	9	420
BDN10-14-7G	BDN10-14-7N	100	140	70	88	128	15	635
BDN11-16-6G	BDN11-16-6N	110	160	60	98	148	15	640
BDN12-22-8G	BDN12-22-8N	120	220	80	105	205	20	1,155
BDN16-26-9G	BDN16-26-9N	160	260	90	140	240	20	2,145

Product no.		Dimensions												
● Light gray	● Unfinished Conductive	d	e	f	g	h	i	j	k	l	m	n	p	M
BDN 6- 8-5G	BDN 6- 8-5N	14	-	23	3.5	42.5	44	45	71	33	51	6	3	M4
BDN 7-10-4G	BDN 7-10-4N	14	11	31	3	85	34	75	92.5	38	62.5	6	3	M4
BDN 9- 9-6G	BDN 9- 9-6N	62	18.5	37	3.5	72	54	62	80	45	80	6	3	M4
BDN 9-13-5G	BDN 9-13-5N	14	19	47.5	3.5	112.5	44	104	121	56	81	6	3	M4
BDN10-14-7G	BDN10-14-7N	72	24	48	3.5	121	64	111	130	56	90	6	3	M4
BDN11-16-6G	BDN11-16-6N	14	29	67.5	3.5	142.5	54	134	151	76	101	6	3	M4
BDN12-22-8G	BDN12-22-8N	84.6	28	56	3.9	196	74	183	206	62	105	6	3	M5
BDN16-26-9G	BDN16-26-9N	110	36	72	4.8	230	82	216	247	87	146	9	4	M6

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

# IP65 LATCH-HINGED PLASTIC BOX



Stainless steel and plastic mounting brackets are available.  
See page 256



BCAR • BCPR series comes with an attachable BRF series outdoor roof.  
See page 245 ~ 246 and 251 ~ 252



Pole mounting bracket for pole installation  
See page 257 ~ 258



Dust protection cap (for lock/key type)  
See page 252



Cable gland  
For waterproofing enclosure openings for cables and wires  
See page 265 ~ 272



Mounting plate  
3 types of mounting plates are available (plastic / steel / wood)  
See page 253 ~ 255



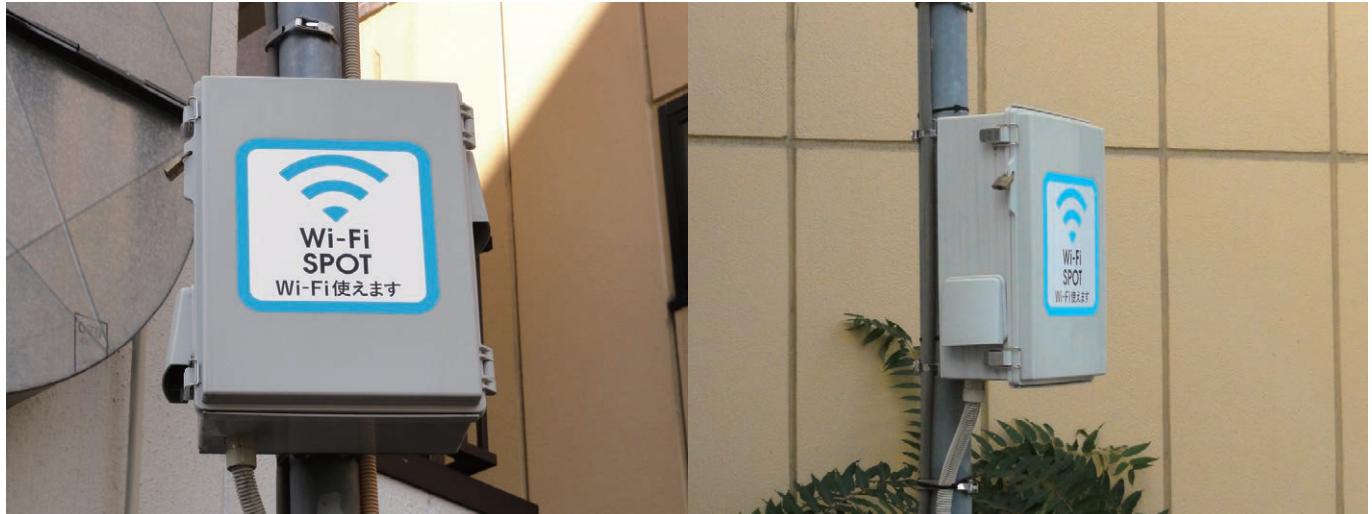
Ventilation cover  
For heat dissipation and prevention of condensation build-up  
See page 262

# APPLICATION EXAMPLE

Universal plastic enclosure series suitable for a wide range of applications such as FA/control, electrical switchboard, network communication and so on.

## OUTDOOR WiFi SPOT

Product by Spectra Quest Lab. (Japan)



## SOLAR POWER JUNCTION BOX

Product by Kansai Denki (Japan)

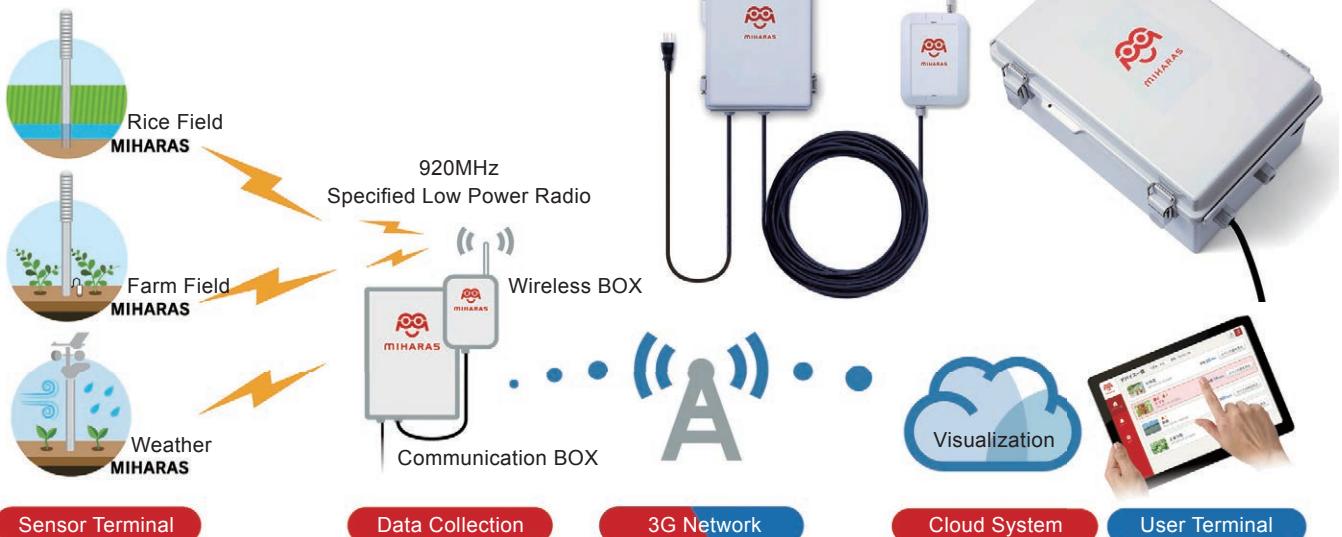


## POWER SWITCHBOARD BOX



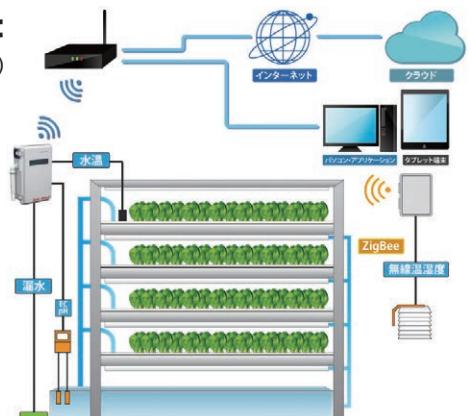
## IOT SENSOR DATA LOGGER for AGRICULTURE

Product by Nishimu Electronics Industries (Japan)



## Environmental Data Measurement and Controller Unit

Product by eSOL (Japan)



## "SenSu" COMMUNICATION UNIT with SENSOR

Product by DATA TECHNOLOGY (Japan)



## NETWORK SENSOR SYSTEM for AGRICULTURE

Product by CM Engineering (Japan)



## WILDLIFE DAMAGE MONITORING SYSTEM

Product by CM Engineering (Japan)



**VALVE CONTROLLER**

Product by EXEN (Japan)

**BUILDING SURVEILLANCE UNIT**

Product by Showa Denki (Japan)

**DIGITAL PRESSURE GAUGE**

Product by KRONE CORPORATION (Japan)

**RADIATION MONITOR****POWER SAVER for AIR CONDITIONING**

Product by Synapse (Japan)

**ANEMOMETER**

Product by Fieldpro (Japan)

**WATER GAUGE**

Product by Fieldpro (Japan)

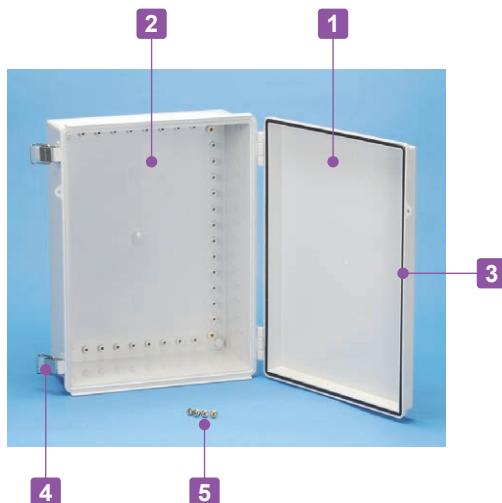
**GROUND EXTENSOMETER**

Product by GeotechService (Japan)

**MONITORING CAMERA**

Product by ACE PROMOTION (Japan)



**BCAP SERIES****IP65 LATCH-HINGED ABS PLASTIC BOX****BCPC SERIES****IP65 LATCH-HINGED POLYCARBONATE PLASTIC BOX****Technical Data**

Protection class: IP65  
Operating temperature:  
BCAP -10°C ~ +60°C  
BCPC -20°C ~ +75°C

■ UL mark is only applicable for BCPC series

- 50 different sizes available.
- BCAP series is made of white gray ABS with 2 different cover types (white gray ABS and transparent polycarbonate) available.
- BCPC series is made of light gray UL94V-0 polycarbonate, which has good heat resistance properties.
- Applicable for various uses in fields such as FA, network communication, power switchbox controls and so on.

**Components: BCAP series**

■ Box UL class = UL94HB

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS • Polycarbonate	White gray • Transparent
2	Base	1	ABS	White gray
3	Gasket	1	Polyurethane	Black
4	Latch	1 ~ 3	Stainless steel	Unfinished
5	Screw	2 ~ 8	Steel	Trivalent chromate

■ Stainless steel mounting brackets are included together with the following models: 506018, 506025, 507018, 507025, 608018, and 608028.

**Components: BCPC series**

■ Box UL class = UL94V-0

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	Polycarbonate	Light gray
2	Base	1	Glass fiber filled polycarbonate	Light gray
3	Gasket	1	Polyurethane	Black
4	Latch	1 ~ 3	Stainless steel	Unfinished
5	Screw	2 ~ 8	Steel	Trivalent chromate

■ Stainless steel mounting brackets are included together with the following models: 506018, 506025, 507018, 507025, 608018, and 608028.

**Color Type**

Color code	Cover color / Material	Base color / Material
BCAP[G]	White gray / ABS	White gray / ABS
BCAP[T]	Transparent / Polycarbonate	White gray / ABS
BCPC[S]	Light gray / Polycarbonate	Light gray / Glass fiber filled polycarbonate

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

**BCAP Product no. / Dimensions**

Product no.	W	D	H	Weight (g)	
				G	T
BCAP091207□	90	120	70	196	204
BCAP091208□	90	120	85	212	221
BCAP101507□	100	150	70	272	281
BCAP101508□	100	150	85	291	300
BCAP112107□	110	210	75	359	378
BCAP112110□	110	210	100	422	420
BCAP112607□	110	260	75	431	446
BCAP112610□	110	260	100.5	484	500
BCAP131508□	135	155	85	356	357
BCAP131808□	135	185	85.5	381	410
BCAP131810□	135	185	100.5	396	402
BCAP151509□	150	150	90	343	353
BCAP151512□	150	150	120.5	411	425
BCAP162110□	160	210	100	468	486
BCAP162113□	160	210	130	517	537
BCAP162610□	160	260	100	577	601
BCAP162613□	160	260	130	673	701
BCAP172211□	170	220	110.5	530	556
BCAP172711□	170	270	110.5	670	680
BCAP192810□	190	280	100.5	722	746
BCAP192814□	190	280	141	877	901
BCAP203013□	200	300	131.5	920	951
BCAP203015□	200	300	151.5	958	984
BCAP203018□	200	300	180.5	1,066	1,084
BCAP212110□	210	210	100	630	656
BCAP212113□	210	210	130	704	726
BCAP253515□	250	350	151	1,261	1,332
BCAP253518□	250	350	181.5	1,397	1,464
BCAP282813□	280	280	130.5	1,167	1,200
BCAP283813□	280	380	130	1,455	1,512
BCAP303015□	300	300	151	1,339	1,418
BCAP303018□	300	300	181	1,495	1,576
BCAP304012□	300	400	121	1,508	1,575
BCAP304015□	300	400	150	1,563	1,675
BCAP304018□	300	400	181	1,719	1,853
BCAP353515□	350	350	150	1,693	1,764
BCAP353518□	350	350	181	1,845	1,906
BCAP354512□	350	450	120	2,068	2,167
BCAP354516□	350	450	160	2,382	2,514
BCAP354520□	350	450	201	2,646	2,794
BCAP405016□	400	500	160	2,660	2,839
BCAP405020□	400	500	201	3,119	3,232
BCAP406018□	400	600	181	3,542	3,652
BCAP406023□	400	600	231	3,870	4,044
BCAP506018□	530	630	185	5,438	5,611
BCAP506025□	530	630	255	6,078	6,273
BCAP507018G	530	730	188	6,241	-
BCAP507025G	530	730	255	6,911	-
BCAP608018G	630	830	188	8,131	-
BCAP608028G	630	830	288	9,570	-

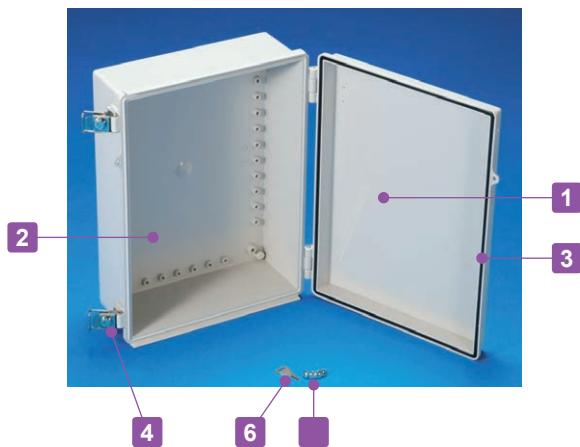
■ BCAP507018, 507025, 608018, 608028 models are only available as G color type.

■ Refer to page 247 ~ 250 for detailed dimensions.

**Accessories (Optional parts)**Mounting plate BMP series  
See page 253 ~ 255Mounting bracket CK • BFL series  
See page 256Pole mounting bracket SSK series  
See page 257 ~ 258Cable gland  
See page 265 ~ 272Ventilation part  
See page 259 ~ 262

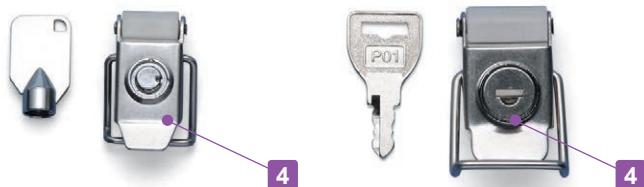
## BCPK SERIES

## IP65 POLYCARBONATE PLASTIC BOX with LOCK



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

※Lock types vary according to box size.



- Lockable enclosure best used for tamper prevention in FA, control box, and network communication fields.
- BCPK polycarbonate box is resistant against heat and flames.
- Transparent type is not available for BCPK507018, 507025, 608018, and 608028 models.

Box size  
BCPK091207 ~ 172711  
BCPK212110 and 212113

Box size  
BCPK192810 ~ 203018  
BCPK253515 and 608028

## Components

■ Box UL class = UL94V-0

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	Polycarbonate	Light gray • Transparent
2	Base	1	Glass fiber filled polycarbonate	Light gray
3	Gasket	1	Polyurethane	Black
4	Latch	1 ~ 3	Stainless steel	Unfinished
5	Screw	2 ~ 8	Steel	Trivalent chromate
6	Key	1 ~ 2	Diecast zinc • Brass	Chrome plated • Nickel plated

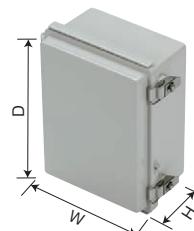
■ Stainless steel mounting brackets are included together with the following models: 506018, 506025, 507018, 507025, 608018, and 608028.

■ Quantity of keys provided vary by the number of locks present.

**Color Type**

Color code	Cover color / Material	Base color / Material
BCPK S	Light gray / Polycarbonate	Light gray / Glass fiber filled polycarbonate
<b>NEW</b> BCPK T	Transparent / Polycarbonate	Light gray / Glass fiber filled polycarbonate

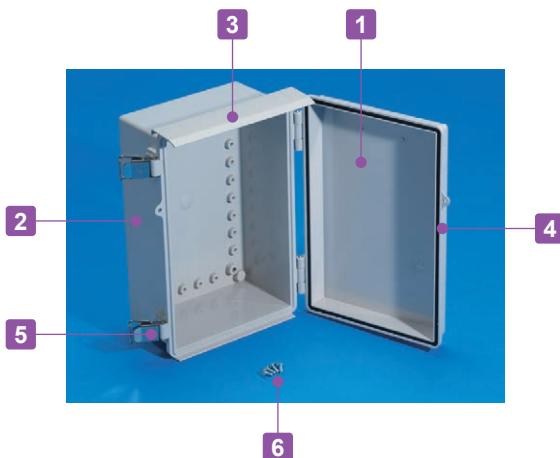
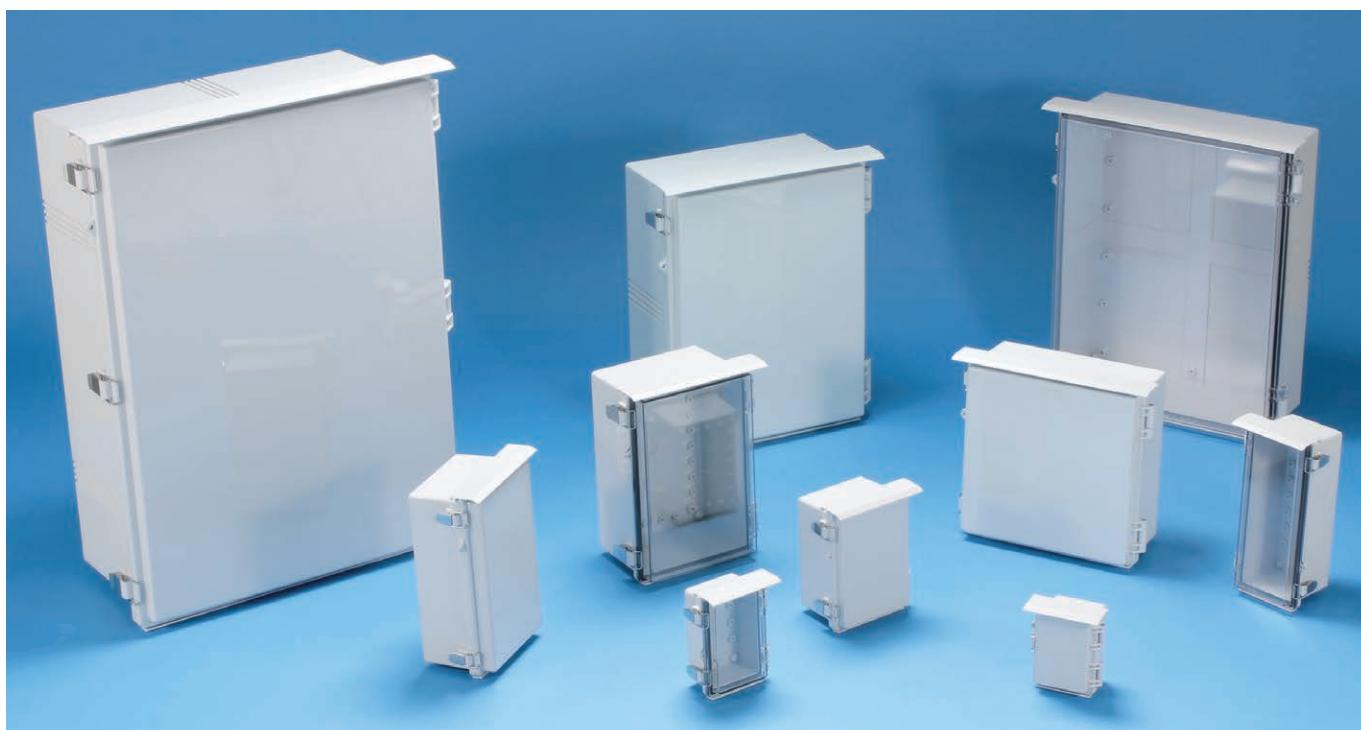
■ Please suffix color code at the end of the product number.

**Product no. / Dimensions**

Product no.	W	D	H	Weight (g)	
				S	T
BCPK091207□	90	120	70	242	237
BCPK091208□	90	120	85	264	261
BCPK101507□	100	150	70	339	337
BCPK101508□	100	150	85	360	355
BCPK112107□	110	210	75	437	444
BCPK112110□	110	210	100	501	509
BCPK112607□	110	260	75	520	528
BCPK112610□	110	260	100.5	585	594
BCPK131508□	135	155	85	430	421
BCPK131808□	135	185	85.5	474	475
BCPK131810□	135	185	100.5	471	478
BCPK151509□	150	150	90	419	422
BCPK151512□	150	150	120.5	507	508
BCPK162110□	160	210	100	563	572
BCPK162113□	160	210	130	630	639
BCPK162610□	160	260	100	728	738
BCPK162613□	160	260	130	805	825
BCPK172211□	170	220	110.5	664	681
BCPK172711□	170	270	110.5	771	794
BCPK192810□	190	280	100.5	875	900
BCPK192814□	190	280	141	1,065	1,094
BCPK203013□	200	300	131.5	1,090	1,119
BCPK203015□	200	300	151.5	1,182	1,214
BCPK203018□	200	300	180.5	1,295	1,330
BCPK212110□	210	210	100	743	756
BCPK212113□	210	210	130	822	847
BCPK253515□	250	350	151	1,559	1,606
BCPK253518□	250	350	181.5	1,670	1,720
BCPK282813□	280	280	130.5	1,391	1,433
BCPK283813□	280	380	130	1,811	1,733
BCPK303015□	300	300	151	1,670	1,682
BCPK303018□	300	300	181	1,782	1,795
BCPK304012□	300	400	121	1,858	1,872
BCPK304015□	300	400	150	1,912	1,926
BCPK304018□	300	400	181	2,083	2,098
BCPK353515□	350	350	150	2,067	1,999
BCPK353518□	350	350	181	2,175	2,163
BCPK354512□	350	450	120	2,442	2,429
BCPK354516□	350	450	160	2,863	2,848
BCPK354520□	350	450	201	3,156	3,140
BCPK405016□	400	500	160	3,149	3,152
BCPK405020□	400	500	201	3,725	3,729
BCPK406018□	400	600	181	4,159	4,164
BCPK406023□	400	600	231	4,639	4,645
BCPK506018□	530	630	185	5,339	6,151
BCPK506025□	530	630	255	7,136	8,220
BCPK507018S	530	730	188	7,470	—
BCPK507025S	530	730	255	8,260	—
BCPK608018S	630	830	188	9,880	—
BCPK608028S	630	830	288	11,610	—

■ BCPK507018, 507025, 608018, 608028 models are only available as S color type. ■ Refer to page 247 ~ 250 for detailed dimensions.

**Accessories (Optional parts)**Dust protection cap BCC series  
See page 252Mounting plate BMP series  
See page 253 ~ 255Mounting bracket CK • BFL series  
See page 256Cable gland  
See page 265 ~ 272Ventilation part  
See page 259 ~ 262

**BCAR SERIES****IP65 ABS PLASTIC BOX with OUTDOOR ROOF****BCPR SERIES****IP65 POLYCARBONATE PLASTIC BOX with OUTDOOR ROOF****Technical Data**

Protection class: IP65  
Operating temperature:  
BCAR -10°C ~ +60°C  
BCPR -20°C ~ +75°C

- Suitable for outdoor use by equipping easy snap-on roof attachment.
- 45 different sizes available.
- BCAR series is made of white gray ABS with 2 different cover type (white gray ABS and transparent polycarbonate).
- BCPR series is made of light gray UL94V-0 polycarbonate, which has good heat resistance properties.
- Transparent cover type is not available for BCAR507018, 507025, 608018, and 608028 models.

**Components: BCAR series**

■ Box UL class = UL94HB

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS • Polycarbonate	White gray • Transparent
2	Base	1	ABS	White gray
3	Roof	1	PVC	White gray
4	Gasket	1	Polyurethane	Black
5	Latch	1~3	Stainless steel	Unfinished
6	Screw	2~8	Steel	Trivalent chromate

■ Stainless steel mounting brackets are included together with the following models: 506018, 506025, 507018, 507025, 608018, and 608028.

**Components: BCPR series**

■ Box UL class = UL94V-0

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	Polycarbonate	Light gray
2	Base	1	Glass fiber filled polycarbonate	Light gray
3	Roof	1	PVC	Light gray
4	Gasket	1	Polyurethane	Black
5	Latch	1~3	Stainless steel	Unfinished
6	Screw	2~8	Steel	Trivalent chromate

■ Stainless steel mounting brackets are included together with the following models: 506018, 506025, 507018, 507025, 608018, and 608028.

**Color Type**

Code	Cover color / Material	Base color / Material
BCAR[G]	White gray / ABS	White gray / ABS
BCAR[T]	Transparent / Polycarbonate	White gray / ABS
BCPR[S]	Light gray / Polycarbonate	Light gray / Glass fiber filled polycarbonate

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

**BCAR Product no. / Dimensions**

Product no.	W	D	H	Weight (g)	
				G	T
BCAR091207□	90	120	70	213	220
BCAR091208□	90	120	85	228	237
BCAR101507□	100	150	70	291	300
BCAR101508□	100	150	85	309	318
BCAR112107□	110	210	75	379	398
BCAR112110□	110	210	100	442	440
BCAR112607□	110	260	75	451	466
BCAR112610□	110	260	100.5	504	519
BCAR131508□	135	155	85	379	381
BCAR131808□	135	185	85.5	404	434
BCAR131810□	135	185	100.5	420	426
BCAR162110□	160	210	100	495	513
BCAR162113□	160	210	130	544	564
BCAR162610□	160	260	100	605	629
BCAR162613□	160	260	130	701	729
BCAR172211□	170	220	110.5	560	586
BCAR172711□	170	270	110.5	700	710
BCAR192810□	190	280	100.5	755	778
BCAR192814□	190	280	141	909	933
BCAR203013□	200	300	131.5	957	989
BCAR203015□	200	300	151.5	995	1,022
BCAR203018□	200	300	180.5	1,104	1,122
BCAR212110□	210	210	100	666	692
BCAR212113□	210	210	130	740	762
BCAR253515□	250	350	151	1,307	1,378
BCAR253518□	250	350	181.5	1,443	1,510
BCAR282813□	280	280	130.5	1,218	1,251
BCAR283813□	280	380	130	1,506	1,563
BCAR303015□	300	300	151	1,393	1,472
BCAR303018□	300	300	181	1,549	1,630
BCAR304012□	300	400	121	1,562	1,629
BCAR304015□	300	400	150	1,617	1,729
BCAR304018□	300	400	181	1,773	1,907
BCAR353515□	350	350	150	1,757	1,827
BCAR353518□	350	350	181	1,908	1,970
BCAR354512□	350	450	120	2,140	2,239
BCAR354516□	350	450	160	2,454	2,586
BCAR354520□	350	450	201	2,718	2,866
BCAR506018□	530	630	185	5,564	5,737
BCAR506025□	530	630	255	6,203	6,399
BCAR507018G	530	730	188	6,366	—
BCAR507025G	530	730	255	7,037	—
BCAR608018G	630	830	188	8,279	—
BCAR608028G	630	830	288	9,719	—

■ BCAR507018, 507025, 608018, 608028 models are only available as G color type.

**BCPR Product no. / Dimensions**

Product no.	W	D	H	Weight (g)
BCPR091207S	90	120	70	242
BCPR091208S	90	120	85	264
BCPR101507S	100	150	70	330
BCPR101508S	100	150	85	354
BCPR112107S	110	210	75	439
BCPR112110S	110	210	100	493
BCPR112607S	110	260	75	513
BCPR112610S	110	260	100.5	589
BCPR131508S	135	155	85	429
BCPR131808S	135	185	85.5	475
BCPR131810S	135	185	100.5	471
BCPR162110S	160	210	100	583
BCPR162113S	160	210	130	638
BCPR162610S	160	260	100	699
BCPR162613S	160	260	130	806
BCPR172211S	170	220	110.5	677
BCPR172711S	170	270	110.5	803
BCPR192810S	190	280	100.5	889
BCPR192814S	190	280	141	1,060
BCPR203013S	200	300	131.5	1,091
BCPR203015S	200	300	151.5	1,165
BCPR203018S	200	300	180.5	1,296
BCPR212110S	210	210	100	777
BCPR212113S	210	210	130	862
BCPR253515S	250	350	151	1,537
BCPR253518S	250	350	181.5	1,722
BCPR282813S	280	280	130.5	1,422
BCPR283813S	280	380	130	1,747
BCPR303015S	300	300	151	1,665
BCPR303018S	300	300	181	1,814
BCPR304012S	300	400	121	1,901
BCPR304015S	300	400	150	1,917
BCPR304018S	300	400	181	2,084
BCPR353515S	350	350	150	2,109
BCPR353518S	350	350	181	2,206
BCPR354512S	350	450	120	2,471
BCPR354516S	350	450	160	2,899
BCPR354520S	350	450	201	3,224
BCPR506018S	530	630	185	6,431
BCPR506025S	530	630	255	7,339
BCPR507018S	530	730	188	7,630
BCPR507025S	530	730	255	8,420
BCPR608018S	630	830	188	10,040
BCPR608028S	630	830	288	11,770

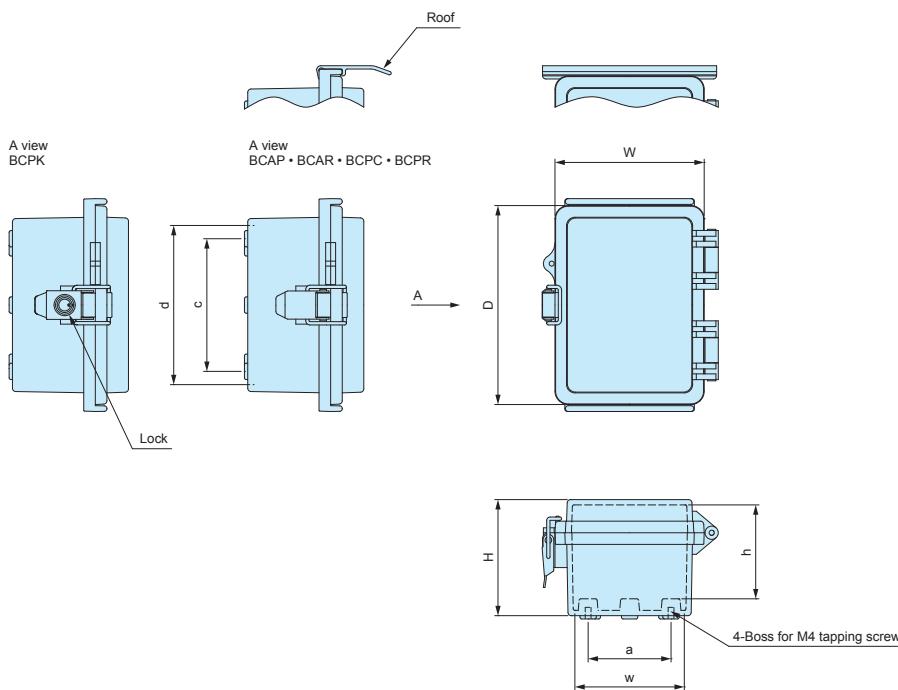
■ Refer to page 247 ~ 250 for detailed dimensions.

**Accessories (Optional parts)**Mounting plate BMP series  
See page 253 ~ 255Mounting bracket CK • BFL series  
See page 256Pole mounting bracket SSK series  
See page 257 ~ 258Cable gland  
See page 265 ~ 272Ventilation part  
See page 259 ~ 262

**BCAP • BCAR • BCPC • BCPK • BCPR dimensions**

091207, 091208

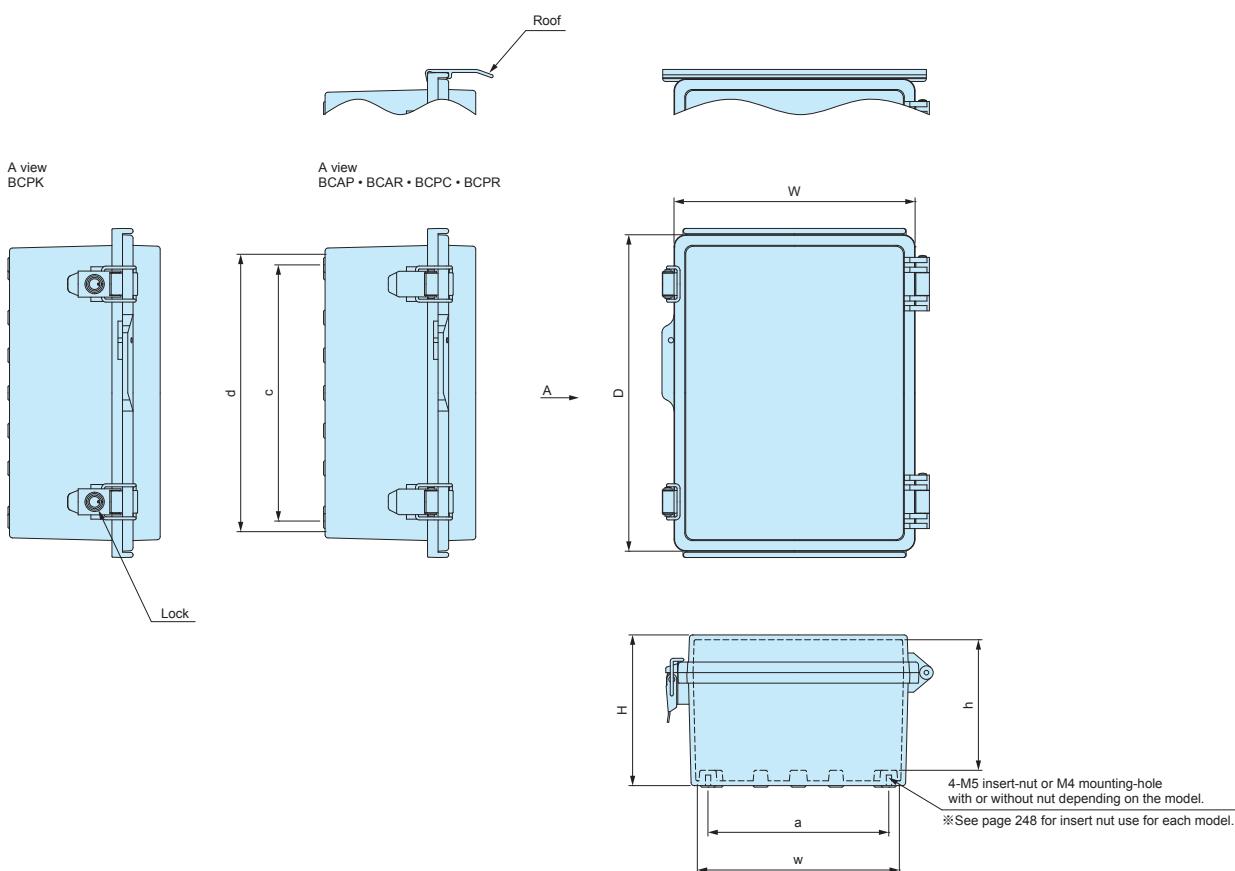
Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



Product no.	W	D	H	Available range			Bottom hole pitch	
				w	d	h	a	c
BCAP • R, BCPC • K • R091207	90	120	70	66	96	56.5	50	80
BCAP • R, BCPC • K • R091208	90	120	85	66	96	71.5	50	80

101507 ~ 405020

Not available for BCAR • BCPR 151509, 151512, 405016, and 405020 models.





- Inner bosses vary according to box size.  
Refer to DXF/DWG/PDF drawings for more details.

## APPLICATION EXAMPLE



### SURVEILLANCE VIDEO DATA CLOUD ROUTER

Product by LIVELOCK TECHNOLOGIES (Japan)

Product no.	W	D	H	Available range			Bottom hole pitch		Insert nut
				w	d	h	a	c	
BCAP・R, BCPC・K・R101507	100	150	70	76	126	56.5	60	110	without
BCAP・R, BCPC・K・R101508	100	150	85	75.5	125.5	71.5	60	110	without
BCAP・R, BCPC・K・R112107	110	210	75	85.8	185.8	61.5	70	170	without
BCAP・R, BCPC・K・R112110	110	210	100	84.9	184.9	86.5	70	170	without
BCAP・R, BCPC・K・R112607	110	260	75	85.8	235.8	61.5	70	220	without
BCAP・R, BCPC・K・R112610	110	260	100.5	85.1	234.9	87.2	70	220	without
BCAP・R, BCPC・K・R131508	135	155	85	110.5	130.5	71.5	95	115	without
BCAP・R, BCPC・K・R131808	135	185	85.5	110.4	160.4	72.2	95	145	without
BCAP・R, BCPC・K・R131810	135	185	100.5	110.4	160.4	87.1	95	145	without
BCAP, BCPC・K 151509	150	150	90	125.7	125.7	75.5	120	120	without
BCAP, BCPC・K 151512	150	150	120.5	124	124	106	117	117	without
BCAP・R, BCPC・K・R162110	160	210	100	134	184	86.6	120	170	without
BCAP・R, BCPC・K・R162113	160	210	130	134	184	116.5	120	170	without
BCAP・R, BCPC・K・R162610	160	260	100	135.1	235.1	86.6	120	220	without
BCAP・R, BCPC・K・R162613	160	260	130	134	234	116.6	120	220	without
BCAP・R, BCPC・K・R172211	170	220	110.5	144.9	194.9	96.1	132	182	without
BCAP・R, BCPC・K・R172711	170	270	110.5	144.9	244.9	96.1	132	232	without
BCAP・R, BCPC・K・R192810	190	280	100.5	165.3	255.3	84.1	148	238	with
BCAP・R, BCPC・K・R192814	190	280	141	164.2	254.2	124.6	148	238	with
BCAP・R, BCPC・K・R203013	200	300	131.5	173.5	273.5	115.1	152	252	with
BCAP・R, BCPC・K・R203015	200	300	151.5	173.5	273.5	135.1	152	252	with
BCAP・R, BCPC・K・R203018	200	300	180.5	172.4	272.3	164.1	152	252	with
BCAP・R, BCPC・K・R212110	210	210	100	185.1	185.1	86.6	170	170	without
BCAP・R, BCPC・K・R212113	210	210	130	184	184	116.6	170	170	without
BCAP・R, BCPC・K・R253515	250	350	151	222.5	322.5	135.3	206	306	with
BCAP・R, BCPC・K・R253518	250	350	181.5	222.5	322.5	165.8	206	306	with
BCAP・R, BCPC・K・R282813	280	280	130.5	254	254	113.6	238	238	with
BCAP・R, BCPC・K・R283813	280	380	130	254	354	113.6	238	338	with
BCAP・R, BCPC・K・R303015	300	300	151	273	273	134.3	256	256	with
BCAP・R, BCPC・K・R303018	300	300	181	272.5	272.5	164.3	256	256	with
BCAP・R, BCPC・K・R304012	300	400	121	274.1	374.6	104.6	252	352	with
BCAP・R, BCPC・K・R304015	300	400	150	273.5	373.5	133.6	252	352	with
BCAP・R, BCPC・K・R304018	300	400	181	272.5	372.5	164.6	252	352	with
BCAP・R, BCPC・K・R353515	350	350	150	323.6	323.6	133.6	302	302	with
BCAP・R, BCPC・K・R353518	350	350	181	322.5	322.5	164.6	302	302	with
BCAP・R, BCPC・K・R354512	350	450	120	316.7	416.7	103.5	302	402	with
BCAP・R, BCPC・K・R354516	350	450	160	308.7	414.7	142.6	302	402	with
BCAP・R, BCPC・K・R354520	350	450	201	306.9	412.8	183.6	302	402	with
BCAP, BCPC・K 405016	400	500	160	360.4	466.6	144	352	452	with
BCAP, BCPC・K 405020	400	500	201	359.4	465.5	184	352.5	452.5	with

## BCAP • BCAR • BCPC • BCPK • BCPR dimensions

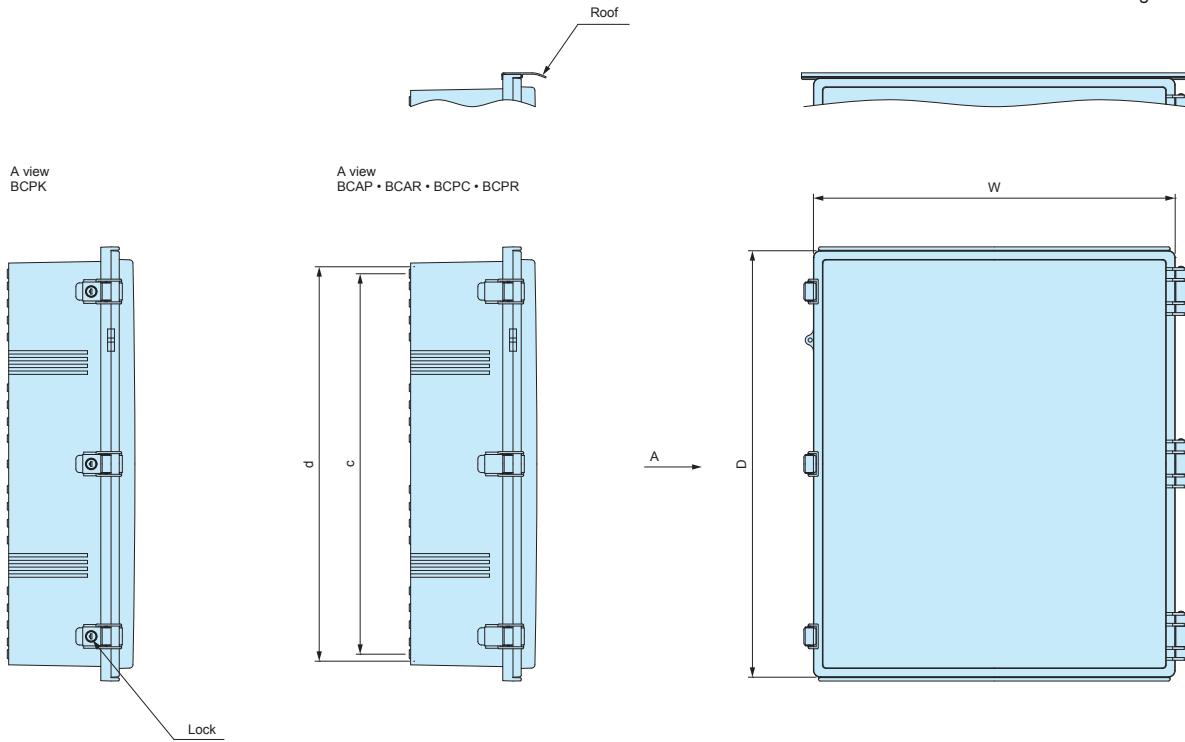
406018 ~ 507025

Not available for BCAR • BCPR 406018 and 406023 models.

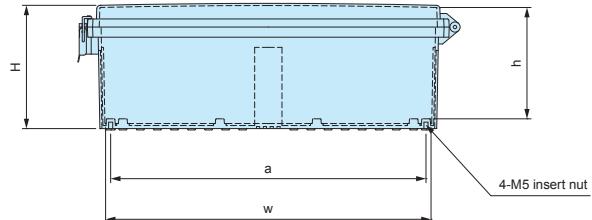
■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



■ Inner bosses vary according to box size.  
Refer to DXF/DWG/PDF drawings for more details.

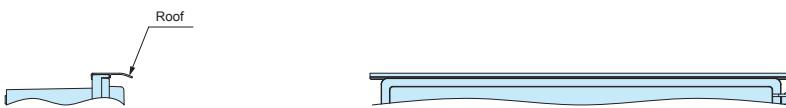
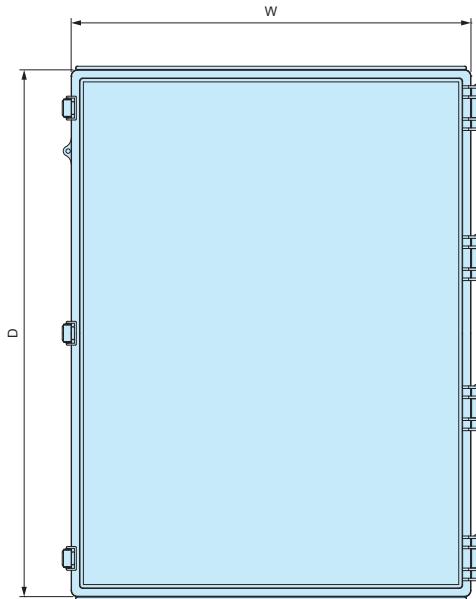
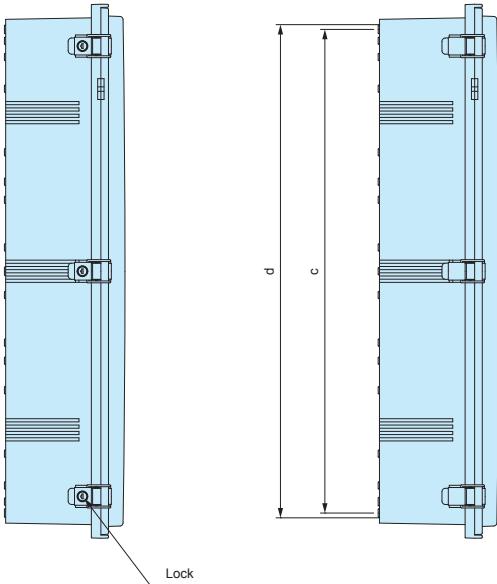
**Attention when locking the latch**

1. Close latches on both ends first.
  2. Close center latch next.
- ※ Closing the center latch first may create a non-watertight seal.

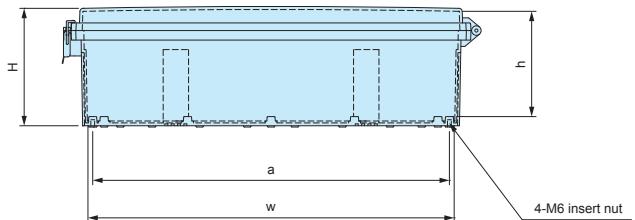
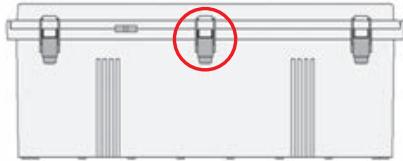
Center latch must be closed last!

Product no.	W	D	H	Available range			Bottom hole pitch	
				w	d	h	a	c
BCAP, BCPC • K 406018	400	600	181	358.6	565.9	163.8	352.5	552.5
BCAP, BCPC • K 406023	400	600	231	356.9	564.1	213.8	352	552.5
BCAP • R, BCPC • K • R506018	530	630	185	476.8	576.8	163.6	462	562
BCAP • R, BCPC • K • R506025	530	630	255	474.6	574.6	233.6	462	562
BCAP • R, BCPC • K • R507018	530	730	188	477	677	166.1	462	662
BCAP • R, BCPC • K • R507025	530	730	255	475	676.2	236	462	662

608018, 608028

A view  
BCPKA view  
BCAP • BCAR • BCPC • BCPR**Attention when locking the latch**

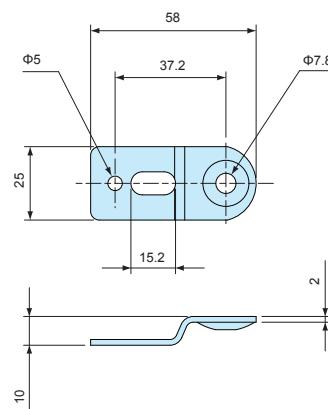
1. Close latches on both ends first.
  2. Close center latch next.
- ※ Closing the center latch first may create a non-watertight seal.

Center latch must be closed last!

Product no.	W	D	H	Available range			Bottom hole pitch	
				w	d	h	a	c
BCAP • R, BCPC • K • R608018	630	830	188	575	777	165.6	562	762
BCAP • R, BCPC • K • R608028	630	830	288	573.5	773.5	265.8	562	762

**Included stainless steel mounting brackets for 506018, 506025, 507018, 507025, 608018 and 608028**

Part name	Pcs	Material	Color / Finish
Mounting bracket	6	Stainless	Unfinished
Screw	6	Steel	Trivalent chromate



## BRF SERIES

## OUTDOOR ROOF



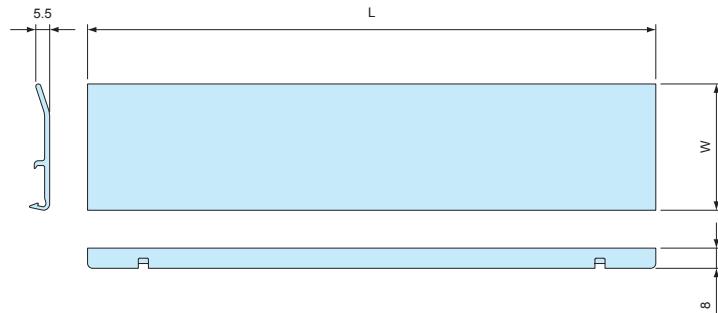
- Recommended to be used for outdoor environments for protection against rain etc.
- Snap-in easy installation.
- Available for BCAP and BCPC • BCPK series except 151509, 151512, 405016, 405020, 406018, and 406023 models.

## Color Type

Color code	Material	Color / Finish	Suitable series
G	PVC	White gray / Unpainted	BCAP
S	PVC	Light gray / Painted	BCPC • BCPK

## BRF dimensions

Roof for 091207 ~ 353518

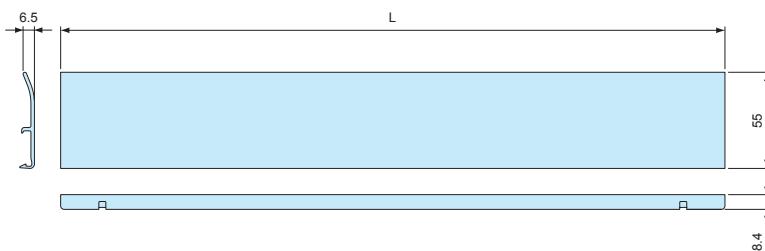


## Product no. / Dimensions

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

Product no.	Suitable box	L	W
BRF- 90□	BCAP • BCPC • BCPK 091207 091208	105	45
BRF-100□	BCAP • BCPC • BCPK 101507 101508	115	45
BRF-110□	BCAP • BCPC • BCPK 112107 112110 112607 112610	125	45
BRF-135□	BCAP • BCPC • BCPK 131508 131808 131810	150	45
BRF-160□	BCAP • BCPC • BCPK 162110 162113 162610 162613	175	45
BRF-170□	BCAP • BCPC • BCPK 172211 172711	185	45
BRF-190□	BCAP • BCPC • BCPK 192810 192814	205	45
BRF-210□	BCAP • BCPC • BCPK 212110 212113	225	45
BRF-200□	BCAP • BCPC • BCPK 203013 203015 203018	225	50
BRF-250□	BCAP • BCPC • BCPK 253515 253518	275	50
BRF-280□	BCAP • BCPC • BCPK 282813 283813	305	50
BRF-300□	BCAP • BCPC • BCPK 303015 303018 304012 304015 304018	325	50
BRF-350□	BCAP • BCPC • BCPK 353515 353518	375	50

Roof for 354512 ~ 354520



## Product no. / Dimensions

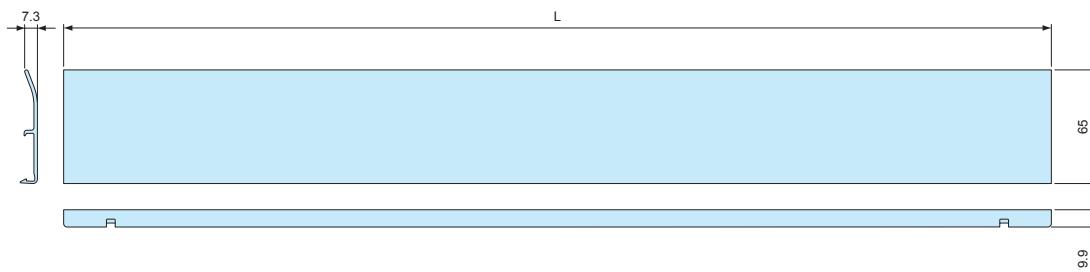
■ Please suffix color code at the end of the product number.

Product no.	Suitable box	L
BRF-350L□	BCAP • BCPC • BCPK 354512 354516 354520	380

■ S color type is light gray painted.

Roof for 506018 ~ 608028

## Accessories (Optional parts)



## Product no. / Dimensions

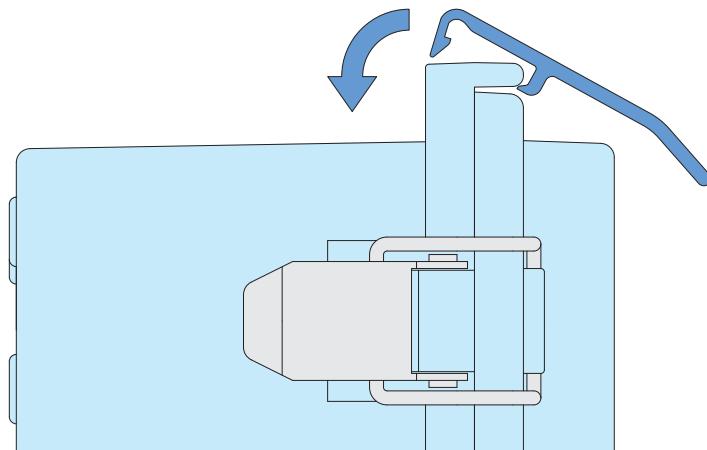
■ Please suffix color code at the end of the product number.

Product no.	Suitable box	L
BRF-530□	BCAP • BCPC • BCPK 506018 506025 507018 507025	565
BRF-630□	BCAP • BCPC • BCPK 608018 608028	665

■ S color type is light gray painted.

## ■ How to install BRF outdoor roof.

Refer to illustration.

**BCC-1****DUST PROTECTION CAP**

- Prevent dust and other foreign material entry.
- Protection against corrosion on key hole part in environments such as coastal areas.
- When ordering, please ensure that the quantity required corresponds to the number of latches on your selected enclosure.

## Product no. / Dimensions

Product no.	Material	Color	Sales unit
BCC-1	Silicone	Black	1 pc

## Suitable Box

Suitable box	Required
BCPK192810 ~ 203018, 253515 ~ 405020	2 pcs
BCPK406018 ~ 608028	3 pcs

■ Not suitable for BCPK 212110, 212113, 172711, and smaller models.

**BMP-Z SERIES****STEEL MOUNTING PLATE**

- Tough but easily customizable.
- Large sized (BMP5060Z, 5070Z and 6080Z) plates have a 90° bent edge.

■ Customization services (machining, punch press or clinching nut insertion) are available. See website for more details.



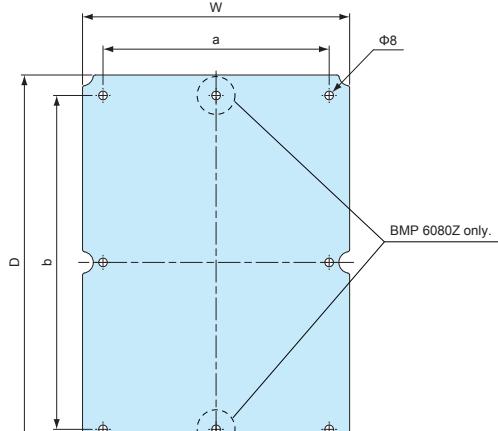
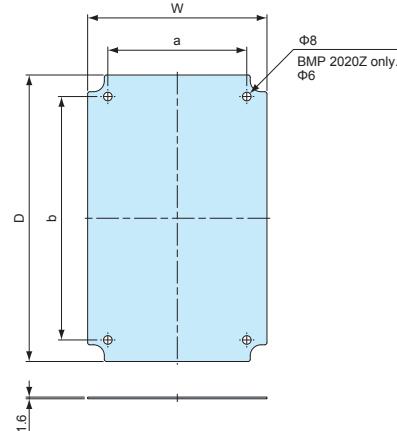
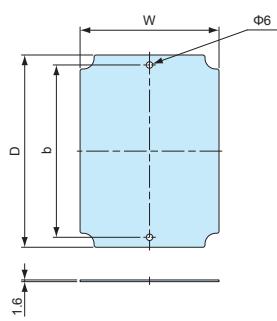
BMP0912Z ~ 1727Z



BMP1928Z ~ 4060Z



BMP5060Z ~ 6080Z



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

**Components**

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

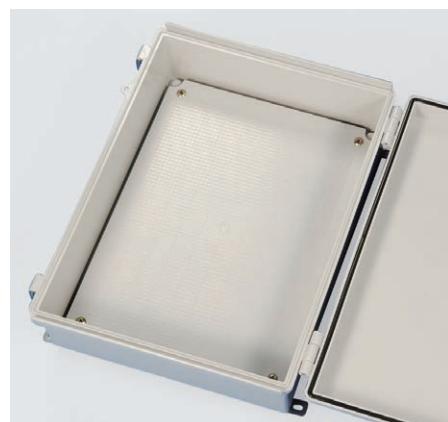
**Product no. / Dimensions**

Product no.	W	D	a	b	Suitable box	Weight (g)
BMP0912Z	58	88	—	69	BCAP • R, BCPC • K • R 091207, 091208	53
BMP0813Z	68	118	—	99	BCAP • R, BCPC • K • R 101507, 101508	87
BMP1121Z	77	177	—	158	BCAP • R, BCPC • K • R 112107, 112110	159
BMP1126Z	77	227	—	208	BCAP • R, BCPC • K • R 112607, 112610	210
BMP1315Z	102	122	—	110	BCAP • R, BCPC • K • R 131508	141
BMP1217Z	102	152	—	140	BCAP • R, BCPC • K • R 131808, 131810	180
BMP1515Z	121	121	—	110	BCAP BCPC • K 151509, 151512	172
BMP1520Z	126	176	—	160	BCAP • R, BCPC • K • R 162110, 162113	262
BMP1525Z	127	227	—	210	BCAP • R, BCPC • K • R 162610, 162613	346
BMP1722Z	137	187	—	160	BCAP • R, BCPC • K • R 172211	308
BMP1727Z	137	237	—	210	BCAP • R, BCPC • K • R 172711	391
BMP1928Z	157	247	120	210	BCAP • R, BCPC • K • R 192810, 192814	462.5
BMP2020Z	176	176	120	150	BCAP • R, BCPC • K • R 212110, 212113	371
BMP2030Z	165	265	129	226	BCAP • R, BCPC • K • R 203013, 203015, 203018	519
BMP2535Z	215	315	180	270	BCAP • R, BCPC • K • R 253515, 253518	816
BMP2828Z	246	246	210	210	BCAP • R, BCPC • K • R 282813	727.5
BMP2838Z	246	346	210	310	BCAP • R, BCPC • K • R 283813	1,018
BMP3030Z	264	264	219	219	BCAP • R, BCPC • K • R 303015, 303018	826.5
BMP3040Z	265	365	228	325	BCAP • R, BCPC • K • R 304012, 304015, 304018	1,154
BMP3535Z	315	315	270	270	BCAP • R, BCPC • K • R 353515, 353518	1,196.5
BMP3545Z	301	401	274	365	BCAP • R, BCPC • K • R 354512, 354516, 354520	1,443
BMP4050Z	354	454	328	428	BCAP BCPC • K 405016, 405020	1,998
BMP4060Z	354	551	328	525	BCAP BCPC • K 406018, 406023	2,328
BMP5060Z	474	574	426	526	BCAP • R, BCPC • K • R 506018, 506025	3,286
BMP5070Z	472	672	426	626	BCAP • R, BCPC • K • R 507018, 507025	3,864
BMP6080Z	565	765	526	726	BCAP • R, BCPC • K • R 608018, 608028	5,288.5

■ K = BCPK series / R = BCAR • BCPR series

**BMP-P SERIES****PLASTIC MOUNTING PLATE**

- Lightweight ABS plastic mounting plate.
- Flat plate: BMP0811P ~ BMP1515P  
Ribbed plate: BMP1520P ~ BMP4050P
- DXF/DWG/PDF drawings available on our website.

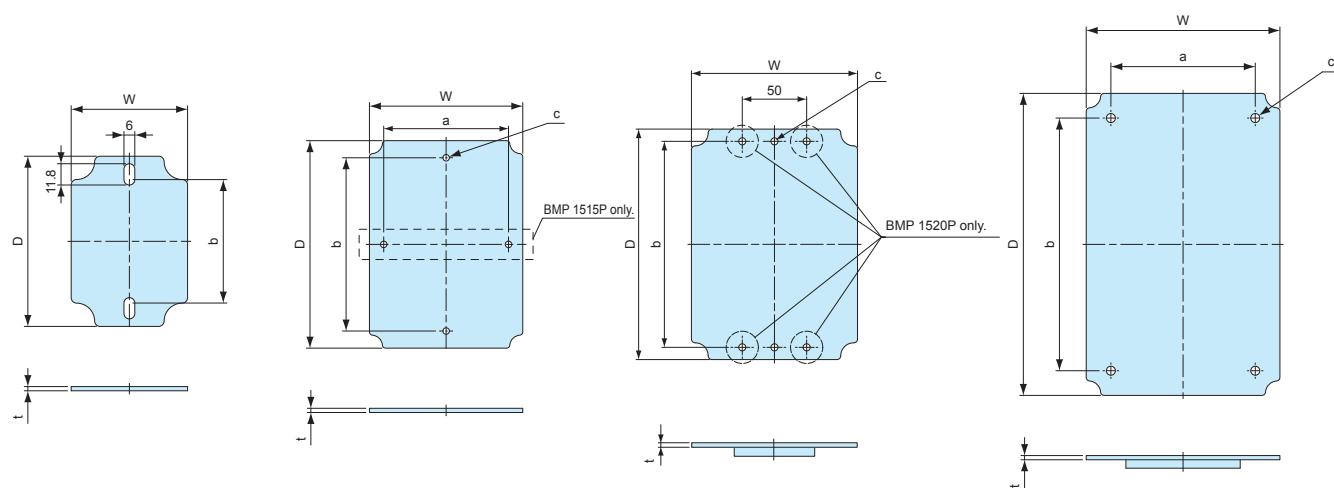


BMP0811P (Flat)

BMP0813P, 1515P (Flat)

BMP1520P, 1525P (Ribbed)

BMP1928P ~ 4050P (Ribbed)

**Components**

Part name	Material	Color
Mounting plate	ABS	White gray

**Product no. / Dimensions**

Product no.	W	D	a	b	t	c (Φ)	Suitable box	Weight (g)
BMP0811P	64.5	94.3	—	68.4	3.5	—	BCAP • R, BCPC • K • R 091207, 091208	21
BMP0813P	64.5	114.5	—	99	3	Φ6	BCAP • R, BCPC • K • R 101507, 101508	24
BMP1121P	76.5	176	—	158	3	Φ6	BCAP • R, BCPC • K • R 112107, 112110	40
BMP1126P	76.5	226	—	208	3	Φ6	BCAP • R, BCPC • K • R 112607, 112610	53
BMP1315P	101.5	121.5	—	110	3.5	Φ5.5	BCAP • R, BCPC • K • R 131508	36
BMP1217P	109.5	160	—	140	4	Φ6	BCAP • R, BCPC • K • R 131808, 131810	62
BMP1515P	123	123	110	110	3.5	Φ6	BCAP • R, BCPC • K 151509, 151512	52
BMP1520P	129	179	—	160	3.5	Φ5.5	BCAP • R, BCPC • K • R 162110, 162113, 172211	92
BMP1525P	129	228.5	—	210	3.5	Φ6	BCAP • R, BCPC • K • R 162610, 162613, 172711	112
BMP1928P	158.5	248	120	210	3.5	Φ8	BCAP • R, BCPC • K • R 192810, 192814	162
BMP2020P	178.5	178.5	120	150	3.5	Φ5.5	BCAP • R, BCPC • K • R 212110, 212113	125
BMP2030P	166.5	266	128	225.5	4	Φ8	BCAP • R, BCPC • K • R 203013, 203015, 203018	188
BMP2535P	215.5	315	180	268.5	4	Φ8	BCAP • R, BCPC • K • R 253515, 253518	292
BMP2828P	248.5	248.5	210	210	4	Φ8	BCAP • R, BCPC • K • R 282813	237
BMP2838P	248	347.5	209	309.5	4	Φ8	BCAP • R, BCPC • K • R 283813	368
BMP3030P	262.5	262.5	219	219	4	Φ7.5	BCAP • R, BCPC • K • R 303015, 303018	281
BMP3040P	264.5	364	227	323	4	Φ8	BCAP • R, BCPC • K • R 304012, 304015, 304018	437
BMP3535P	313.5	313.5	269.5	269.5	4	Φ8	BCAP • R, BCPC • K • R 353515, 353518	424.5
BMP3545P	305	405.5	273	364	4	Φ8	BCAP • R, BCPC • K • R 354512, 354516, 354520	539
BMP4050P	357	457	328	428	4	Φ8.5	BCAP • R, BCPC • K 405016, 405020	725.5

■ K = BCPK series / R = BCAR • BCPR series

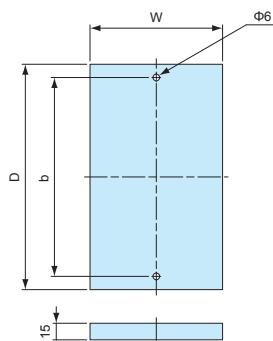
## BMP-W SERIES

## WOODEN MOUNTING PLATE

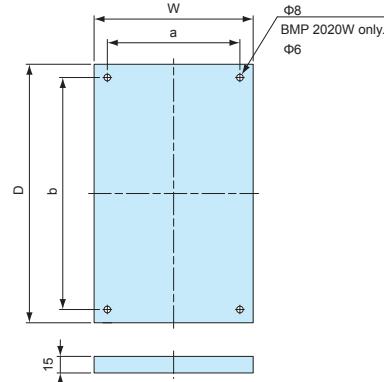
- Easy installation with tapping screws.
- Easily customizable hard wooden plate.
- Plate comes with scales printed on for easy references.
- DXF/DWG/PDF drawings available on our website.



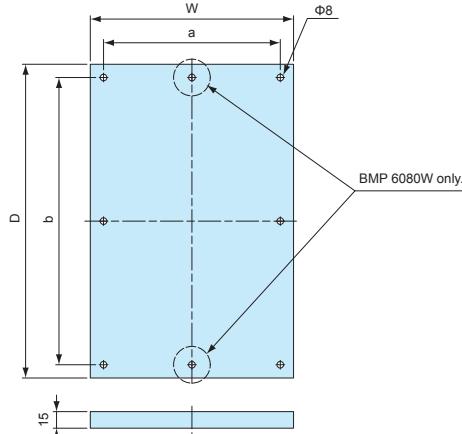
BMP0912W ~ 1727W



BMP1928W ~ 4060W



BMP5060W ~ 6080W



## Components

Part name	Pcs	Material	Color / Finish
Mounting plate	1	Wood board t=15	Scaled sheet
Screw	2 ~ 8	Steel	Trivalent chromate

## Product no. / Dimensions

Product no.	W	D	a	b	Suitable box	Screw	Weight (g)
BMP0912W	58	92	—	69	BCAP • R, BCPC • K • R 091207, 091208	M4-20 × 2 pcs	62
BMP0813W	68	122	—	99	BCAP • R, BCPC • K • R 101507, 101508	M4-20 × 2 pcs	94
BMP1121W	77	181	—	158	BCAP • R, BCPC • K • R 112107, 112110	M4-20 × 2 pcs	166
BMP1126W	77	231	—	208	BCAP • R, BCPC • K • R 112607, 112610	M4-20 × 2 pcs	191
BMP1315W	102	126	—	110	BCAP • R, BCPC • K • R 131508	M4-20 × 2 pcs	127
BMP1217W	102	156	—	140	BCAP • R, BCPC • K • R 131808, 131810	M4-20 × 2 pcs	190
BMP1515W	118	125	—	110	BCAP • BCPC • K 151509, 151512	M4-20 × 2 pcs	172
BMP1520W	126	180	—	160	BCAP • R, BCPC • K • R 162110, 162113	M4-20 × 2 pcs	243
BMP1525W	127	231	—	210	BCAP • R, BCPC • K • R 162610, 162613	M4-20 × 2 pcs	352
BMP1722W	137	191	—	160	BCAP • R, BCPC • K • R 172211	M4-20 × 2 pcs	286
BMP1727W	137	241	—	210	BCAP • R, BCPC • K • R 172711	M4-20 × 2 pcs	212
BMP1928W	150	240	120	210	BCAP • R, BCPC • K • R 192810, 192814	M5-20 × 4 pcs	350
BMP2020W	170	174	120	150	BCAP • R, BCPC • K • R 212110, 212113	M4-20 × 4 pcs	336
BMP2030W	159	256	129	226	BCAP • R, BCPC • K • R 203013, 203015, 203018	M5-20 × 4 pcs	482
BMP2535W	210	300	180	270	BCAP • R, BCPC • K • R 253515, 253518	M5-20 × 4 pcs	688
BMP2828W	240	240	210	210	BCAP • R, BCPC • K • R 282813	M5-20 × 4 pcs	565
BMP2838W	240	340	210	310	BCAP • R, BCPC • K • R 283813	M5-20 × 4 pcs	893
BMP3030W	249	249	219	219	BCAP • R, BCPC • K • R 303015, 303018	M5-20 × 4 pcs	659
BMP3040W	258	355	228	324	BCAP • R, BCPC • K • R 304012, 304015, 304018	M5-20 × 4 pcs	965
BMP3535W	300	300	270	270	BCAP • R, BCPC • K • R 353515, 353518	M5-20 × 4 pcs	964
BMP3545W	301	395	274	365	BCAP • R, BCPC • K • R 354512, 354516, 354520	M5-20 × 4 pcs	1,314
BMP4050W	355	455	328	428	BCAP • BCPC • K 405016, 405020	M5-20 × 4 pcs	1,754
BMP4060W	355	552	328	525	BCAP • BCPC • K 406018, 406023	M5-20 × 4 pcs	2,015.5
BMP5060W	456	556	426	526	BCAP • R, BCPC • K • R 506018, 506025	M5-20 × 6 pcs	2,650
BMP5070W	456	656	426	626	BCAP • R, BCPC • K • R 507018, 507025	M5-20 × 6 pcs	3,152.5
BMP6080W	556	756	526	726	BCAP • R, BCPC • K • R 608018, 608028	M5/M6-20 × 8 pcs	4,434

■ K = BCPK series / R = BCAR • BCPR series

## Accessories (Optional parts)

## BFL SERIES

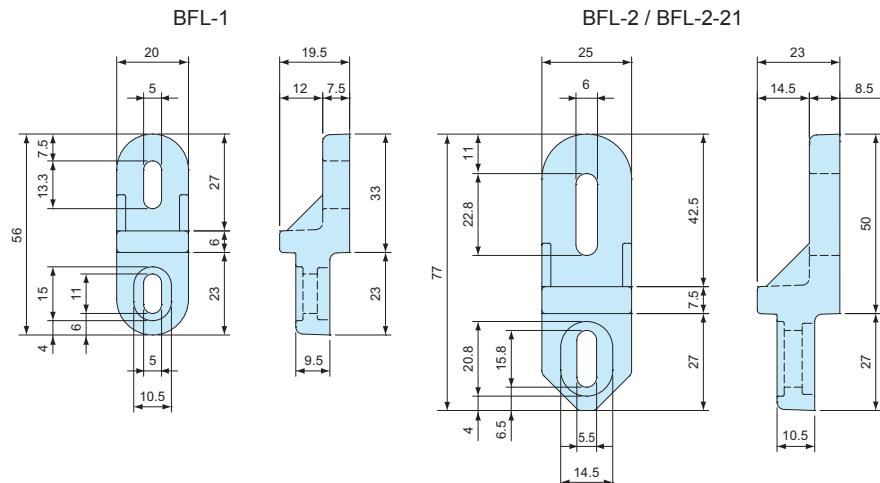
## PLASTIC MOUNTING BRACKET



- 2 different colored type to match box colors.
- Tough and strong glass fiber filled polycarbonate.

## Color Type

G	White gray	BCAP • BCAR
S	Light gray	BCPC • BCPK • BCPR



## Product no. / Dimensions

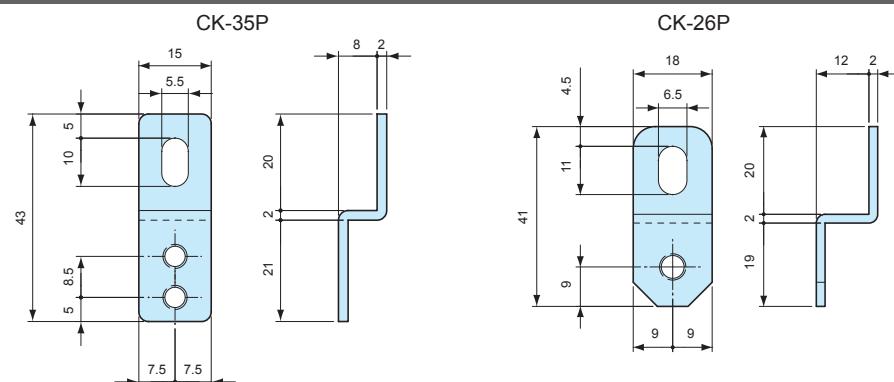
Product no.	Suitable box	Screw
BFL-1□	BCAP • R, BCPC • K • R 0912, 1015, 1121, 1126, 1315, 1318, 1621, 1626, 1722, 1727, 212113	M4-12
BFL-2□	BCAP • R, BCPC • K • R 1928, 2030, 2535, 2828, 2838, 3030, 3040, 3535, 3545, 4050, 4060, 5060	M5-12
BFL-2-21□	BCAP • R, BCPC • K • R 212110	M4-12

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

※Not suitable for BCAP1515 model. Use CK-35P (Stainless steel) instead.

## CK SERIES

## STAINLESS STEEL MOUNTING BRACKET



## Components

Part name	Pcs	Material	Finish
Mounting bracket	4	Stainless steel	Barrel finish
Screw	4	Stainless steel	Unfinished

## Product no. / Dimensions

Product no.	Suitable box	Screw
CK-35P	BCAP • R, BCPC • K • R 0912, 1015, 1121, 1126, 1315, 1318, 1515, 1621, 1626, 1722, 1727, 2121	M4-10
CK-26P	BCAP • R, BCPC • K • R 1928, 2030, 2535, 2828, 2838, 3030, 3040, 3535, 3545, 4050, 4060	M5-10

## MT SERIES

## PCB MOUNTING SCREW

■ PCB mounting screws for inner bosses of BCAP • BCAR • BCPC • BCPK • BCPR series.

## Product no. / Dimensions

Product no.	Material	Finish	Pack of
MT4-8T	Steel M4	Trivalent chromate	20
MT5-8T	Steel M5	Trivalent chromate	20

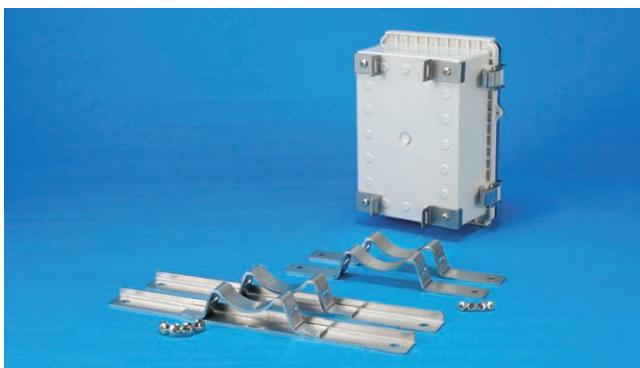
## Suitable Box

MT4-8T	BCAP • R, BCPC • K • R 0912, 1015, 1121, 1126, 1315, 1318, 1515, 1621, 1626, 1722, 1727, 1928, 2121	7kgf • cm (0.7N • m)
MT5-8T	BCAP • R, BCPC • K • R 2030, 2535, 2828, 2838, 3030, 3040, 3535, 3545, 4050, 4060, 5060, 5070, 6080	14kgf • cm (1.4N • m)



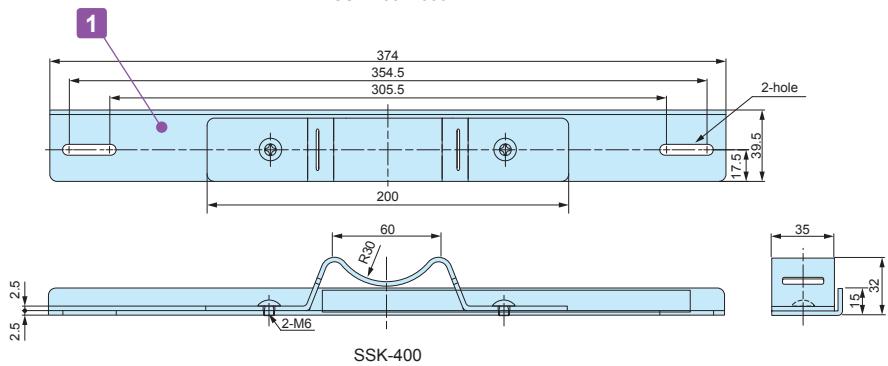
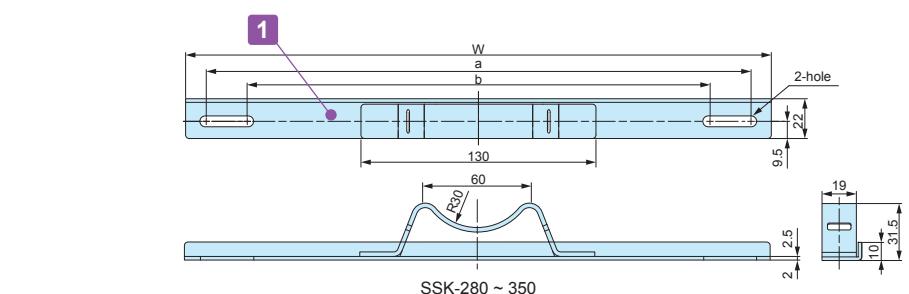
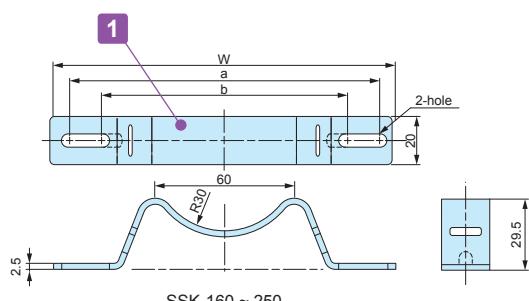
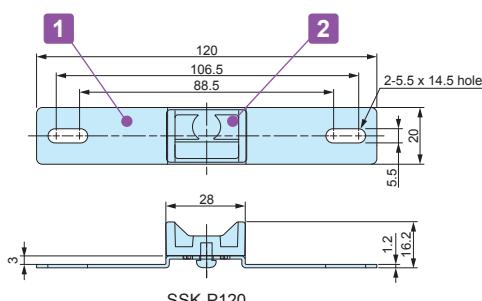
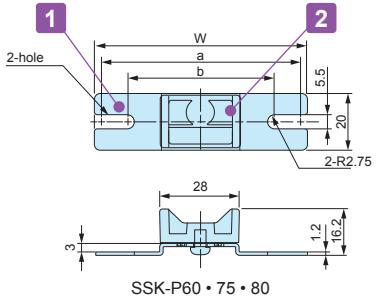
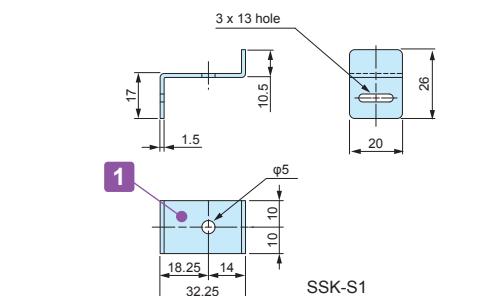
## SSK SERIES

## POLE MOUNTING BRACKET



- Stainless steel pole mounting bracket for BCAP • BCAR and BCPC • BCPK • BCPR series.
- No hole milling is required for maintaining the IP rating of the enclosure.
- Use PKB mounting belt to install onto a pole (See page 258 for PKB series).
- DXF/DWG/PDF drawings available on our website.

## SSK dimensions



## APPLICATION EXAMPLE

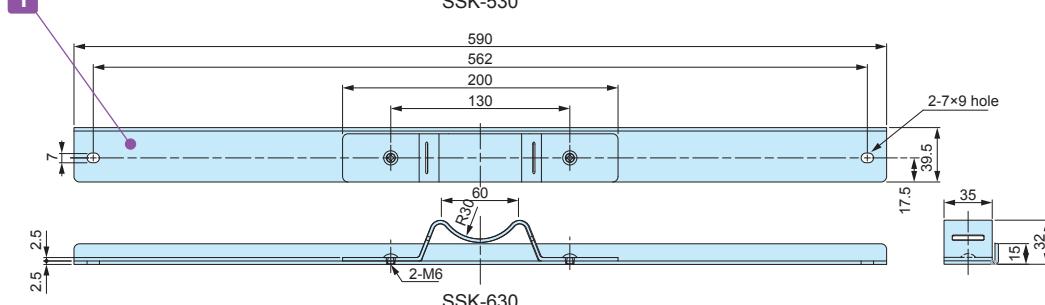
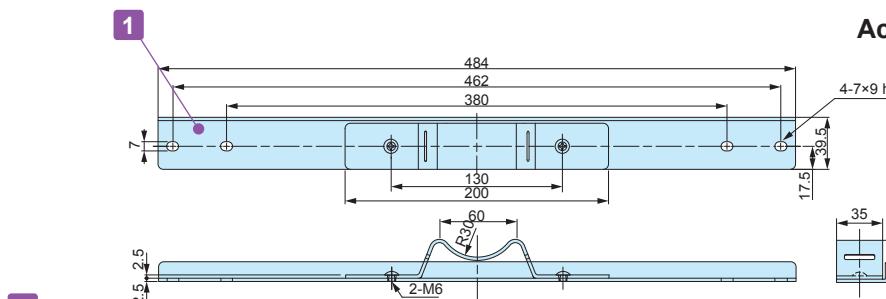


**WEATHER STATION DATA LOGGER**  
Product by Sakaki Corporation (Japan)



**WATER LEVEL DETECTOR**  
Product by Aspect System (Japan)

## Accessories (Optional parts)



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Bracket	2 / 4	Stainless Steel SUS304	Barrel finish
2	Plastic bracket (SSK-P type only)	2	ASA UL94HB	White gray (RAL7035)
-	Screw	4	Stainless Steel SUS304	Unfinished

## Product no. / Dimensions

Product no.	W	a	b	c	Box size	Belt to use with	Pack of
SSK-S1	32.25	18.25	14	-	0912, 1015, 1121, 1126, 1315, 1318, 1621, 1626, 1722, 1727, 2121	PKB-10P, PKB-10S	4
SSK-P60	60	54.5	46.5	5.5×9	0912	PKB-10P, PKB-10S	2
SSK-P75	75	69.5	53.5	5.5×12.5	1015	PKB-10P, PKB-10S	2
SSK-P80	80	74.5	64.5	5.5×10.5	1121, 1126	PKB-10P, PKB-10S	2
SSK-P120	120	106.5	88.5	5.5×14.5	1315, 1318	PKB-10P, PKB-10S	2
SSK-160	142	129.5	101	-	1515, 1621, 1626	PKB-10P, PKB-10S	2
SSK-170	152	142.3	101	-	1722, 1727	PKB-10P, PKB-10S	2
SSK-200	174	161.5	112.5	-	1928, 2030	PKB-10P, PKB-10S	2
SSK-210	192	180.5	131.5	-	2121	PKB-10P, PKB-10S	2
SSK-250	230	215.5	166.5	-	2535	PKB-10P, PKB-10S	2
SSK-280	260	244.5	195.5	-	2828, 2838	PKB-10P, PKB-10S	2
SSK-300	280	264.5	215.5	-	3030, 3040	PKB-10P, PKB-10S	2
SSK-350	324	302.5	253.5	-	3535, 3545	PKB-10P, PKB-10S	2
SSK-400	374	354.5	305.5	-	4050, 4060	PKB-20S	2
SSK-530	484	462	380	7×9	5060, 5070	PKB-20S	2
SSK-630	590	562	-	7×9	6080	PKB-20S	2

## PKB SERIES

## POLE MOUNTING BELT



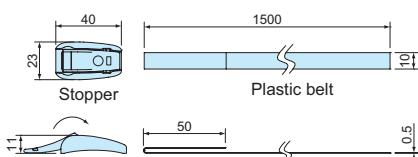
PKB-10P



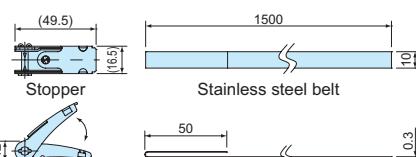
PKB-10S, 20S

- Universal pole mounting belt for various types of enclosures / box.
- Strong clamping stainless steel type and easy installation plastic type are available.
- Use SSK mounting bracket to install onto a pole.
- Designed for one time use only (not reusable).
- DXF/DWG/PDF drawings available on our website.

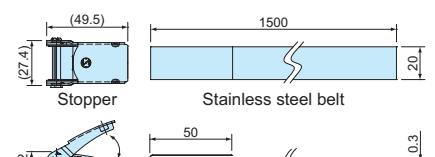
PKB-10P



PKB-10S



PKB-20S



## Components

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

## Product no. / Dimensions

Product no.	Tensile strength (horizontal)	Belt material	Belt length	Weight (g)	Pack of
PKB-10P	1.3kN	PET	1,500mm	31.8	2
PKB-10S	1.4kN	Stainless steel	1,500mm	101.6	2
PKB-20S	2.9kN	Stainless steel	1,500mm	182.2	2

## PMF-12M

## STAINLESS STEEL PROTECTIVE VENT

★★ NEW

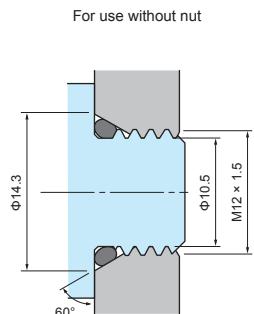
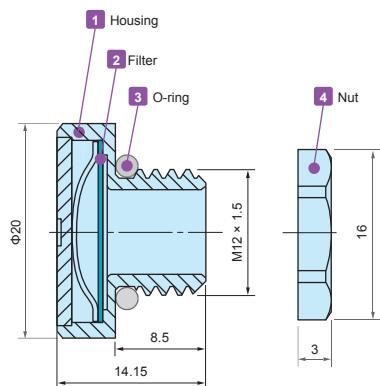


- Stainless steel protective vent for superior durability and chemical resistance.
- IP68 protection class (water depth 2 meters / 60 mins) and -40°C ~ +125°C operating temperature range allows it to be used in various environments.
- Suitable for enclosures with capacities of 20 liters or under.
- For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

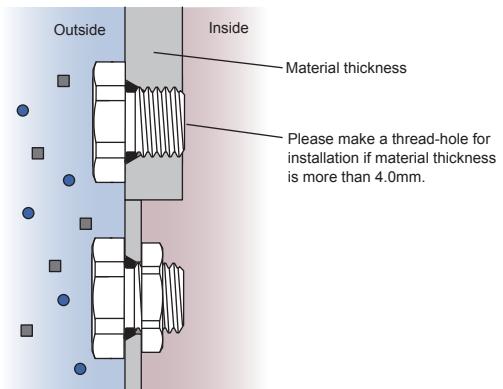
## PMF-12M dimensions

## Hole milling drawings

## Installation drawings



■ While Φ12.2mm through-hole is sufficient for installation, 60° angle tapered hole is recommended to prevent deformation of the O-ring.



■ 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°C ~ +125°C IEC60068-2-78 (Humidity test) : 85°C • 85% humidity • 1000 hours IEC60068-2-64 (Vibration test)

## Product no. / Dimensions

Product no.	Material				G		Nut SW
	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	Φ12.2	15

## PMF SERIES

## PROTECTIVE VENT

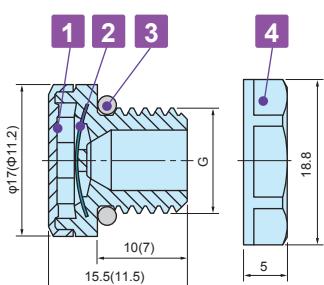
NEW SIZE



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

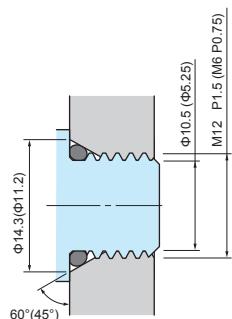
## PMF dimensions

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



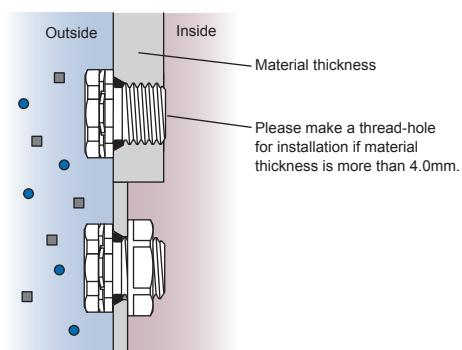
( ) values are for PMF-6B.  
Lock nut is not available for PMF-6B.

## Hole milling drawings



■ While Ø12.2mm 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, and Ø12.2mm through-hole is sufficient.

## Technical Data

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

## Product no. / Dimensions

Product no.		Material				G		Nut SW
● Light gray	● Black	1 Housing	2 Filter	3 O-ring	4 Lock nut	Thread size	Mount hole	
—	NEW PMF-6B	PA6 (Body)	PTFE	Silicone	n/a	M6 x 0.75	—	—
		PA66 (Cap)						
PMF-12S	PMF-12B	PA6	PTFE	Silicone	PA6 (UL94V-2)	M12 x 1.5	Φ12.2	17
PMF-12HAS	PMF-12HAB	PA6	PTFE	Silicone	PA6 (UL94V-2)	M12 x 1.5	Φ12.2	17

## PMF-32 SERIES

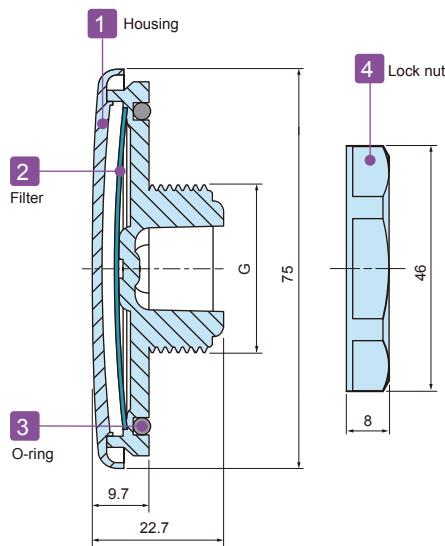
## LARGE PROTECTIVE VENT



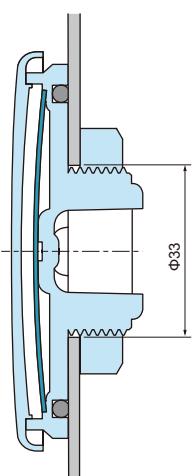
Application example

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

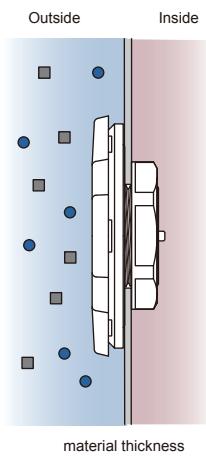
## PMF-32 Dimensions



## Hole milling drawings



## Installation drawings



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

## Technical Data

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

## Product no. / Dimensions

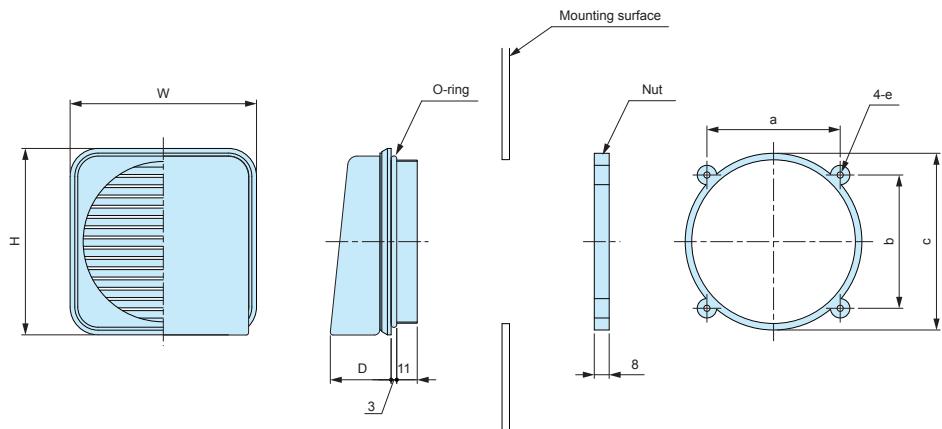
Product no.	Material				G		Nut SW
	1 Housing	2 Filter	3 O-ring	4 Lock nut	Thread size	Mount hole	
PMF-32S	PC	PTFE	Silicone	PA6	M32×1.5	Φ33	41.5

## V SERIES

## VENTILATION LOUVER



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



## Product no. / Dimensions

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

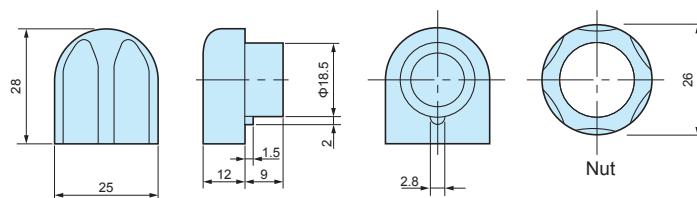
■ O-ring material: NBR Black

## VF SERIES

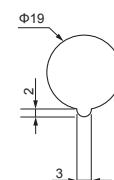
## VENTILATION PARTS



VF-1



Installation hole



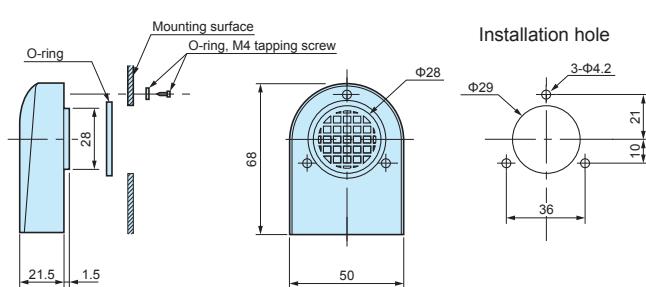
## Technical Data

Protection class: VF-1	IP33
VF-2	IP24

## Product no.

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

VF-2



Installation hole

## TMC SERIES

## TERMINAL JUNCTION BOX

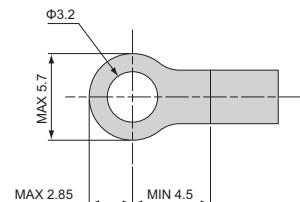
IP65



- 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:  $-20^{\circ}\text{C} \sim +75^{\circ}\text{C}$

Applicable crimp terminal  
R1.25-3

## Terminal Block Specification

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

## Components

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

## Accessories (Optional parts)



Shorting Bar SBR series  
See website



Rubber Bush RB series  
See website

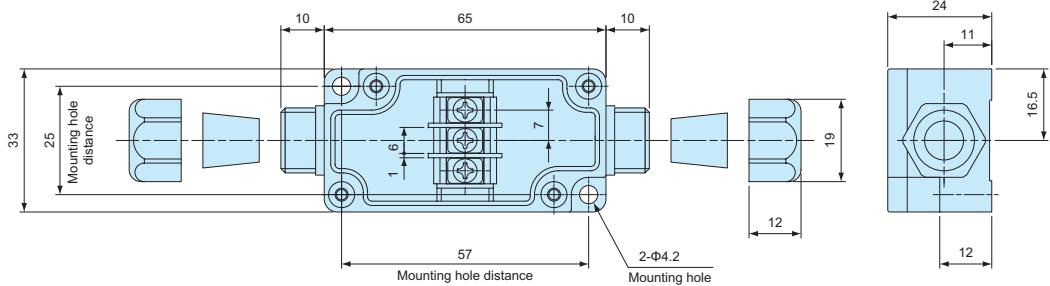
## Product no. / Dimensions

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

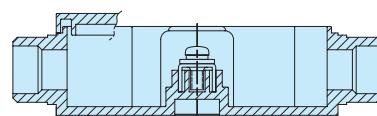
## TMC dimensions

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

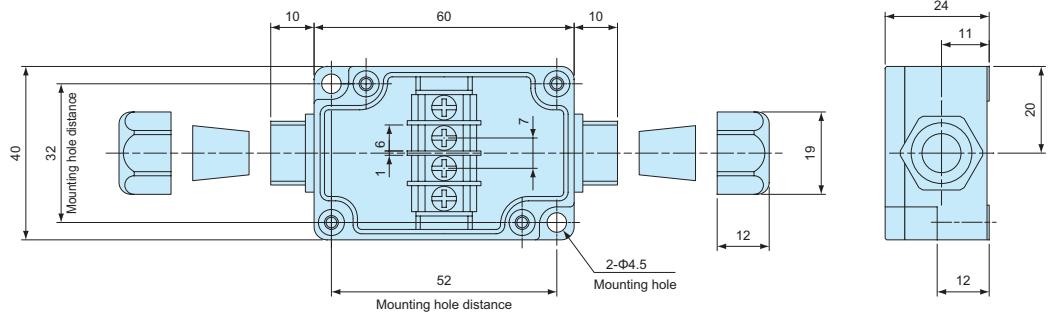
TMC-3P



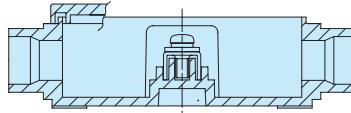
Inner diameter of rubber bush	Cable range
Φ5.0	Φ4 ~ Φ5
Φ7.4	Φ6 ~ Φ7



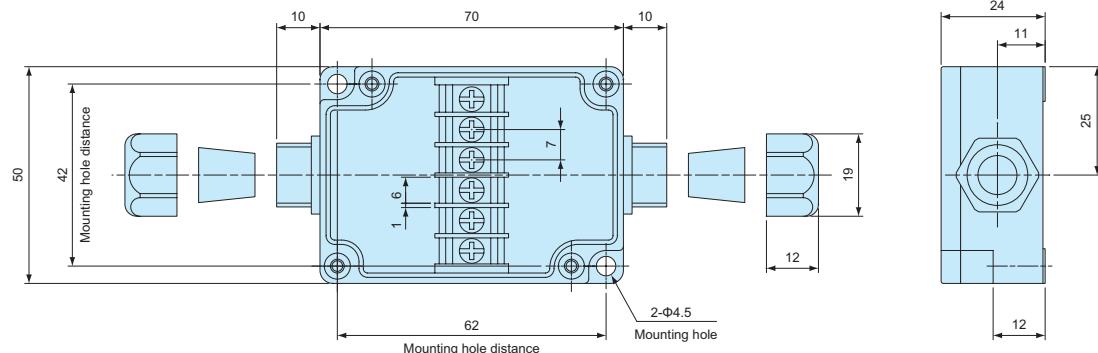
TMC-4P



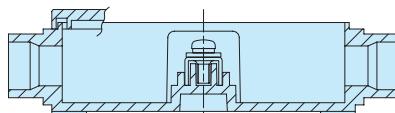
Inner diameter of rubber bush	Cable range
Φ5.0	Φ4 ~ Φ5
Φ7.4	Φ6 ~ Φ7



TMC-6P



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



## RMW SERIES

## WEATHERPROOF CABLE GLAND



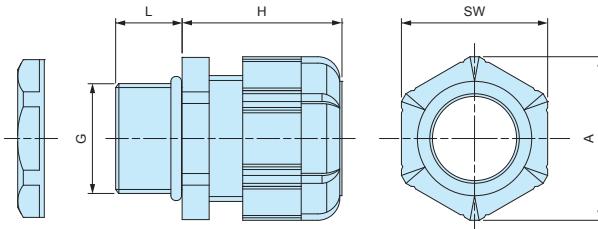
- Weatherproof cable gland equipped with high ultraviolet and degradation resistant silicone sealing insert and O-ring.
- Recommended to use outdoors where waterproofing is critical.

## Components

■ PA = Polyamide

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

## RMW dimensions



## Technical Data

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

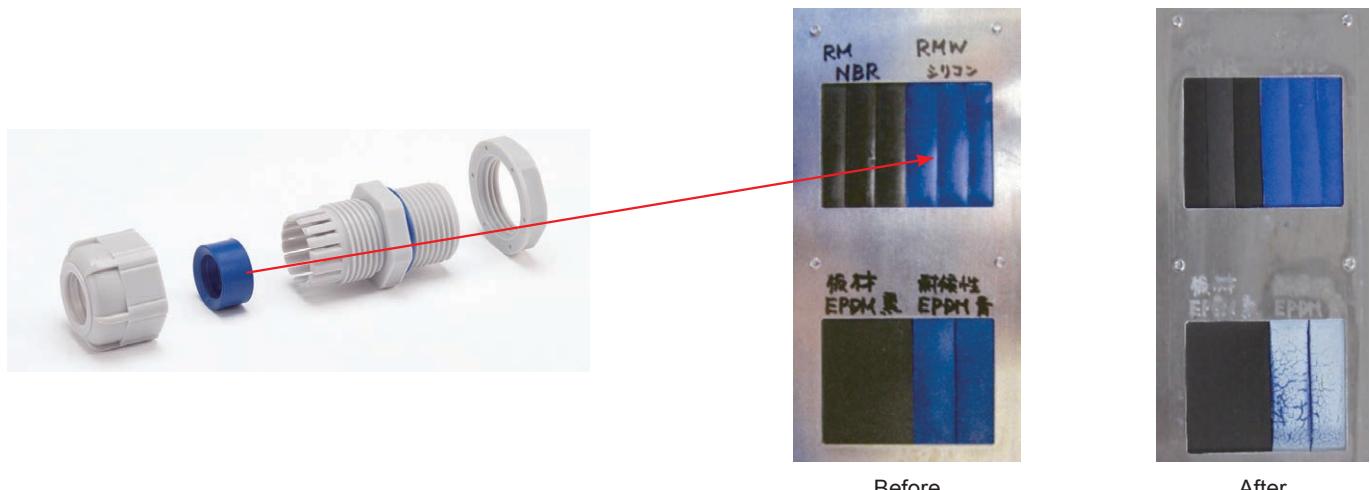
- DXF/DWG/PDF drawings available on our website.
- Lock nut is not included for RMW10S-6.  
Please drill a proper thread hole into the enclosure for installation.

## Product no. / Dimensions

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

# RMW series silicone sealing insert weatherproof test report

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



## Testing conditions

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

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

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

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

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

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

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

## Test result (visual / touch inspection)

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

Before



After



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

Before



After



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

Before

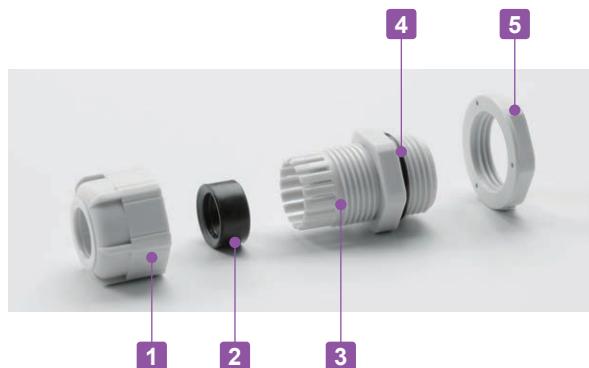


After



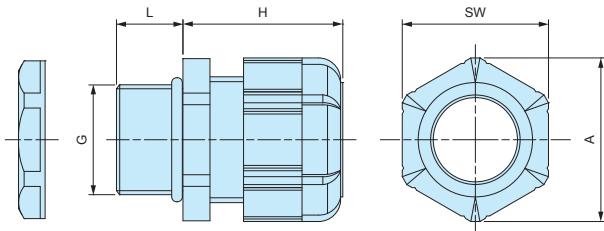
## RM SERIES

## POLYAMIDE CABLE GLAND



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

## RM dimensions



## 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

## Technical Data

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

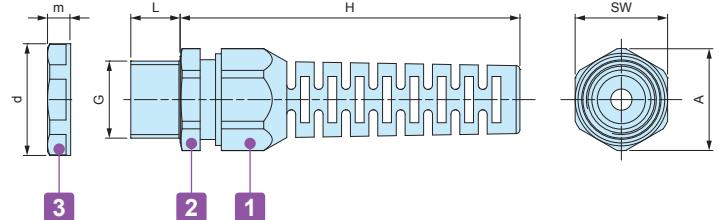
- DXF/DWG/PDF drawings available on our website.
- Lock nut is not included for RM8S-2.5, 8S-4, and 10S-6 models.  
Please drill a proper thread hole into the enclosure for installation.

## Product no. / Dimensions

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

**AGSP SERIES****STRAIN RELIEF CABLE GLAND**

IP67

**AGSP dimensions**

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

**Technical Data**

Protection class: IP67  
Temperature range -30°C ~ +100°C  
Compliant with EN50262 Ver.A

**Components**

■ PA = Polyamide

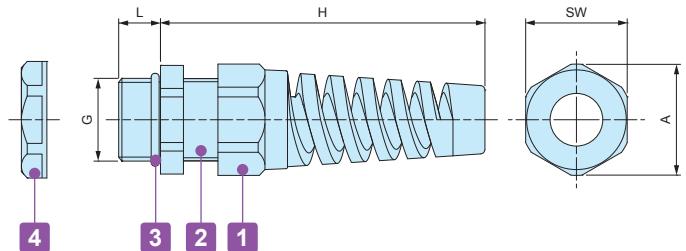
No.	Part name	Material
1	Strain relief cap	PA6 (UL94V-2)
-	Sealing insert	CR
2	Connector	PA6 (UL94V-2)
3	Lock- nut	PA6 (UL94V-2)

**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					
AGSP12-6.5B	AGSP12-6.5S	M12x1.5	Φ12.2	3.5	6.5	12.5	57	15	16.7	19	5
AGSP16-8B	AGSP16-8S	M16x1.5	Φ16.2	5	8	12.4	69	19	21	24	5
AGSP20-12B	AGSP20-12S	M20x1.5	Φ20.2	7	12	13	89	24	26.5	29	6

**RSP SERIES****STRAIN RELIEF CABLE GLAND**

IP67

**RSP dimensions**

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

**Technical Data**

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

**Components**

■ PA = Polyamide

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

**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	M12x1.5	Φ12.2	3.5	6	9	62	16	17
RSP16-8B	RSP16-8S	M16x1.5	Φ16.2	4	8	9	69	19.5	21
RSP20-11B	RSP20-11S	M20x1.5	Φ20.2	6	11	10	82	24	26
RSP25-16B	RSP25-16S	M25x1.5	Φ25.2	11	16	12	102	33	36

## AG SERIES

## HIGH WATER PROTECTION CABLE GLAND

IP68



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

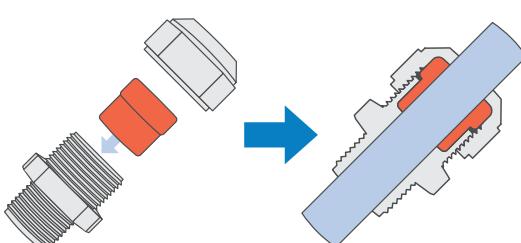
## Technical Data

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

## AG Series

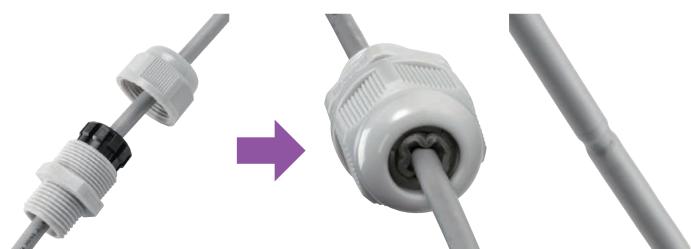
Thicker sealing insert evenly hold a cable by having a larger holding area.

Remains durable even after repeated tightening / loosening.



## Lamellar insert type

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



## Components

■ PA6GF = Polyamide6 Glass Fiber Filled

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

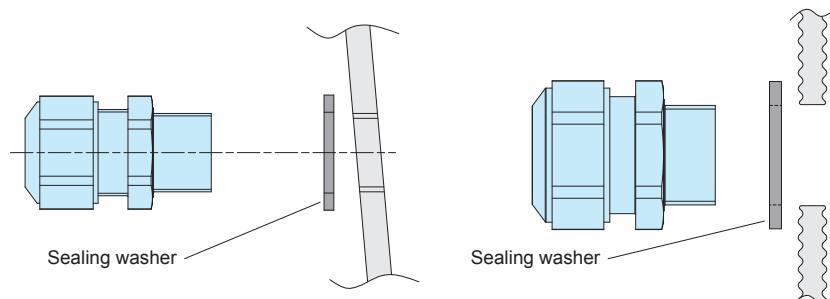
■ Lock nut is not included for M8 and M10 sizes.  
Please drill a proper thread hole into the enclosure for installation.

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



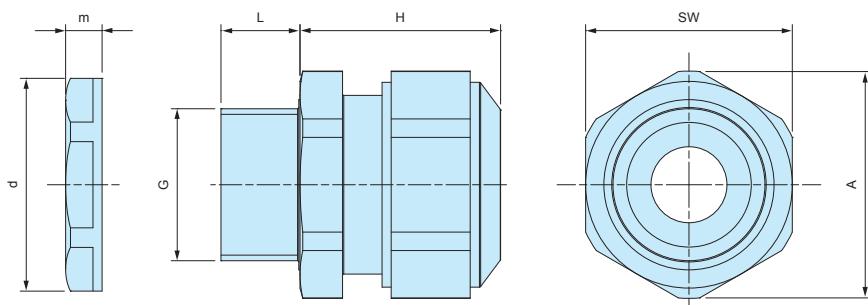
■ No optional sealing washer is required when installing on an even surface because of the built-in waterproof rib.

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



### AG dimensions

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



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

### Product no. / Dimensions

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

## AGM SERIES

## METAL CABLE GLAND



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

## Technical Data

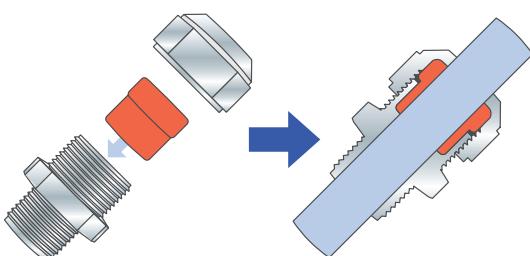
Protection class: IP68 1bar / 30min  
Operating temperature: -40°C ~ +100°C  
Compliant with EN50262 Ver. A

## 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.

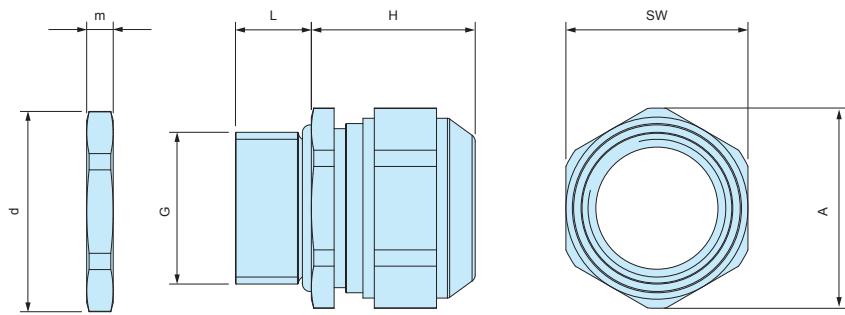


## Components

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
AGM7PG-5	PG7	12.5	Φ12.7	3.5	5.0	6	17	15	16.5	16.5	3	1
AGM9PG-6	PG9	15.2	Φ15.4	4.5	6.0	6	20	18	20	20	3	1
AGM11PG-8.5	PG11	18.6	Φ18.8	5.5	8.5	6	21	21	23	23.5	3	1
AGM13PG-11	PG13	20.4	Φ20.6	8.0	11.0	6	21	24	26.5	25.5	3	1
AGM16PG-14.5	PG16	22.5	Φ22.7	11	14.5	6	23	24	26.5	29	3	1

# SERIES INDEX

Series	Page
AFM	191-192
AFS	191-192
AG	269-270
AGM	271-272
AGSP	268
ASR	112
AW	155-158, 167-168, 170
AWA	163-168, 170
AWC	170
AWN	155-156, 159-160, 167-170
AWP	155-156, 161-162, 167-170
AWSP	169
BCAP • BCPC	237-242, 247-258
BCAR • BCPR	237-240, 245-258
BCC-1	252
BCPK	237-240, 243-244, 247-258
BDN	235-236
BFL	256
BMP	253-255
BRF	251-252
CBF	230
CF	231-232
CJCV	113
CK	256
CR123A	116
CR2	116
CR-20	58
CS	43-44, 47-52
CSPB	52
CSS	43-46, 49-52
CSSC	51
DK	109
DRA	110
DRT	110
EF	182
EM	115
EX	131-134, 147-154
EXEF	131-134, 143-144, 149-154
EXEG	153
EXH	171-176, 179-182
EXHF	171-174, 177-182
EXP	131-136, 149-154
EXPE	131-134, 137-138, 149-154
EXPF	131-134, 141-142, 149-154
EXW	131-134, 139-140, 149-154
EXWF	131-134, 145-146, 149-154
FC	205-212, 217-220
FC-BK	218
FCC	219-220
FCK	220
FCW	205-206, 213-220
FW	218
GDH	109
HCS	170
HD	195-198
HDMIC • HDMIIT	114
HEN	189-190
HIT	187-188
HY	183-186
HYC	185
HYCL	185
KPS	114
LC	15-18, 27-28, 31-36
LCE	15-18, 29-36

Series	Page
LCS	15-18, 23-26, 31-36
LCSC	36
LCT	15-22, 31-36
LCTP	35
LD • LDN	101-102
MCG	203-204
MG-1	204
MR	68, 115, 232
MS	221-230
MSC	229
MSCL	229
MT	111, 256
MT-3N	153, 182
MX	117-120, 127-130
MXA	117-120, 125-126, 129-130
MXB	117-120, 123-124, 129-130
MXF	117-122, 129-130
NMG	108
PF	69-76
PFE	77-78
PFF	79-82
PFRF	68, 76
PH-88	218
PJR • PJS • PJCV	114
PKB	258
PMF	259-261
PS	53-56
RM	267
RMW	265-266
RPI	195-196, 199-200
RS	193
RSP	268
SIB	100, 130
SJ-P	194
SSK	257-258
STP	58
STPS	57
SU	105-106
SW • SW-N • SW-T	103-104
T-600	112
T-700	112
TB	194
TC	193
TD	233-234
TL	230
TLW	154
TMC	263-264
TPS	111
TW • TWN	95-100
TWF	83-88
TWS	89-94, 98-100
TWSC	99
UCG	201-202
UG-1	202
USBC	113
V	262
VF	262
WC	37-42
WCPB	42
WH	7-14
WM	107
WP	59-68
WPMB	67
WSC	1-4

# COMPANY PROFILE

**COMPANY NAME** TAKACHI ELECTRONICS ENCLOSURE CO., LTD.  
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**ESTABLISHED** JULY 1, 1979

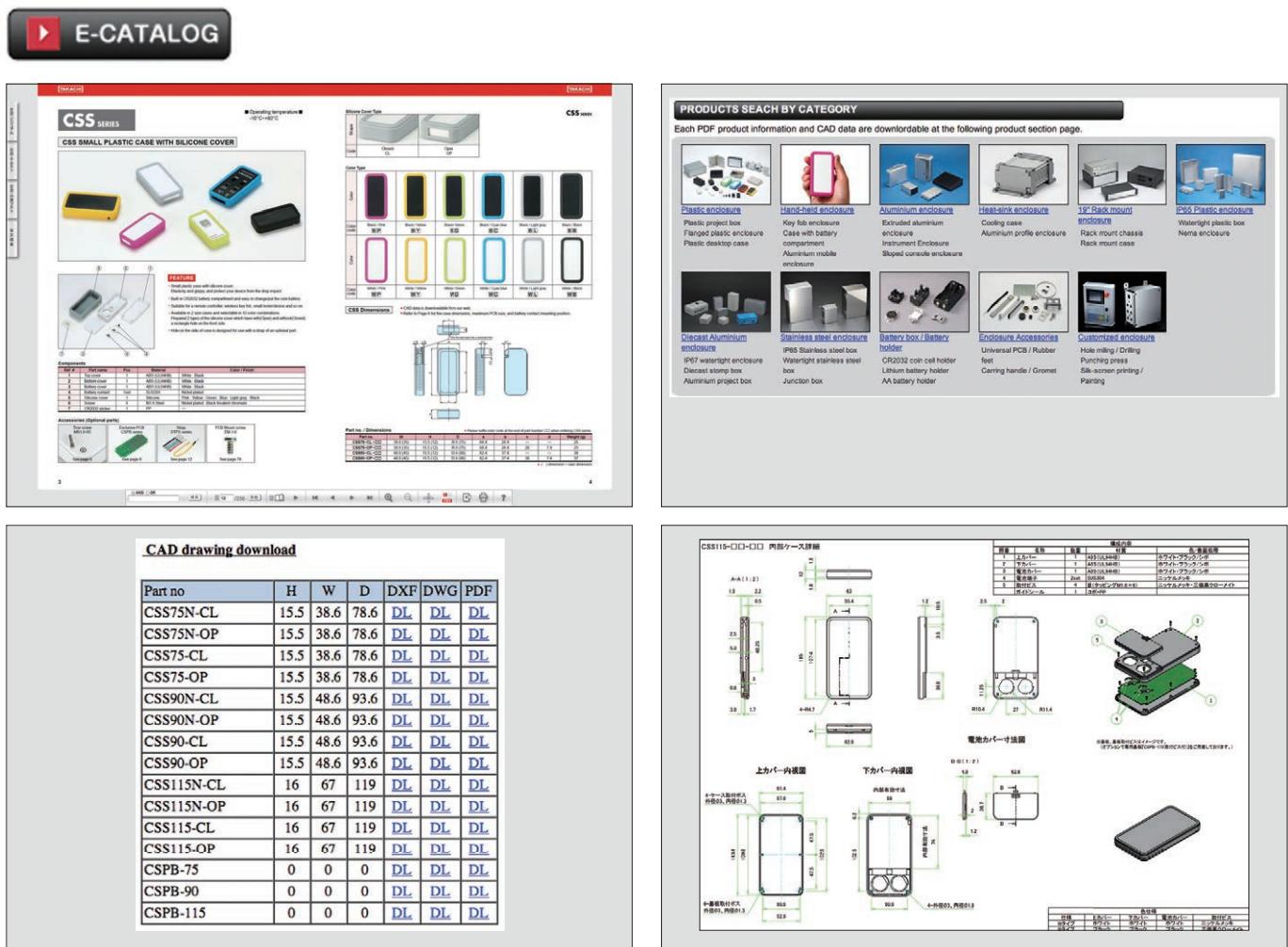


## TAKACHI website available

Our range of products are available in categorized webpages and PDF format for easy viewing.

DXF, DWG and PDF drawings are available for download.

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TAKACHI ELECTRONICS ENCLOSURE CO., LTD.

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