

# 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.





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

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

Components

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

Accessories (Optional parts)



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



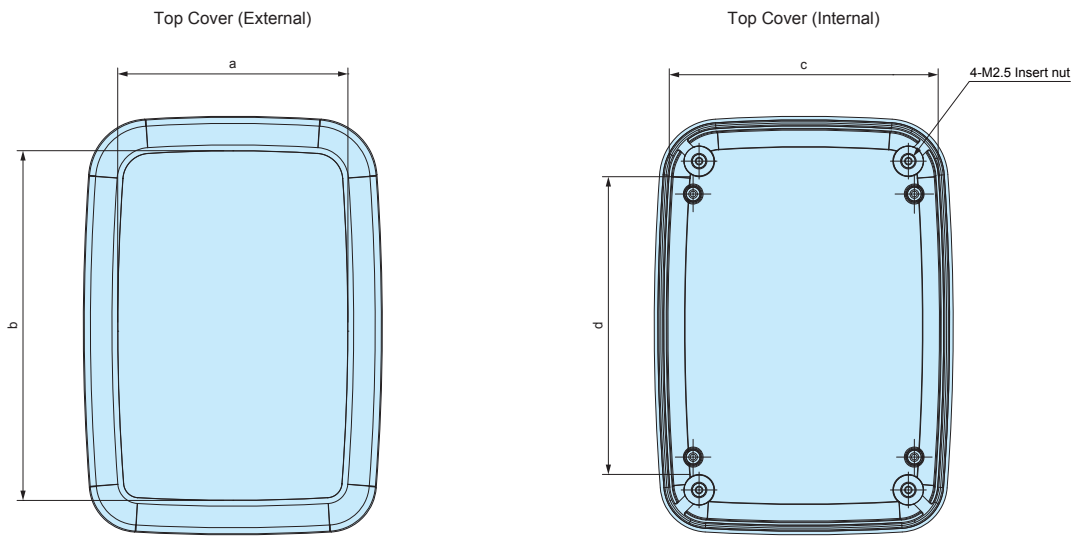
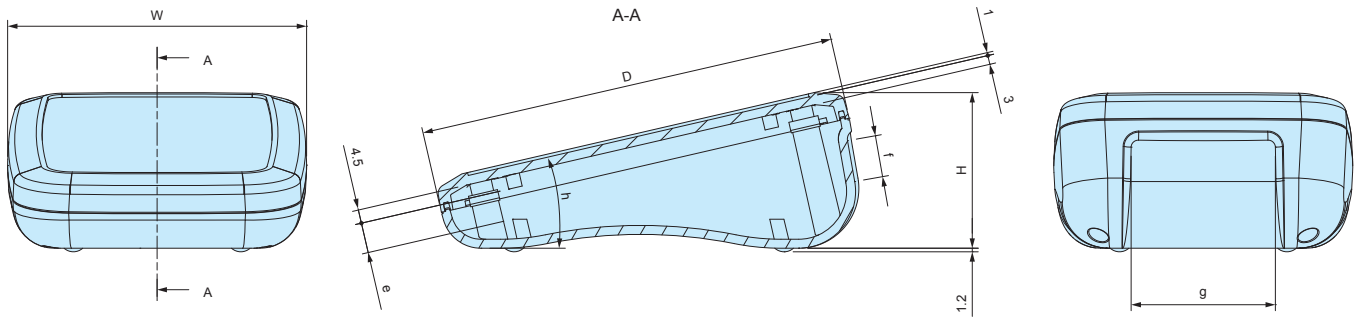
Cable gland  
See cable gland pages



TORX screw MR series  
See page EM • MR-1

WSC dimensions

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

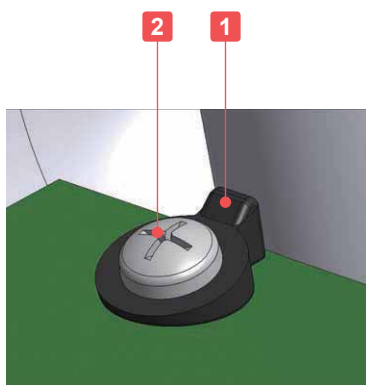


Product no. / Dimensions

Product no.		Dimensions										Face angle	
● Off white	● Black	W	D	H	a	b	c	d	e	f	g	h	
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



- 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



# PROTECTION CLASS (IP RATING)











**IP67**  
is

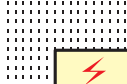

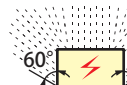
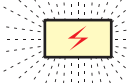
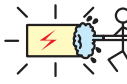

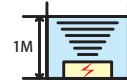

● IEC60529 standard is a system for classifying the degrees of protection provided by the enclosures of electrical equipment, such as against dust and water.

**IP**      

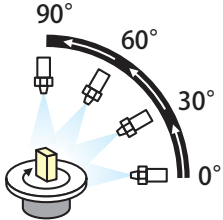
## First digit : Solid particle protection

## Second digit: Liquid ingress protection

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

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

**69K**



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

### A point of note for Waterproof Boxes

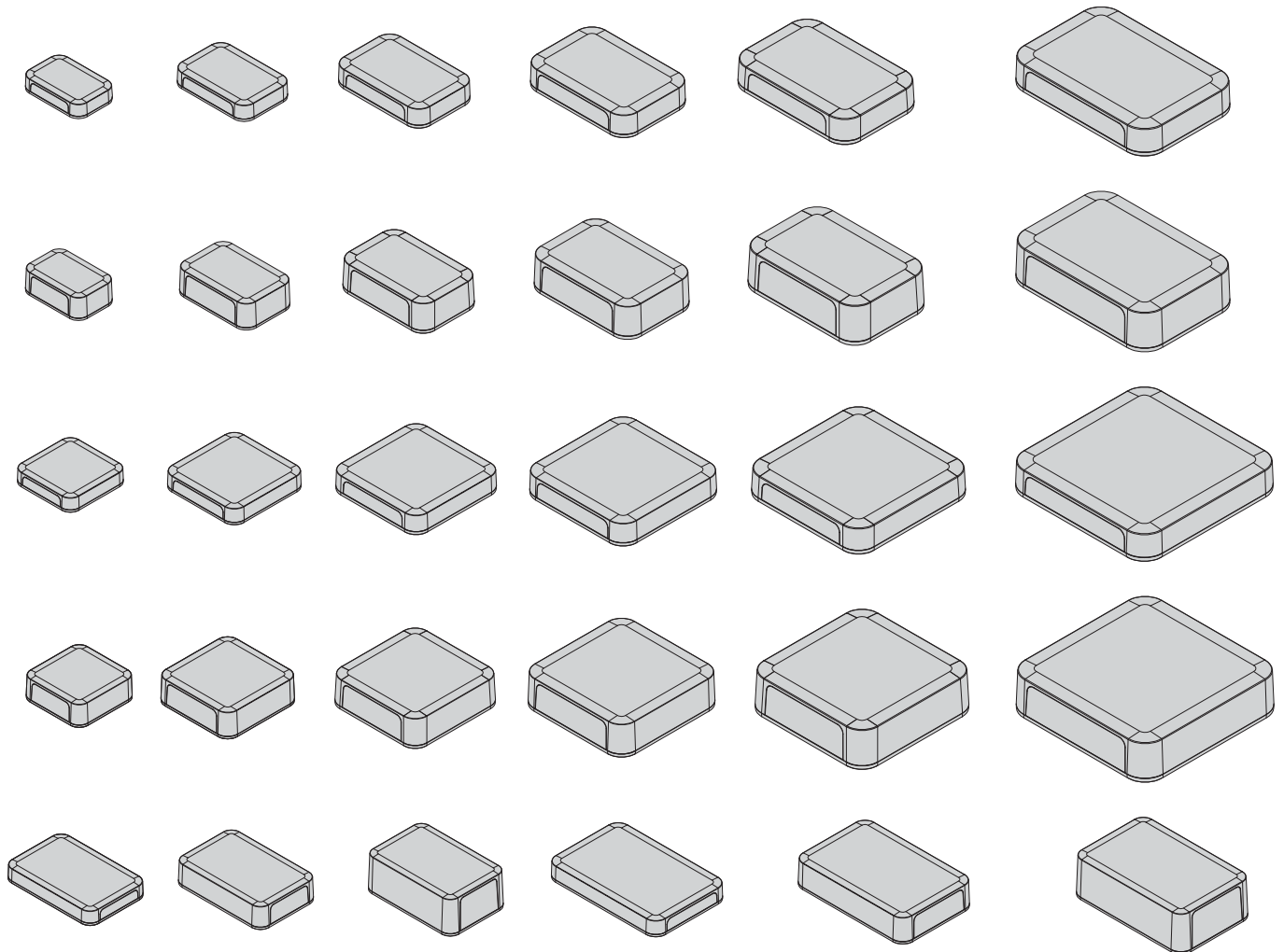
- For outdoor use, direct sunlight will accelerate the degradation of the box. For more information, please see page Outdoor Use - 1.
- For customers planning to attach their own original mounting brackets onto the waterproof boxes, it is recommended to mill larger holes with enough clearance to attach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

# PF SERIES FLAT NETWORK CASE

**Huge selection, 36 different sizes are now available.**

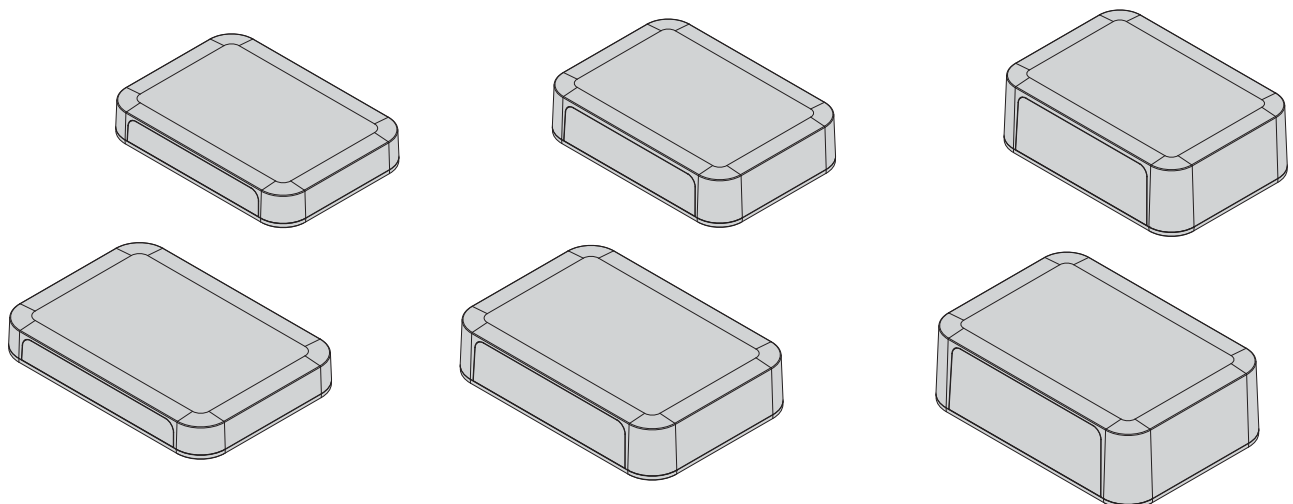
**Suitable for IOT device, Data transmitter and receiver, access point.**

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



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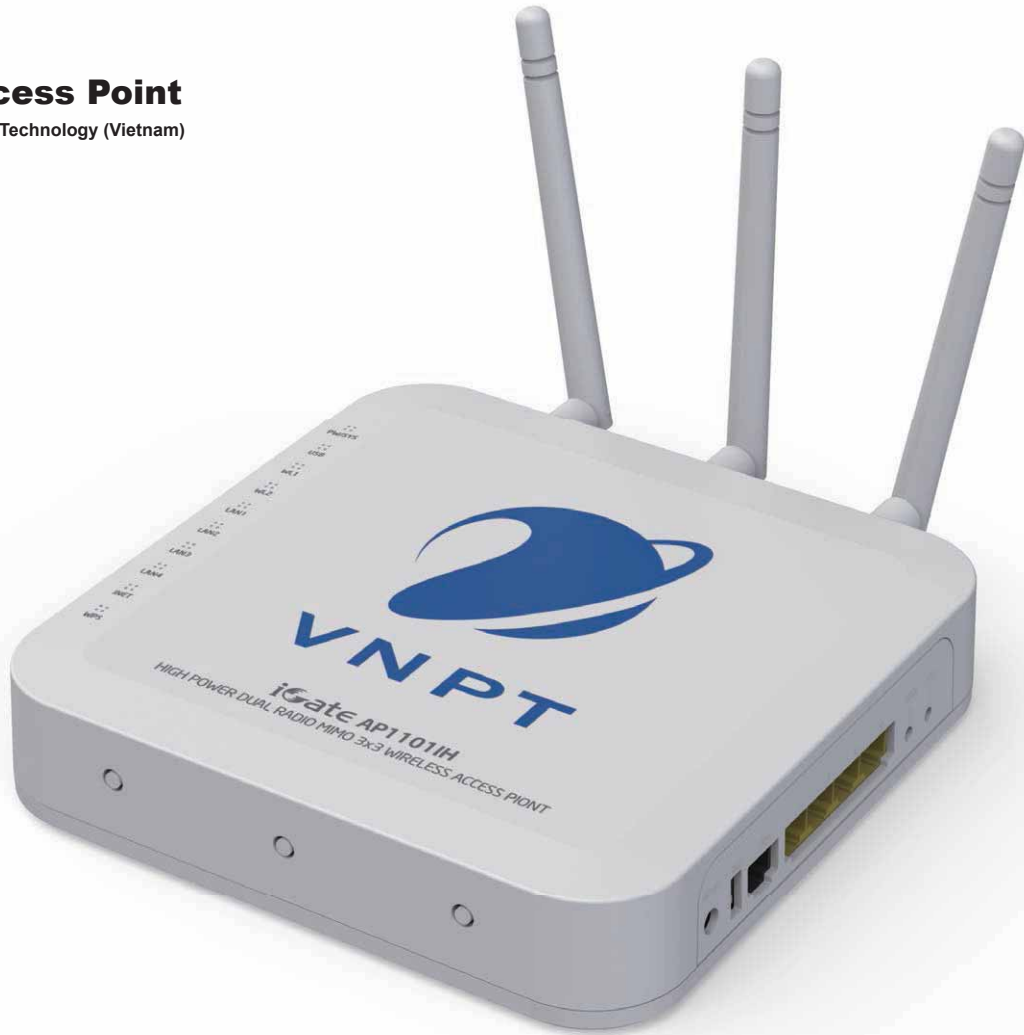
## New sizes



# APPLICATION EXAMPLE

## WiFi Access Point

Product by VNPT Technology (Vietnam)



## USB Power Charging Hub + Data Hub

Product by MtT-planning (Japan)



Possible to power charging while transferring data.

## 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

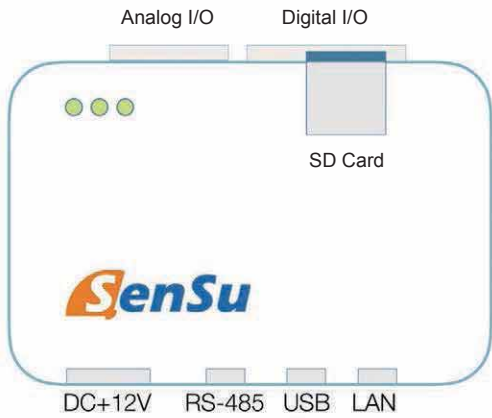
Product by Benchmark Electronic Systems (India)



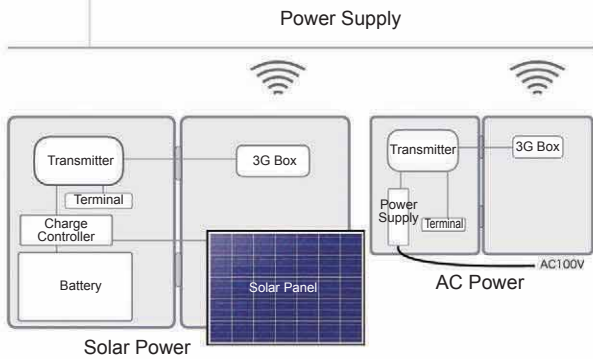


# "SenSu" COMMUNICATION UNIT with SENSOR

Product by DATA TECHNOLOGY (Japan)



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



Exclusive Interface



USB



LAN

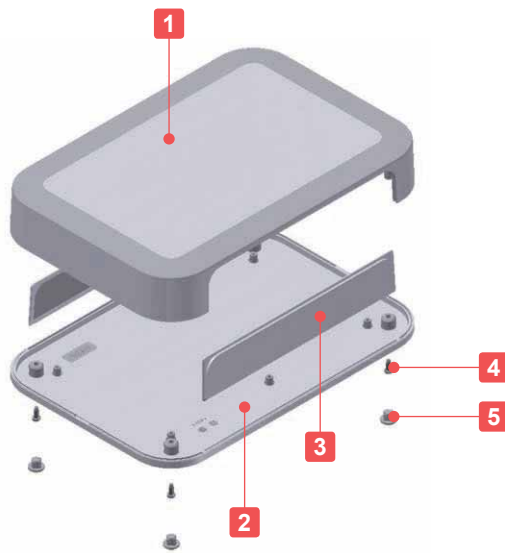


RS-485

# WIRELESS NETWORK DATA LOGGER

Product by SensingWinTech (Japan)





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.

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

Accessories (Optional parts)



Tapping standoff TPS series  
See page TPS · MT-1



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



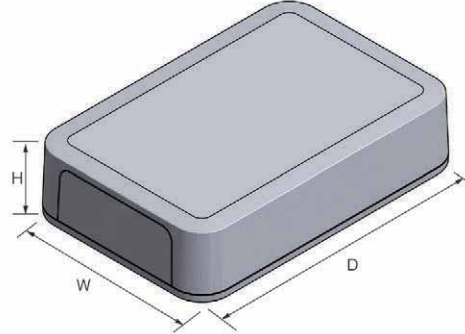
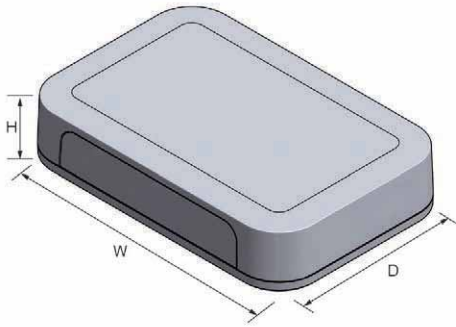
TORX screw MR series  
See page EM · MR-1



Suspension bracket WM series  
See page WM-1



Neodymium magnet NMG series  
See page NMG-1



Tilt leg TLW series  
See page TLW-1

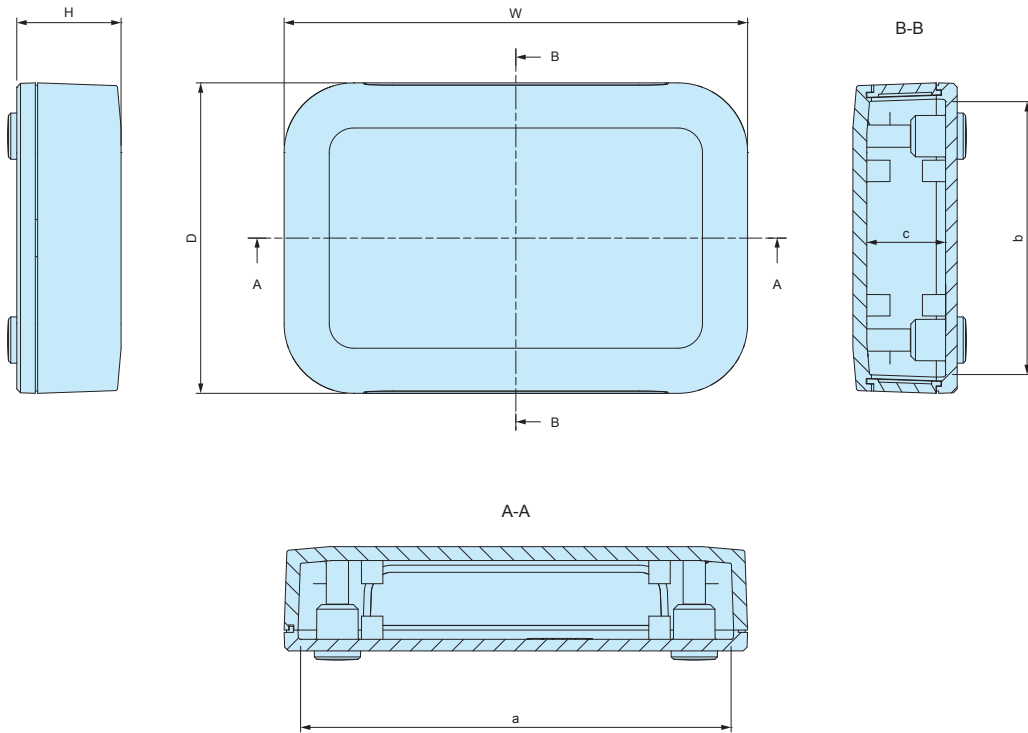
Product no. / Dimensions

※ 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
<b>NEW</b> PF28- 5-20W	<b>NEW</b> PF28- 5-20D	280	45	200	M3-8 x 4 pcs	564.1
<b>NEW</b> PF28- 7-20W	<b>NEW</b> PF28- 7-20D	280	65	200	M3-8 x 4 pcs	618.4
<b>NEW</b> PF28- 9-20W	<b>NEW</b> PF28- 9-20D	280	90	200	M3-8 x 4 pcs	709.2
<b>NEW</b> PF32- 5-23W	<b>NEW</b> PF32- 5-23D	320	45	225	M3-8 x 4 pcs	697.1
<b>NEW</b> PF32- 7-23W	<b>NEW</b> PF32- 7-23D	320	70	225	M3-8 x 4 pcs	782.1
<b>NEW</b> PF32-10-23W	<b>NEW</b> PF32-10-23D	320	100	225	M3-8 x 4 pcs	899.8

**PF dimensions**

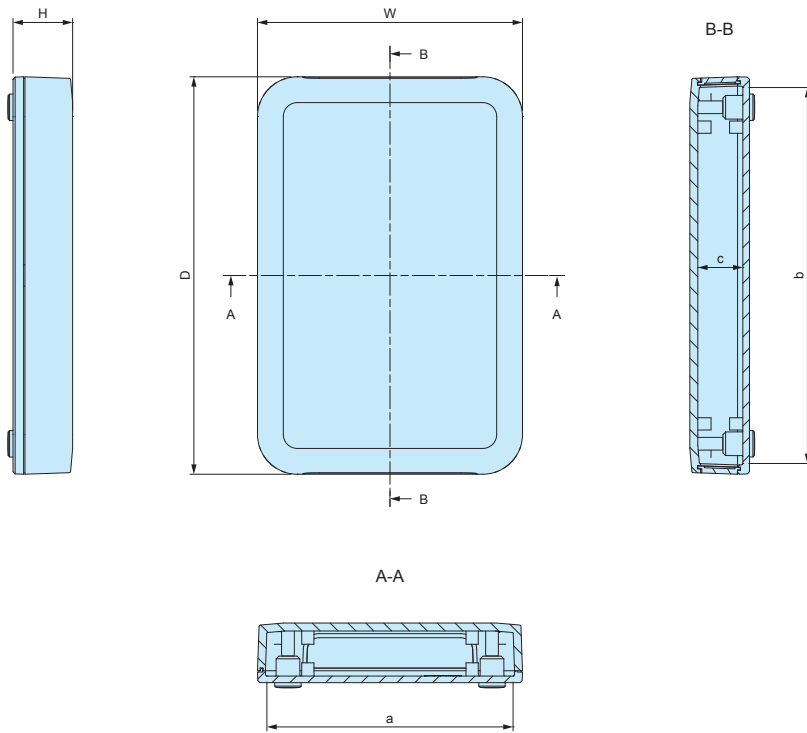
■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.



※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



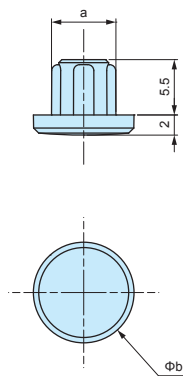


Product no.	W	H	D	a	b	c
PF10-2-15□	100	22.5	150	92	141	17
PF10-4-15□	100	35	150	91	140	29.5
PF10-6-15□	100	55	150	90	139	49.5
PF13-3-19□	125	25	190	117	181	19.5
PF13-4-19□	125	40	190	116	180	34.5
PF13-6-19□	125	60	190	115	179	54.5

**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



EMC  
Shielding  
Effects



- 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 TPS • MT-1



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



TORX screw MR series  
See page EM • MR-1



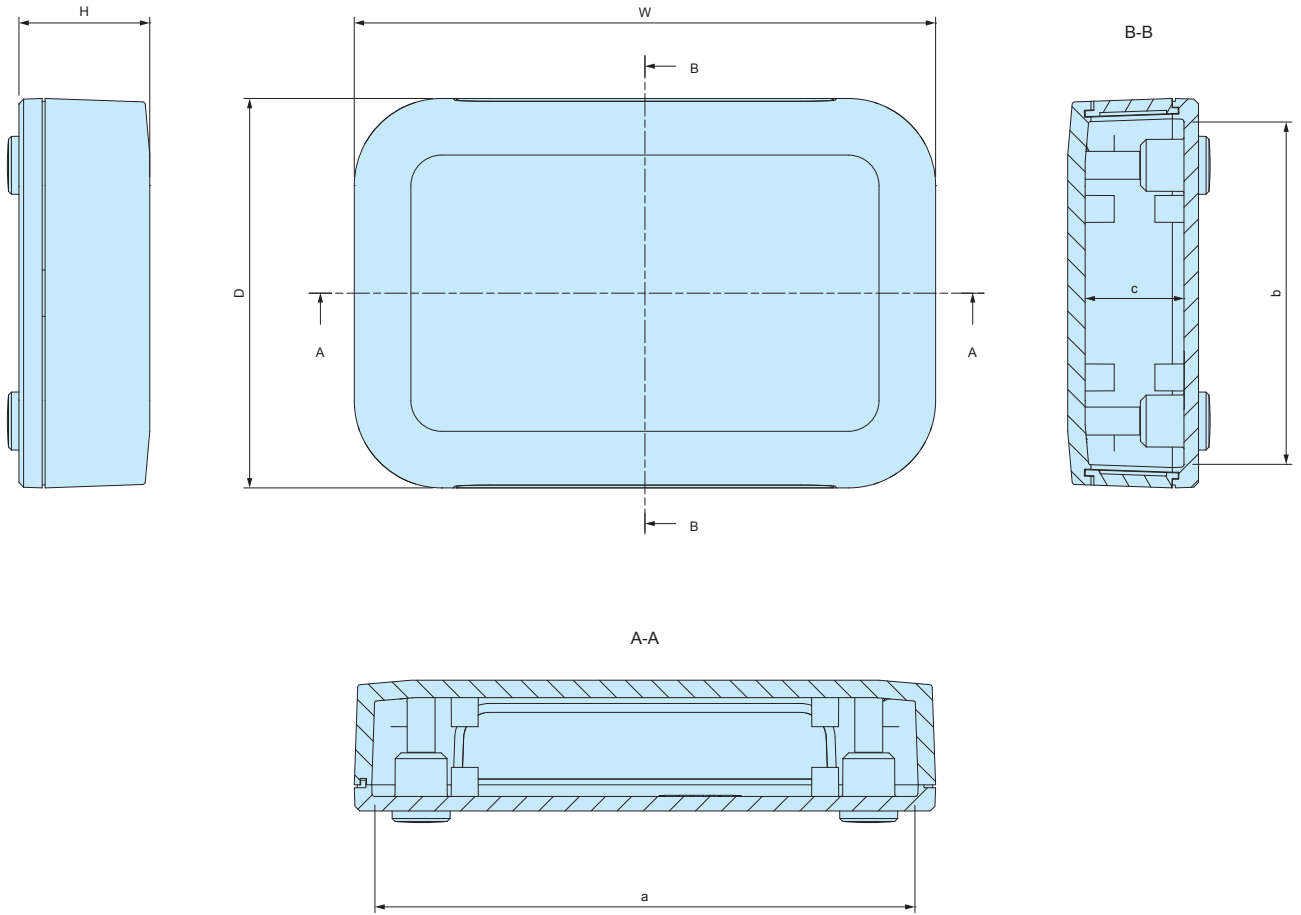
Suspension bracket WM series  
See page WM-1



Tilt leg TLW series  
See page TLW-1

**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		
<b>NEW</b> PFE13-4-9W	125	40	85	116	75	34.5	M2.5-8 x 4 pcs	114
<b>NEW</b> PFE15-3-10W	150	30	100	142	90	24	M2.5-8 x 4 pcs	152
<b>NEW</b> PFE15-5-15W	150	45	150	141	139	39	M2.5-8 x 4 pcs	244.5
<b>NEW</b> PFE20-4-13W	200	40	135	191.5	124.5	34	M3-8 x 4 pcs	274.5

# 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)



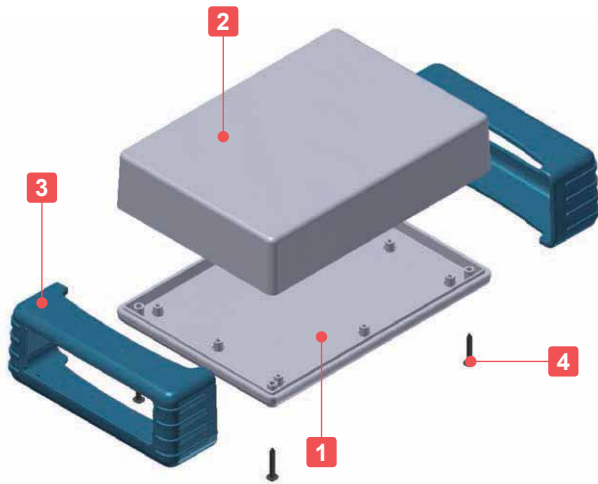
# TWS SERIES

# PLASTIC ENCLOSURE with SILICONE PROTECTOR



### Technical Data

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



- 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.
- Enclosure is in B (Black), G (Light gray), and W (Off-white) model (off-white color type uses ABS UL94V-0 material).
- Plastic case and protective silicone with screw fastening.

### 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 LD • LDN-1 ~ LD • LDN-2



Tapping standoff TPS series  
 See page TPS • MT-1



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

Color Type

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

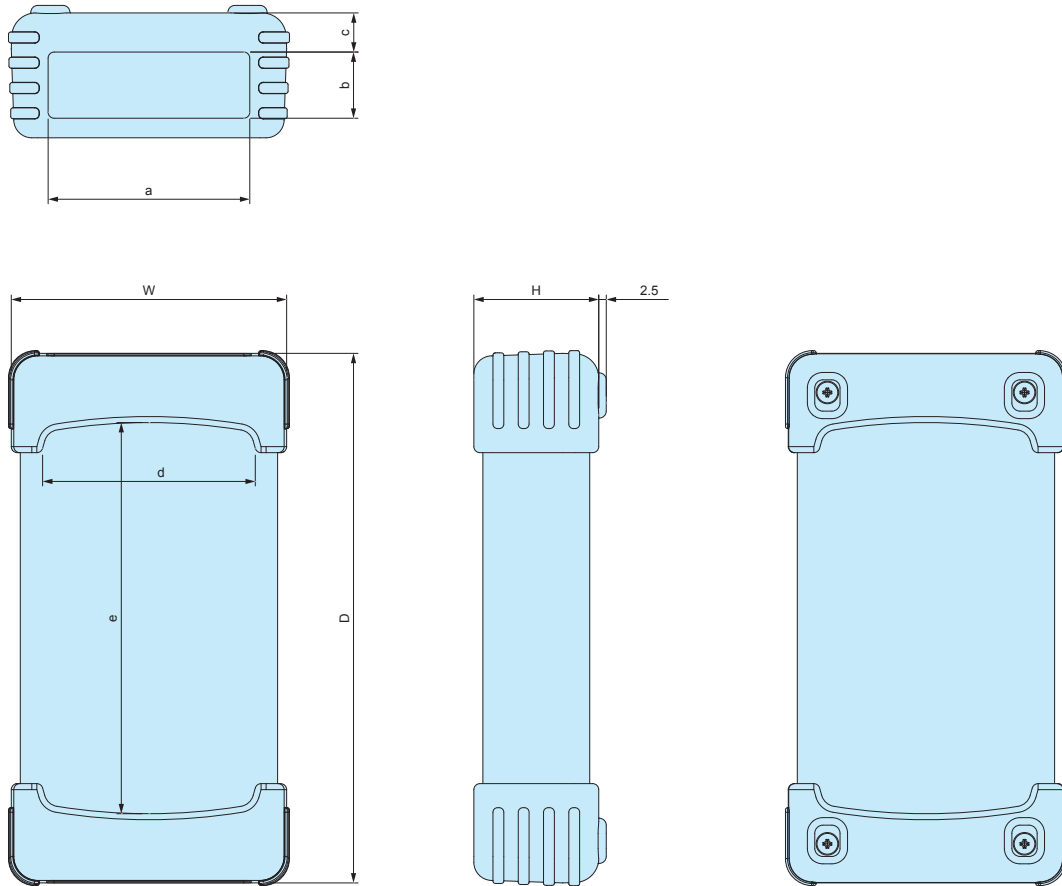
■ Please suffix color code at the end of the product number.

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.



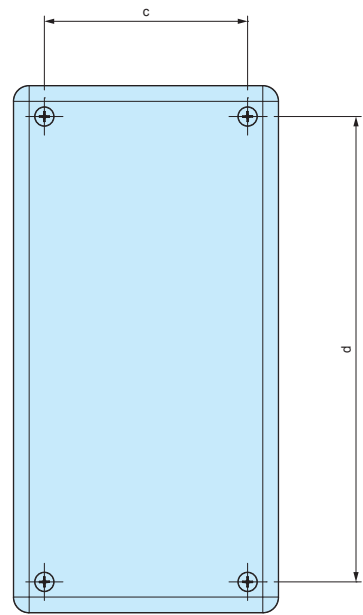
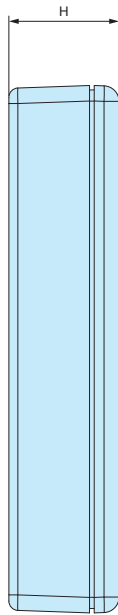
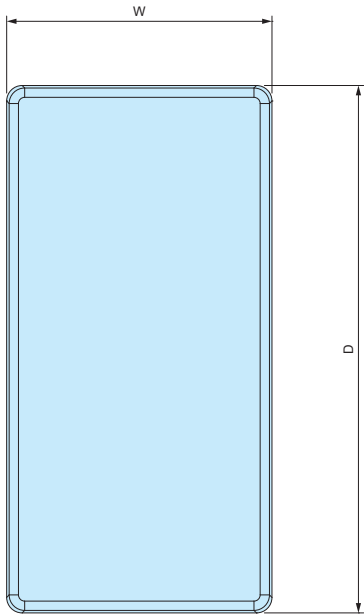
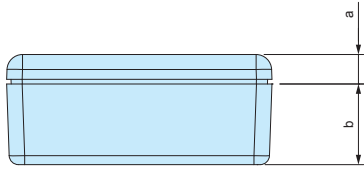
■ Please suffix color code at the end of the product number.

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.

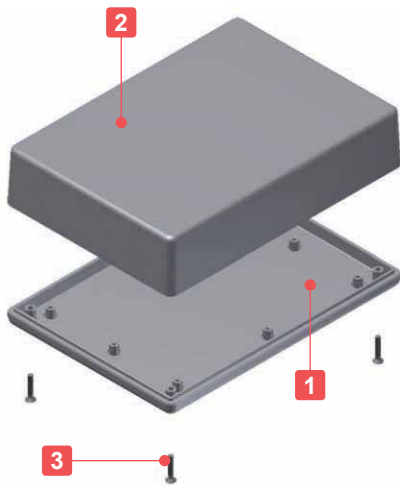


Please suffix color code at the end of the product number.

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

**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-0 / Off-white
2	Bottom base	1	TW : ABS UL94HB / Light gray • Black
			TWN : ABS 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 SIB-1



Suspension bracket WM series  
 See page WM-1



Neodymium magnet NMG series  
 See page NMG-1



**SERIAL FLASH PROGRAMMER**

Product by Minato Holdings (Japan)



Snap-in battery box LD • LDN series  
 See page LD • LDN-1 ~ LD • LDN-2



PCB mounting screw EM-2.3  
 See page EM• MR-1



Tapping standoff TPS series  
 See page TPS• MT-1

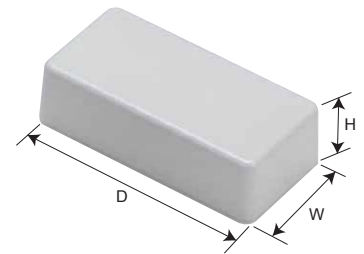


**SURGE PROTECTION DEVICE CHECKER**

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

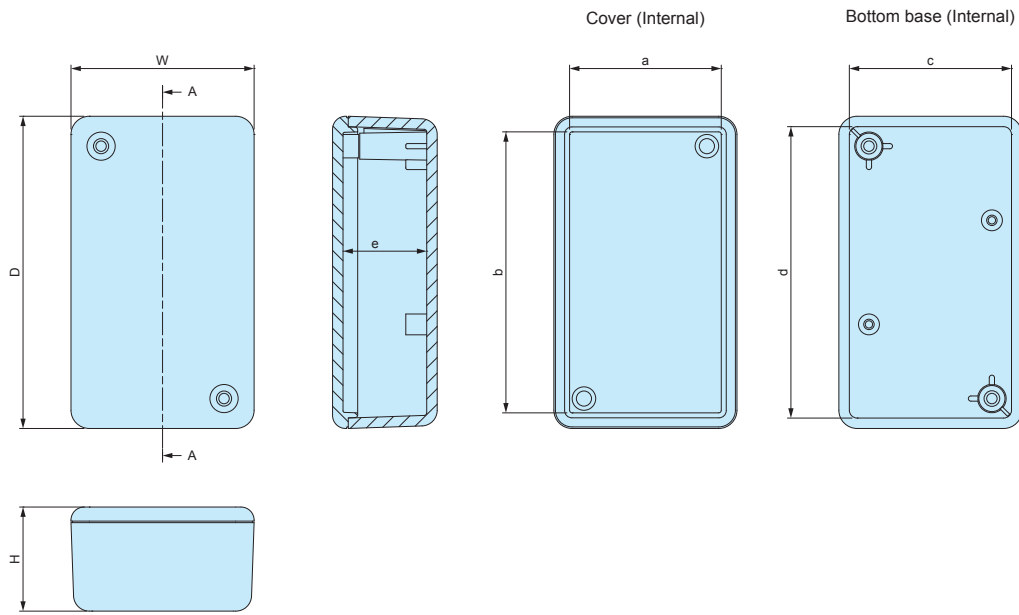
**TWN series (ABS UL94V-1 • UL94V-0)**
**Product no. / Dimensions**

Product no.	W	H	D	Screw	UL class	Weight (g)
TWN 4-2- 5W	35	20	50	M2.6-12 × 2 pcs	UL94V-0	16.5
TWN 4-2- 6W	35	20	60	M2.6-12 × 2 pcs	UL94V-0	18
TWN 4-2- 8W	40.3	20	80.3	M2.6-12 × 2 pcs	UL94V-0	26
TWN 5-2- 7W	50	15	70	M2.6-12 × 4 pcs	UL94V-0	24.5
TWN 5-3- 7W	50	27.5	70	M2.6-12 × 4 pcs	UL94V-0	33
TWN 5-4- 7W	50	40	70	M2.6-12 × 4 pcs	UL94V-0	39.5
TWN 5-3- 9W	45	25	90	M3-16 × 4 pcs	UL94V-0	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**

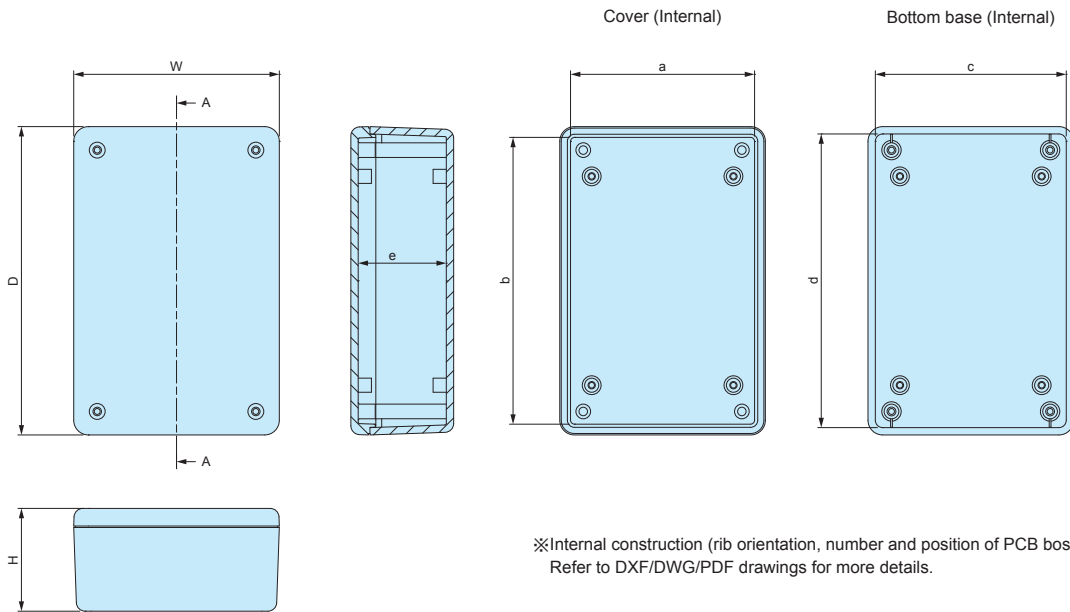
■ Drawings below are reference examples only.  
DXF/DWG/PDF drawings available on our website.

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



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

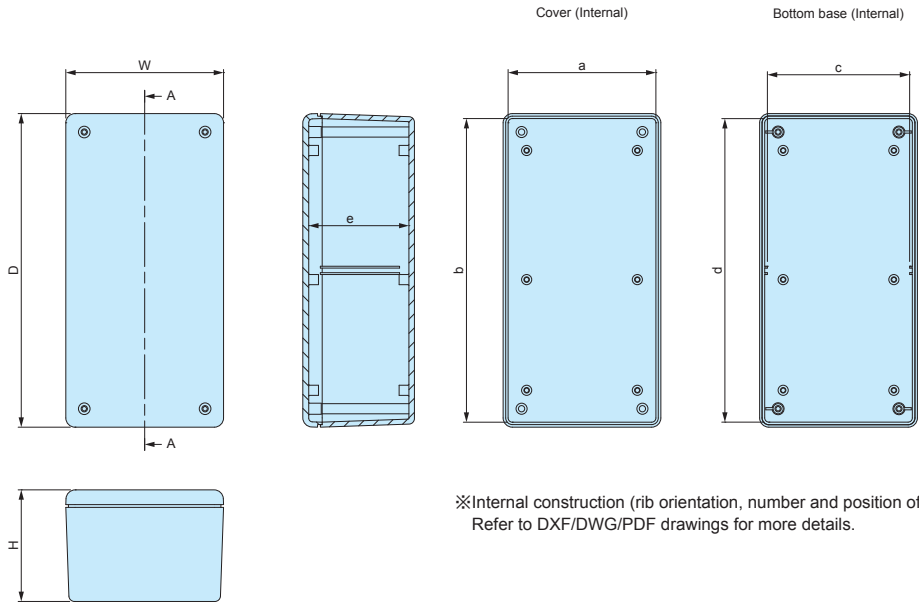


TW / TWN5-3-9 • TW5-3-10

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)



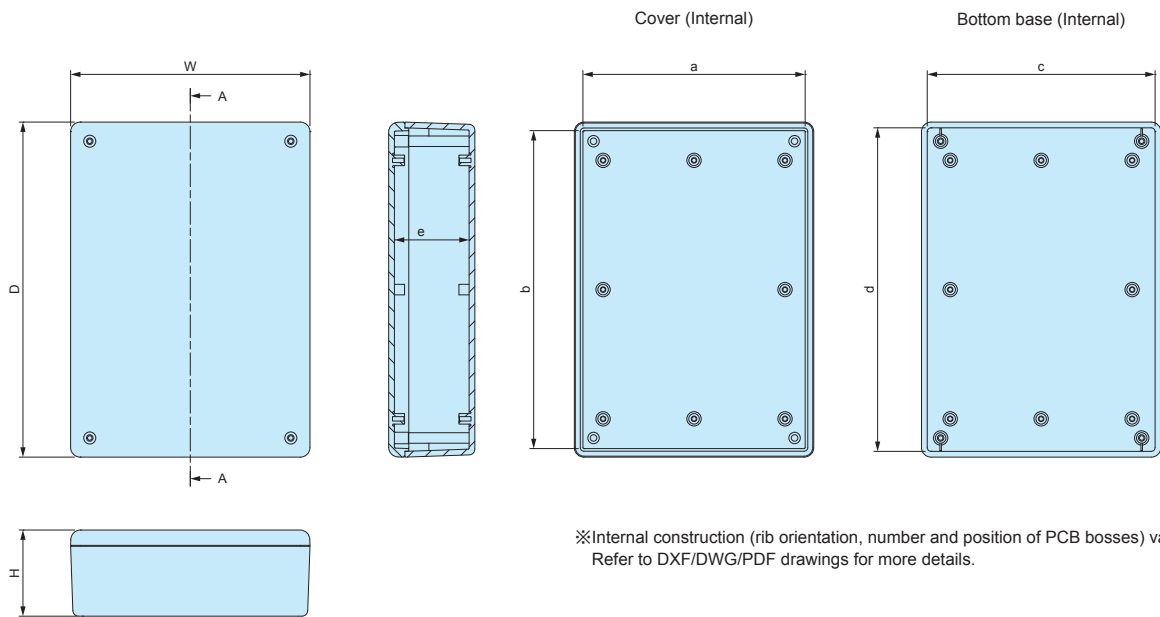
※Internal construction (rib orientation, number and position of PCB bosses) vary by model  
Refer to DXF/DWG/PDF drawings for more details.

Product no.	W	H	D	a	b	c	d	e
TW • 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)

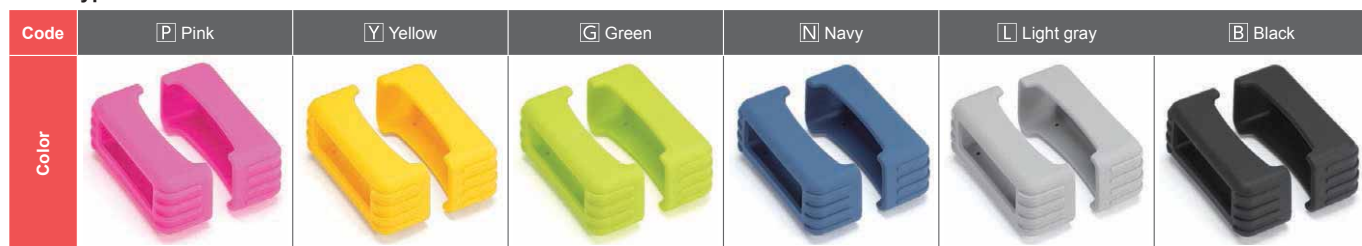


※Internal construction (rib orientation, number and position of PCB bosses) vary by model  
Refer to DXF/DWG/PDF drawings for more details.

Product no.	W	H	D	a	b	c	d	e
TW • 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

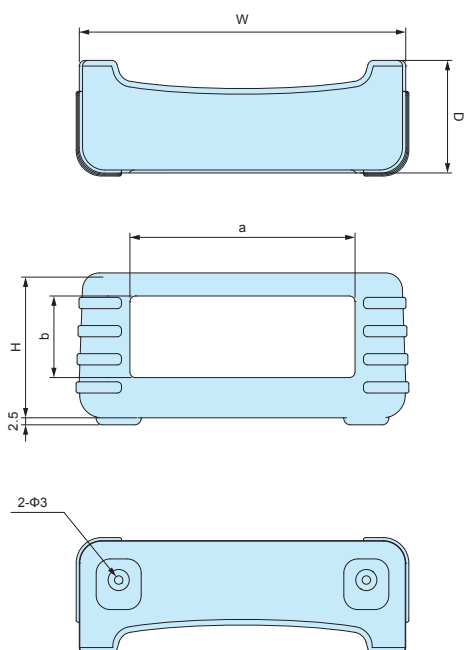
**TWSC SERIES SILICONE PROTECTOR for TW•TWN**

Color Type



- 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.

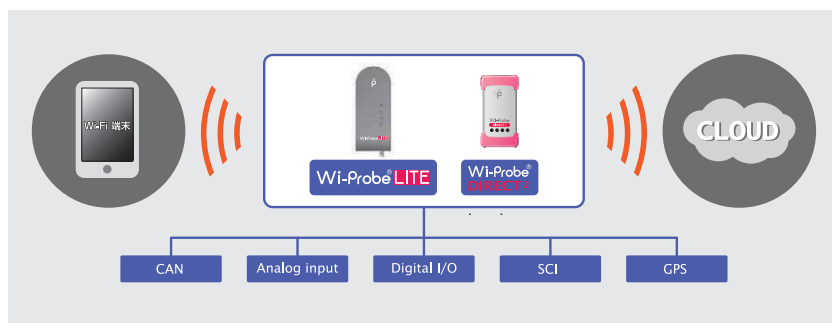
■ DXF/DWG/PDF drawings available on our website.



**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



Application example

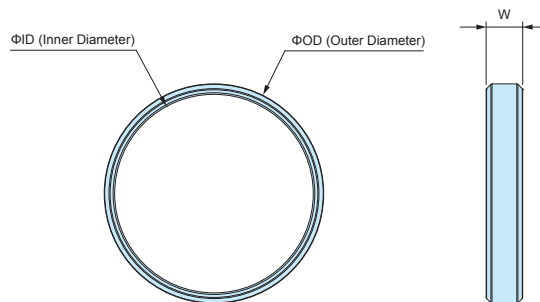


- Silicone band designed to fit TW & TWN series. Refer to the table below for size suitability.
- Silicone band provides both shock resistance and non-slip grips for the TW & TWN enclosure.

Color Type

Code	R Red	O Orange	Y Yellow	G Green	C Cyan	N Navy	L Light gray	B 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

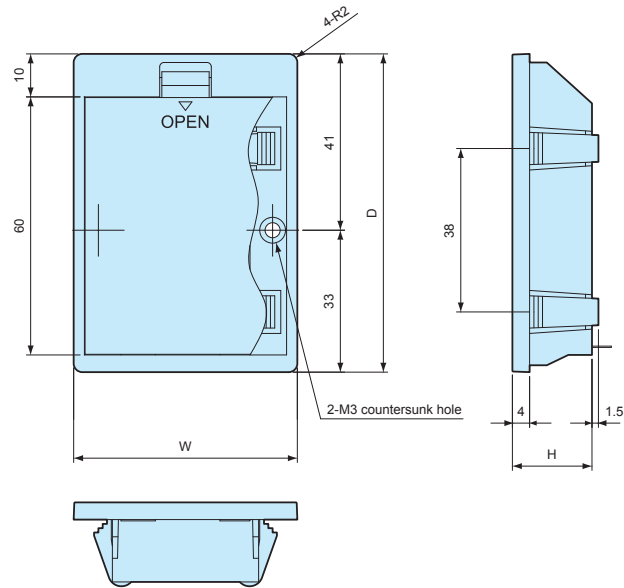
**LD • LDN SERIES**

**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

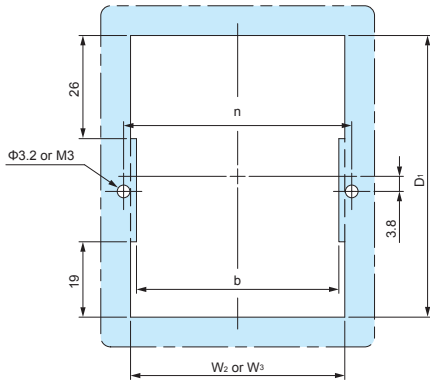
※ See website for more details

**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



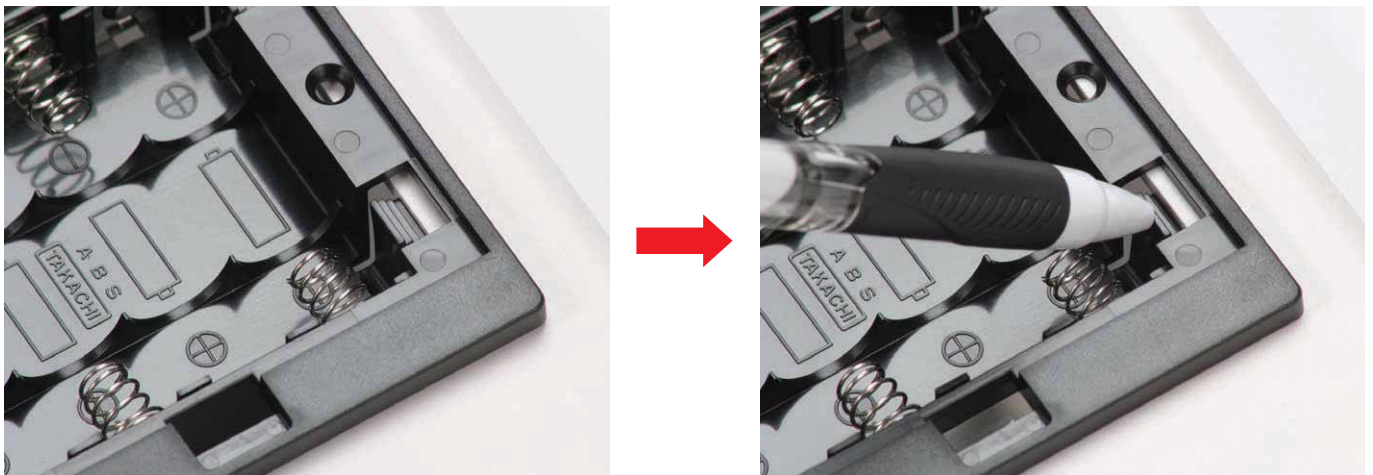
Mounting hole dimension

Product no.	W <sub>2</sub> (thickness=2.5mm)	W <sub>3</sub> (thickness=3.0mm)	D1	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<sub>2</sub> or W<sub>3</sub> 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



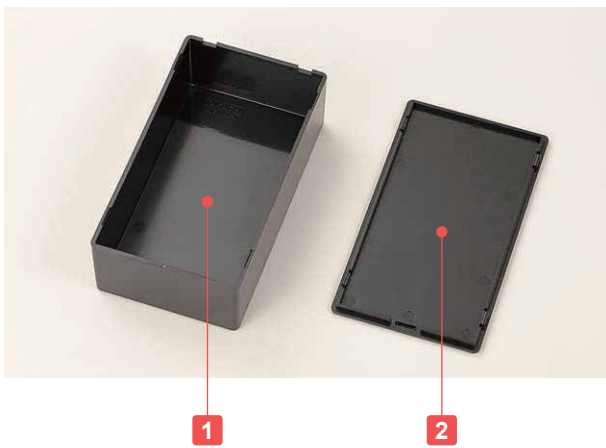
Contact us with your drawings.

E-mail : [sales@takachi-el.co.jp](mailto:sales@takachi-el.co.jp)





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 heat-resistant / Black
2	Cover	SW : ABS UL94HB / Light gray • Black
		SW-N : ABS UL94V-1 : UL94V-0 / Gray
		SW-T : ABS heat-resistant / Black

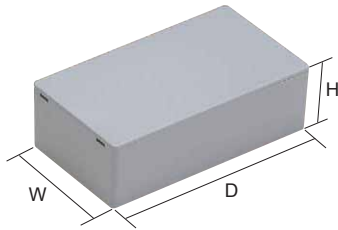
Accessories (Optional parts)



Adhesive standoff T-600, 700, ASR  
See page Standoff-1

Neodymium magnet NMG series  
See page NMG-1

**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)**

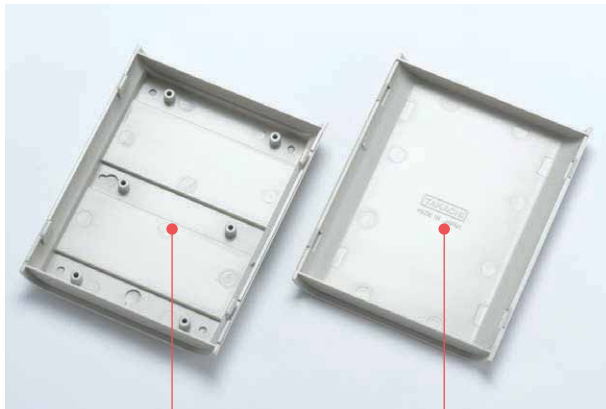
**Product no. / Dimensions**

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



**Technical Data**

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



2

1

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

**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 TPS • MT-1

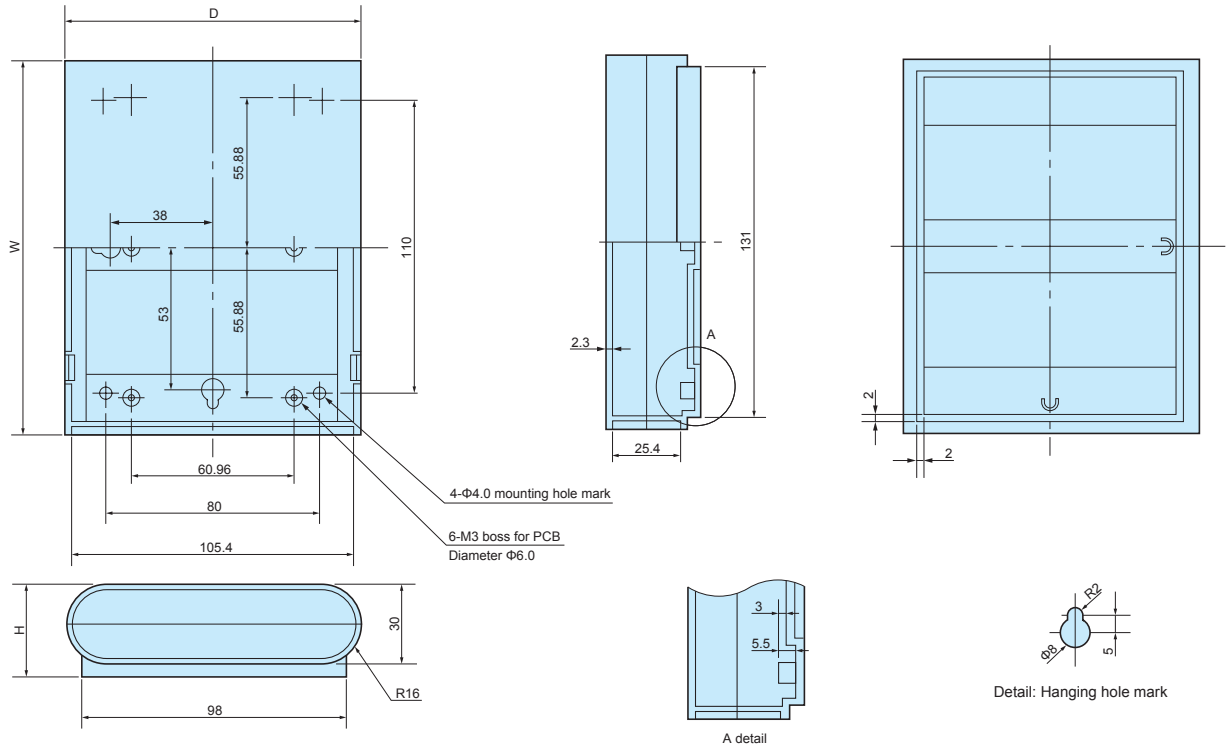


PCB mounting screw EM series  
 See page EM • MR-1

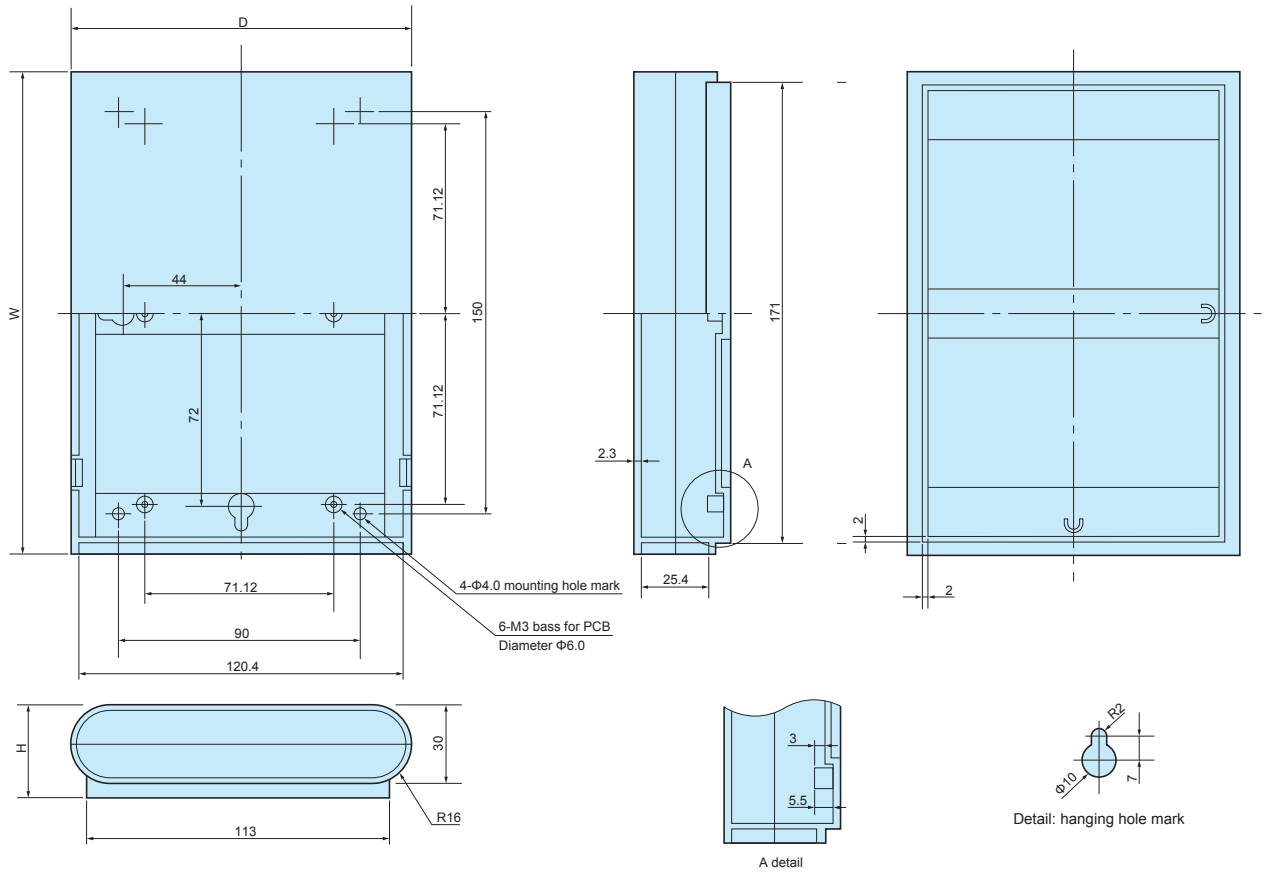
SU dimensions

DXF/DWG/PDF drawings available on our website.

SU-140



SU-180



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

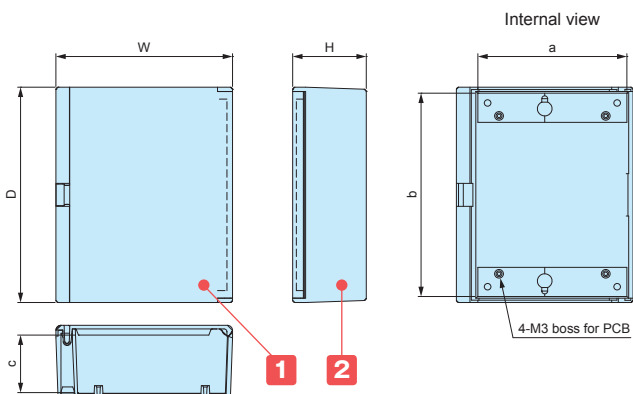


OP dimensions

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

Technical Data

Operating temperature: -10°C ~ +60°C



- Plastic case with hinged door.
- General purpose case for desk-top, wall-mount, and so on.

Components

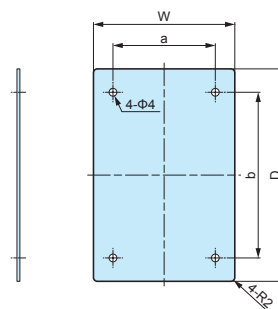
No.	Part name	Material	Color / Finish
1	Top cover	ABS UL94HB	Light gray • Black
2	Base	ABS UL94HB	Light gray • Black

Product no. / Dimensions

Product no.		Dimensions						Weight (g)
● Light gray	● Black	W	H	D	a	b	c	
OP-125G	OP-125B	100	45	125	81.2	116.6	35.7	130
OP-150G	OP-150B	120	50	150	101.2	141.6	40.7	185
OP-180G	OP-180B	145	55	180	128.8	174	43	275

Accessories (Optional parts)

OPP mounting plate



Product no. / Dimensions

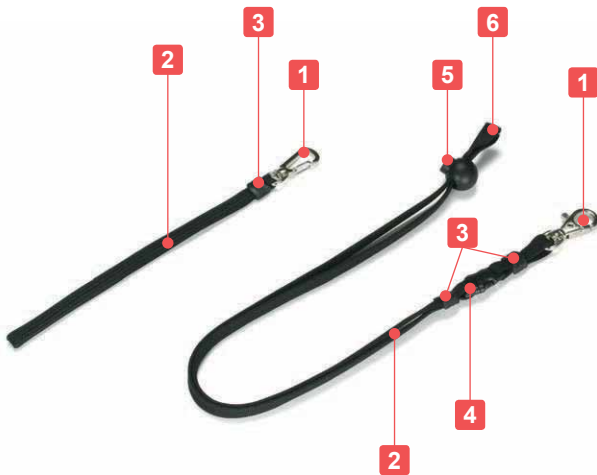
Product no.	W	D	a	b	Material	Color / Finish	Suitable box
OPP-125	72.5	109	52.5	85	Aluminium A1050P t = 1.5	Unfinished	OP-125
OPP-150	92.5	134	72.5	110	Aluminium A1050P t = 1.5	Unfinished	OP-150
OPP-180	115.5	164	98	140	Aluminium A1050P t = 1.5	Unfinished	OP-180

■ Included screw : M3-6 Steel pan head tapping • Trivalent chromate x 4 pcs



STP SERIES

STRAP



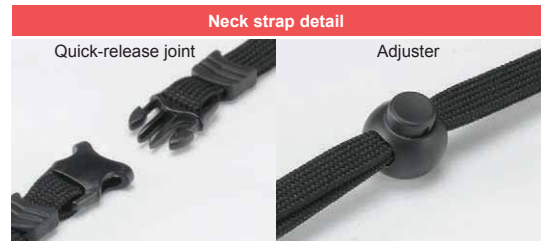
Wrist strap (STP-200)



Neck strap (STP-450)



- Strap with a metal hook
- Recommended to be used with CR key ring.



■ 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

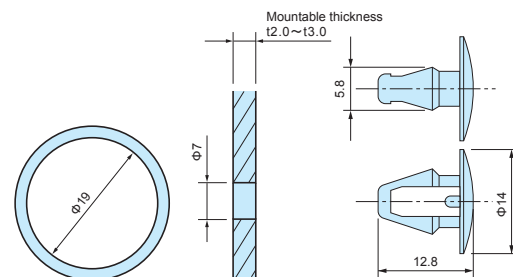
Product no.	Strap width	Strap length	Strap material	Cap material
STP-200	8	200	Nylon	Polyurethane x 1
STP-450	10	450	Polyester	Elastomer x 2

CR-20

KEY RING



- Hole milling is required for case installation.



Components

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

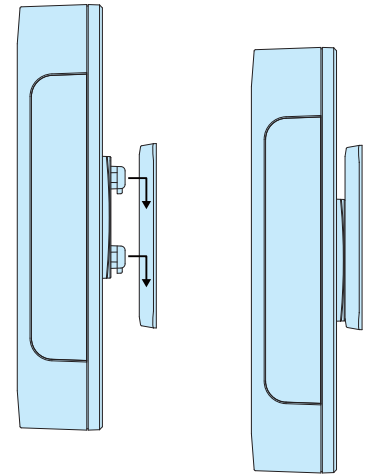
Product no. / Dimensions

Product no.	Ring $\Phi$	Installation hole	Mounting thickness
CR-20	$\Phi 19$	$\Phi 7$	t2.0 ~ t3.0

WM SERIES

SUSPENSION BRACKET

How to install

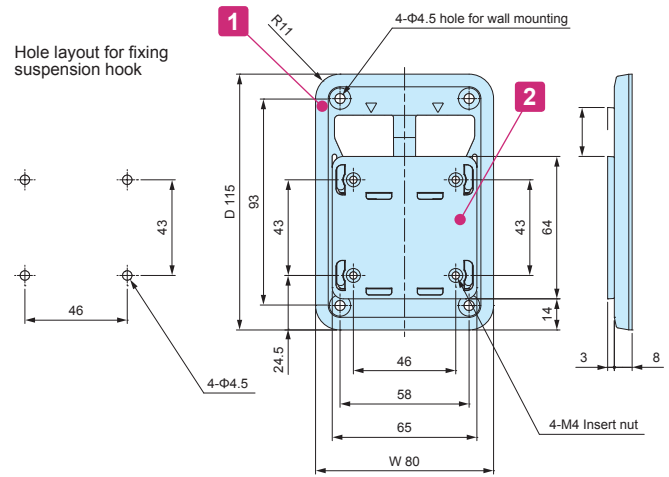
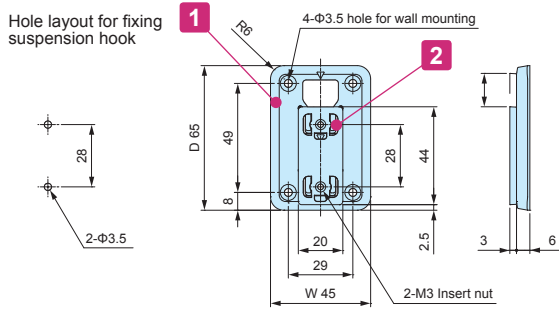


- Plastic wall mounting bracket. Easy attachment and removal.
- Large and small brackets are available.
- Applicable not only for the PF series, but also other plastic/metal enclosures with a panel thickness of 0.8 ~ 3.5mm.
- To attach the suspension hook onto the enclosure, hole milling is required.
- 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

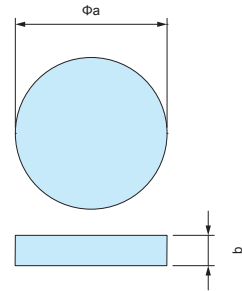
NEODYMIUM MAGNET



Round magnet



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



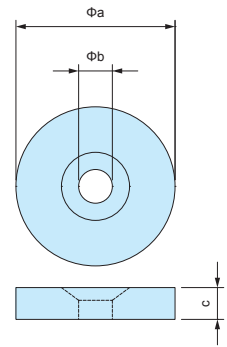
Components

Product no.	a	b	Weight (g)	Flus 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.



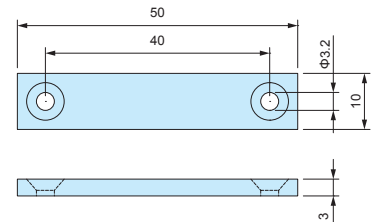
Components

Product no.	a	b	c	Countersunk size	Weight (g)	Flus 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



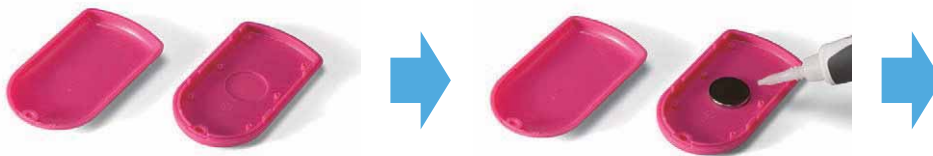
- Please fasten with a screw.



Components

Product no.	a	b	c	Countersunk size	Weight (g)	Flus 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.

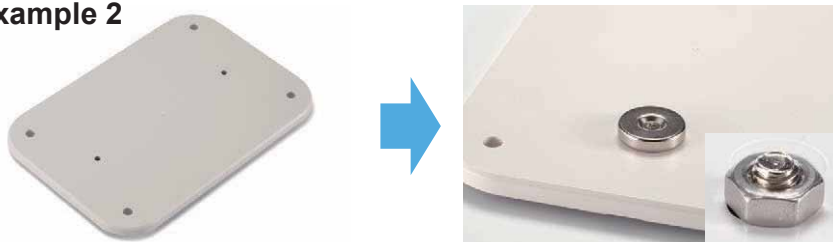


Make recessed pocket on the inside wall.

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.**



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.

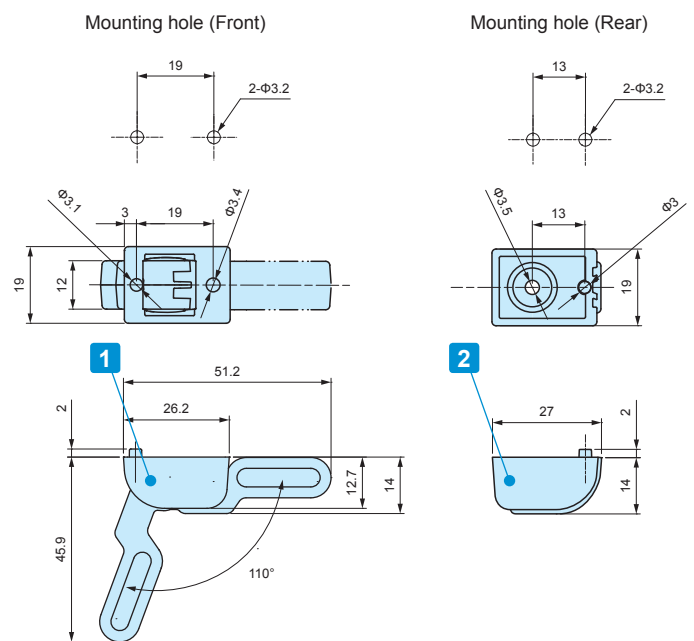
Components

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.

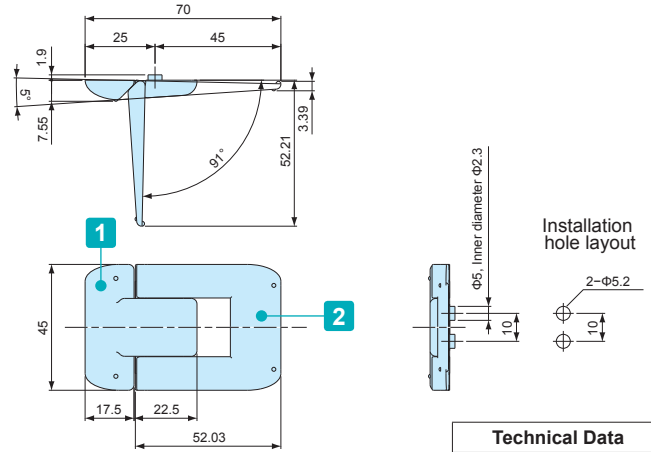
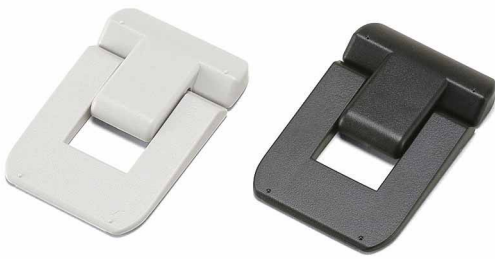
	Product no.	Color (plastic)	Color (TPE)
NEW	TLW-46BB	Black	Black
NEW	TLW-46NG	Navy	Gray
NEW	TLW-46LG	Light gray	Gray

- TLW tilt leg can be used in various applications.



**TI SERIES**

**TILT STAND**



Technical Data
Max load : 3kg

**Components**

No.	Part name	Pcs	Material	Color / Finish
1	Body	1	ABS UL94HB	Black • Light gray
2	Leg	1	ABS UL94HB	Black • Light gray
—	Screw (M3-6 Pan head tapping)	2	Steel	Trivalent chromate

**Product no.**

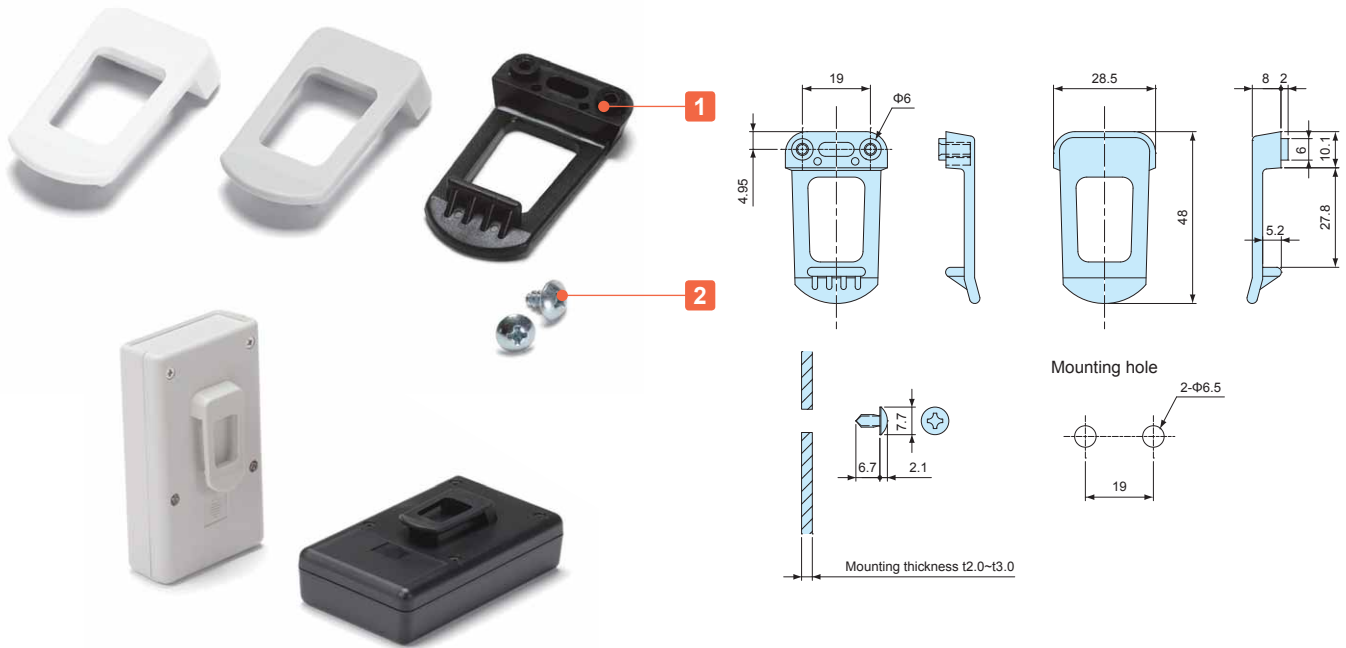
Product no.	
● Black	● Light Gray
TI-70B	TI-70S



Installation Example



DXF/DWG/PDF drawings available on our website.



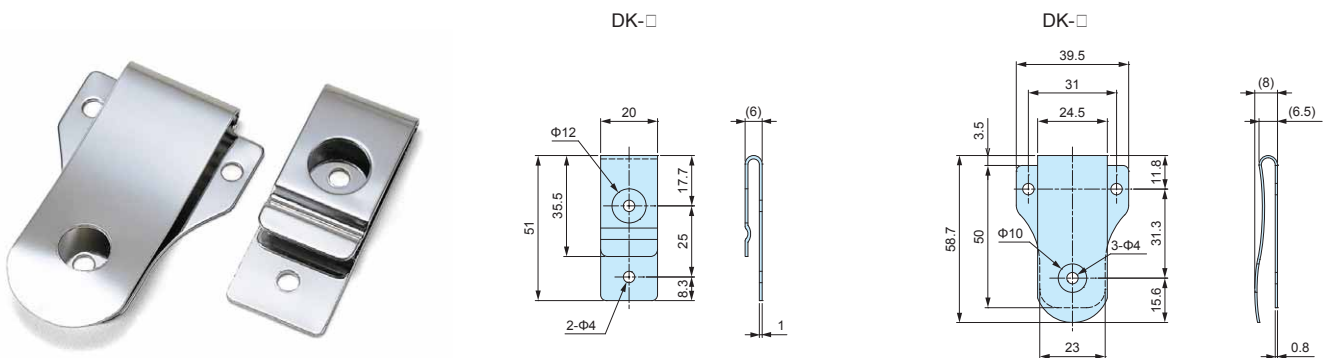
New White color type is added to match LC, PF, and TWN series color.

**Components**

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

**Product no. / Dimensions**

Product no.			W	H	D
● White	● White gray	● Black			
<b>NEW</b> GDH-1W	GDH-1G	GDH-1B	28.5	10	48



**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

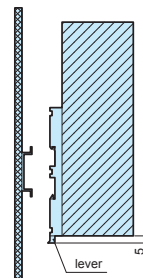
**DRA SERIES**

**DIN-RAIL MOUNTING BASE**



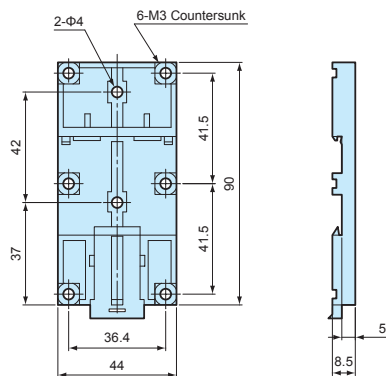
**NOTE**

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

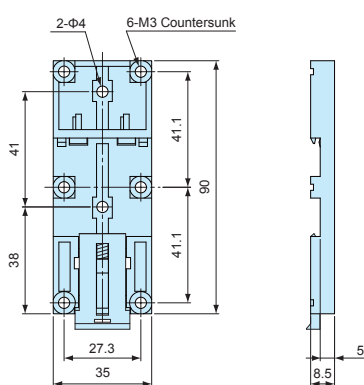


- For installation of enclosures, PCB and other parts onto a DIN rail.
- Simple installation and removal via the pull lever.

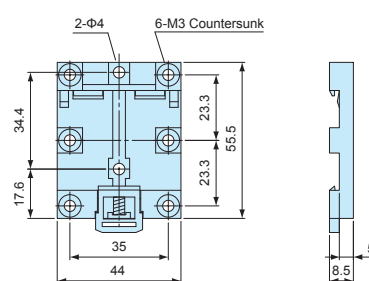
DRA-1



DRA-2



DRA-3

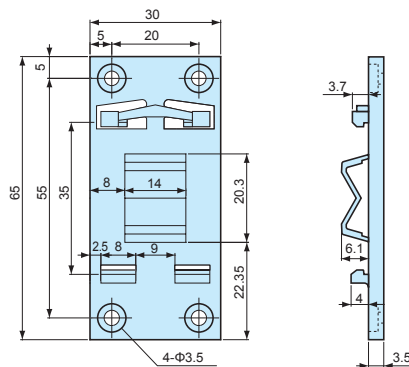


**Product no. / Dimensions**

Product no.	Material (body)	Material (lever)	Color	Weight (g)	Max load (kg)
DRA-1	PPE : SB UL94V-1	Nylon 66 UL94V-2	Black : Milky white	16.4	5
DRA-2	PPE : SB UL94V-1	Nylon 66 UL94V-2	Black : Milky white	14.5	5
DRA-3	PPE : SB UL94V-1	Nylon 66 UL94V-2	Black : Milky white	10.4	5

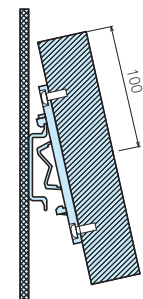
**DRT SERIES**

**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**

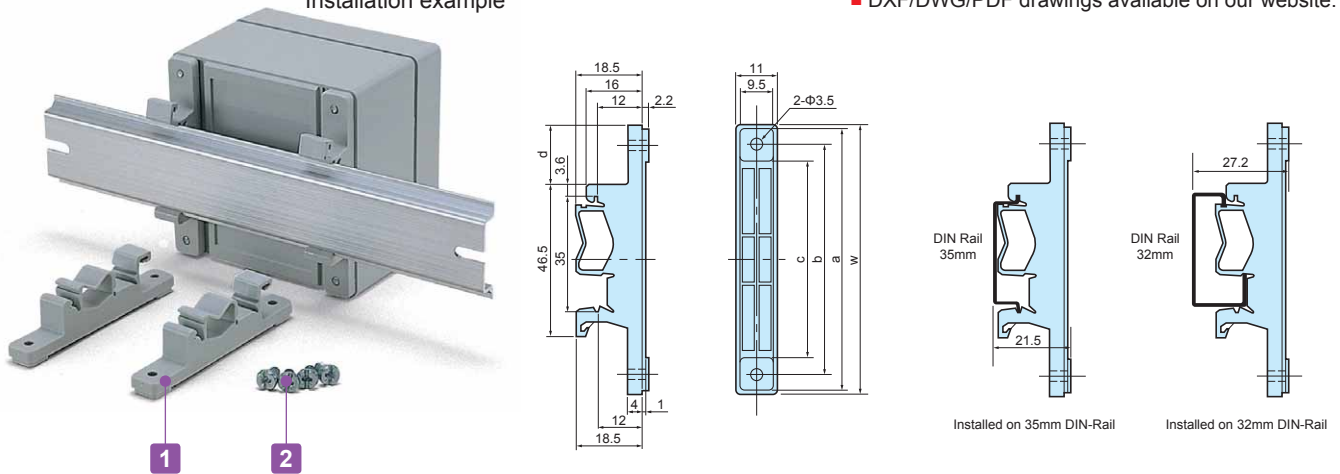
Product no.	Material	Color	Weight (g)	Max load (kg)
DRT-1	PBT UL94V-0	Light gray	7.3	1

**CKD SERIES**

**DIN-RAIL MOUNTING FEET**

Installation example

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



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

Technical Data
Max load : 3kg

**Components**

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

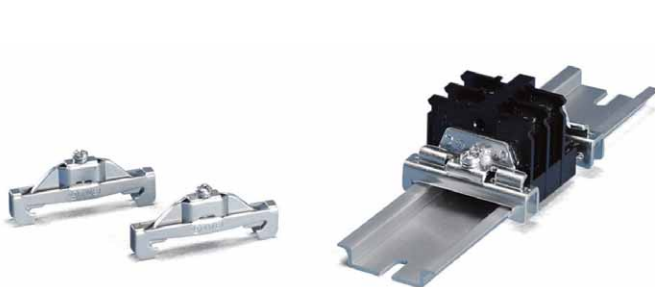
**Product no. / Dimensions**

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

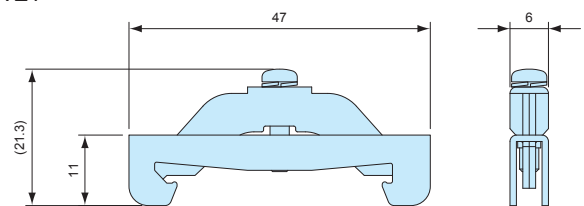
**TKR SERIES**

**DIN-RAIL TERMINAL BLOCKS END STOPPER**

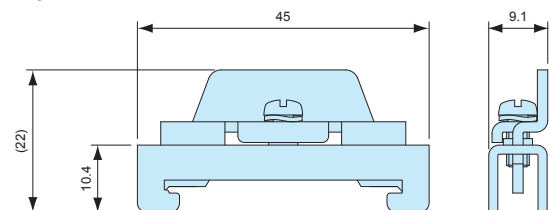
■ DXF/DWG/PDF drawings available on our website.



TKR-TWE1



TKR-JTXE3



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

**Product no. / Feature**

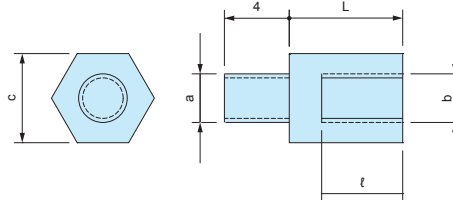
Product no.	Material	Color / Finish	Pack of
TKR-TWE1	Steel sheet	Trivalent chromate	2
TKR-JTXE3	Steel sheet	Trivalent chromate	2

TPS SERIES

TAPPING STANDOFF



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



Product no. / Dimensions

■ Material / Finish : Brass / Unfinished

Product no.	Screw size (a)	Screw size (b)	c	L	ℓ	Pack of	Recommended enclosure models	
TPS-M2.3-4	M2.3	M2.3	5	4	3	4	WH series • PFE series LC • LCE • LCS • LCT series PF • PFF series (M2.3 boss models) TW • TWN • TWF series (M2.3 boss models) WP series (M2.3 boss models)	
TPS-M2.3-5	M2.3	M2.3	5	5	3	4		
TPS-M2.3-6	M2.3	M2.3	5	6	4	4		
TPS-M2.3-7	M2.3	M2.3	5	7	5	4		
TPS-M2.3-8	M2.3	M2.3	5	8	6	4		
TPS-M2.3-10	M2.3	M2.3	5	10	6	4		
TPS-M2.3-12	M2.3	M2.3	5	12	6	4		
TPS-M2.6-4	M2.6	M2.6	5	4	3	4		PF • PFF series (M2.6 boss models) WP series (M2.6 boss models)
TPS-M2.6-5	M2.6	M2.6	5	5	3	4		
TPS-M2.6-7	M2.6	M2.6	5	7	5	4		
TPS-M2.6-10	M2.6	M2.6	5	10	6	4		
TPS-M2.6-12	M2.6	M2.6	5	12	6	4	SU • OP series TWS • TW • TWN • TWF series (M3 boss models)	
TPS-M3-4	M3	M3	5.5	4	3	4		
TPS-M3-5	M3	M3	5.5	5	3	4		
TPS-M3-6	M3	M3	5.5	6	4	4		
TPS-M3-7	M3	M3	5.5	7	5	4		
TPS-M3-8	M3	M3	5.5	8	5	4		
TPS-M3-10	M3	M3	5.5	10	6	4		
TPS-M3-12	M3	M3	5.5	12	6	4		



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



MT SERIES

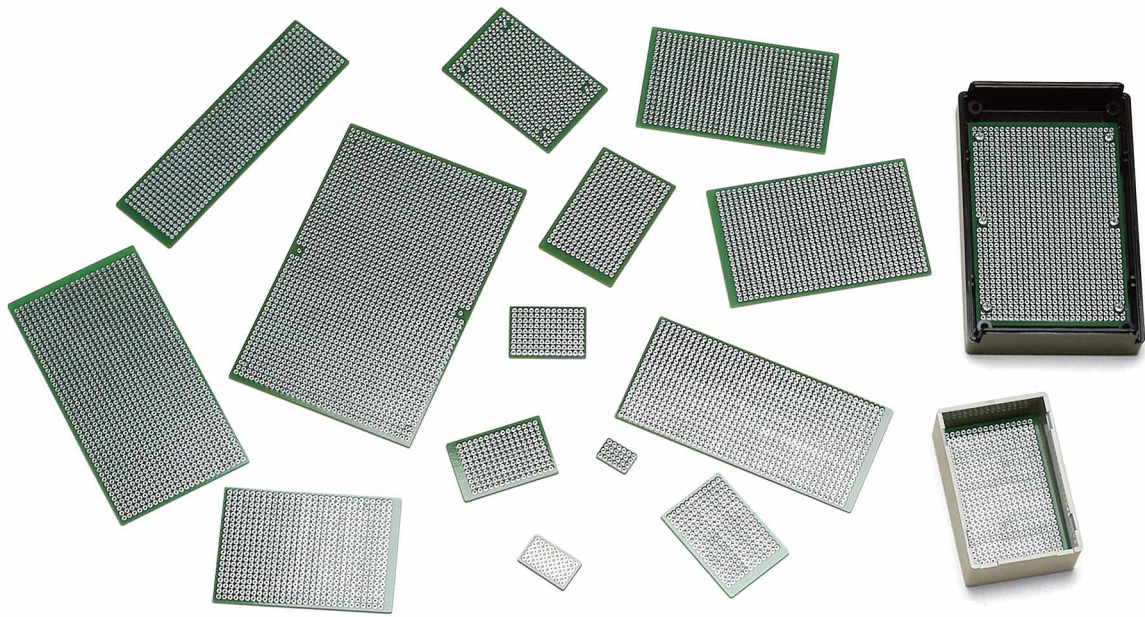
PCB MOUNTING SCREWS for TPS



- PCB mounting Screws for TPS tapping standoffs.

Product no. / Dimensions

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



- Material / Finish : Glass epoxy (FR-4) / Through-hole - Lead-free solder resist
- Environmentally friendly lead-free solder.
- 25 different sizes available. See chart on page TNF-2 for suitable cases/boxes.
- TNF160-240 is for multi-size use. Cut it to fit your needs when using.

**Accessories (Optional parts)**



Tapping standoff TPS series  
See page TPS • MT-1



Adhesive standoff T-600, 700 series  
See page Standoff-1



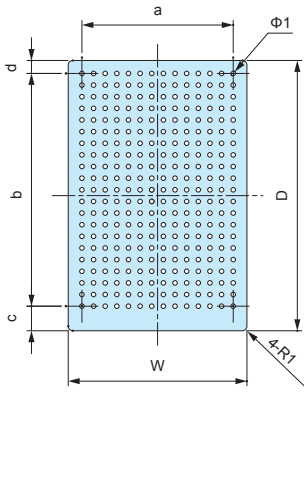
Adhesive standoff ASR series  
See page Standoff-1



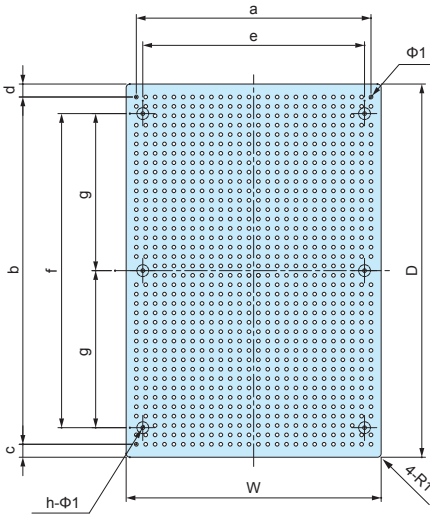
PCB mounting screw EM series  
See page EM • MR-1



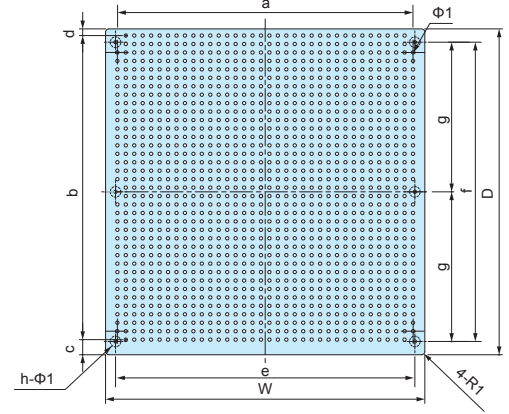
**Pattern A**



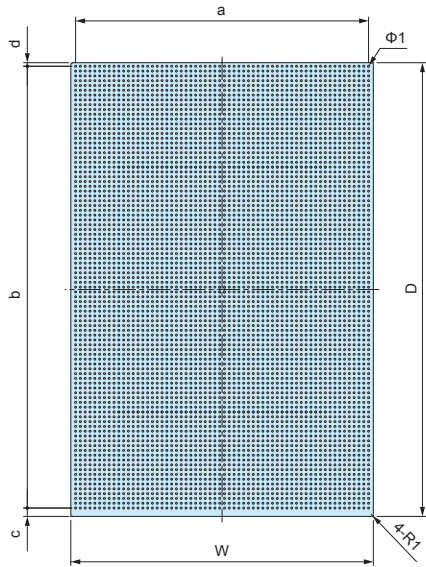
**Pattern B**



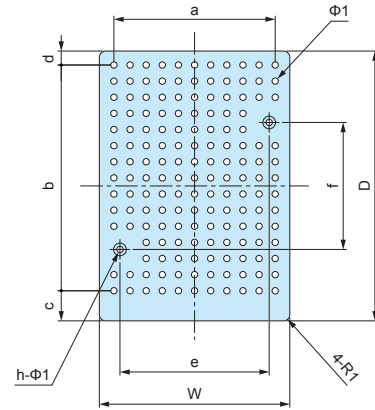
**Pattern C**



**Pattern D**



**Pattern E**



**Product no. / Dimensions**

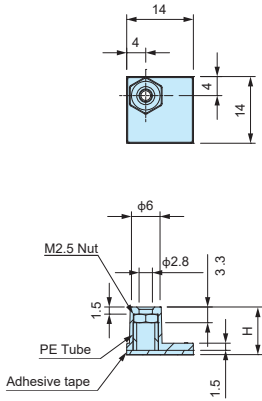
■ Pattern B, C, and E PCBs come with holes for boss mounting.

Product no.	W	D	a	b	c	d	e	f	g	h	Holes	Pattern	Suitable case
TNF 11- 16	10.7	15.8	7.62	12.7	1.55	1.55	—	—	—	—	4 x 6	A	SW-20
TNF 15- 25	15	25	10.16	20.32	2.34	2.34	—	—	—	—	5 x 9	A	SW-30
TNF 25- 35	25	35	20.32	30.48	2.26	2.26	—	—	—	—	9 x 13	A	SW-40
TNF 29- 32	29.5	32.5	25.4	25.4	4.82	2.28	23.5	20	—	2	11 x 11 ■	E	TW • TWN4-2-5
TNF 29- 42	29.5	42.5	25.4	35.56	4.74	2.2	23.5	20	—	2	11 x 15 ■	E	TW • TWN4-2-6
TNF 29- 44	29	44	22.86	35.56	5.49	2.95	—	—	—	—	10 x 15	A	SW-50 • 53
TNF 34- 49	34	49	27.94	40.64	5.45	2.91	—	—	—	—	12 x 17	A	SW-55
TNF 34- 62	34.5	62.5	30.48	55.88	4.58	2.04	28.5	40	—	2	13 x 23 ■	E	TW • TWN4-2-8
TNF 34-124	34	124	27.94	116.84	4.85	2.31	—	—	—	—	12 x 47	A	SW-130
TNF 39- 59	39	59	33.02	50.8	5.37	2.83	—	—	—	—	14 x 21	A	
TNF 39- 70	39.5	70	33.02	60.96	5.79	3.25	27.94	58.42	—	4	14 x 25	A	TW • TWN5-3-9
TNF 43- 66	43	66	38.1	58.42	3.79	3.79	30	50	—	4	16 x 24 ■	B	
TNF 43- 79	43.5	79.5	38.1	73.66	2.92	2.92	—	—	—	—	16 x 30	A	TW5-3-10
TNF 44- 69	44	69	38.1	60.96	5.29	2.75	—	—	—	—	16 x 25	A	SW-75
TNF 52- 89	52	89	45.72	81.28	3.86	3.86	—	—	—	—	19 x 33	A	SW-95
TNF 53- 79	53	79	48.26	71.12	5.21	2.67	—	—	—	—	20 x 29	A	SW-85 • TW • TWN7-□-11
TNF 53-114	53	114	48.26	106.68	4.93	2.39	—	—	—	—	20 x 43	A	SW-120
TNF 59- 94	59	94	53.34	86.36	5.09	2.55	—	—	—	—	22 x 35	A	SW-100
TNF 63-119	63	119	58.42	111.76	4.89	2.35	—	—	—	—	24 x 45	A	SW-125
TNF 69-101	69	101	63.5	93.98	3.51	3.51	60	—	42.5	6	26 x 38 ■	B	
TNF 89-136	89	136	83.82	129.54	3.23	3.23	80	—	60	6	34 x 52 ■	B	
TNF 96- 98	96	98	88.9	91.44	4.55	2.01	90	90	45	6	36 x 37 ■	C	
TNF122- 99	122	99	116.84	91.44	3.78	3.78	—	—	—	—	47 x 37	A	
TNF128-136	136	128	129.54	121.92	4.31	1.77	130	120	60	6	52 x 50 ■	C	
TNF160-240	160	240	154.94	233.68	3.93	2.39	—	—	—	—	62 x 93	D	

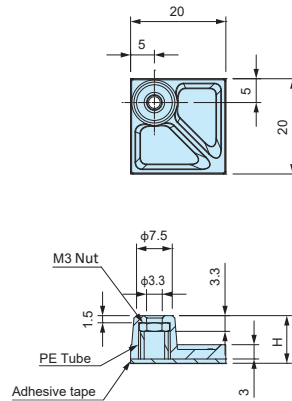


- Double -sided adhesive tape allows the standoff to be mounted quickly and easily; allows PCB mounting in non-boss enclosures.
- Convenient for installing PCBs into enclosures without the need for customization.
- Please ensure that surface is cleaned and grease-free before adhering.
- Once removed,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

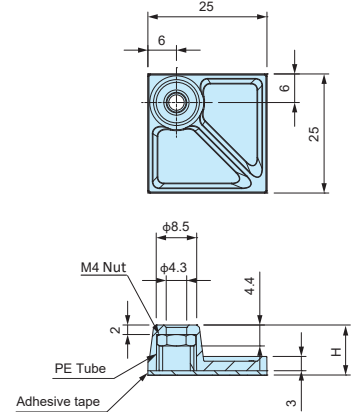
AST2.5-□



AST3-□



AST4-□



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

Product no. / Dimensions

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

Product no.	H dimension	Included screw	Recommended PCB Thickness (mm)	Recommended torque (N • m)	Weight (g)	Pack of
AST2.5-5B	5	M2.5-5 panhead	1.0~2.0	0.3	0.6	4
AST2.5-10B	10	M2.5-5 panhead	1.0~2.0	0.3	0.8	4
AST3-6B	6	M3-6 panhead	1.0~3.0	0.4	1.5	4
AST3-10B	10	M3-6 panhead	1.0~3.0	0.4	1.6	4
AST3-15B	15	M3-6 panhead	1.0~3.0	0.4	1.8	4
AST3-20B	20	M3-6 panhead	1.0~3.0	0.4	2.1	4
AST4-10.5B	10.5	M4-8 panhead	1.0~3.5	0.8	2.6	4
AST4-20B	20	M4-8 panhead	1.0~3.5	0.8	3.2	4
AST2.5-5B-P	5	None	—	0.3	0.6	100
AST2.5-10B-P	10	None	—	0.3	0.8	100
AST3-6B-P	6	None	—	0.4	1.5	100
AST3-10B-P	10	None	—	0.4	1.6	100
AST3-15B-P	15	None	—	0.4	1.8	100
AST3-20B-P	20	None	—	0.4	2.1	100
AST4-10.5B-P	10.5	None	—	0.8	2.6	50
AST4-20B-P	20	None	—	0.8	3.2	50

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 Tel. +81-48-222-5409

[www.takachi-enclosure.com](http://www.takachi-enclosure.com)  
[sales@takachi-el.co.jp](mailto:sales@takachi-el.co.jp)

● All items listed in this catalogue are compliant with EU RoHS 10 standard.

NEW PRODUCT Vol.1 2020.7



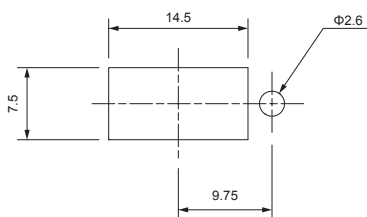
CJCV SERIES

USB DUST COVER FLAP

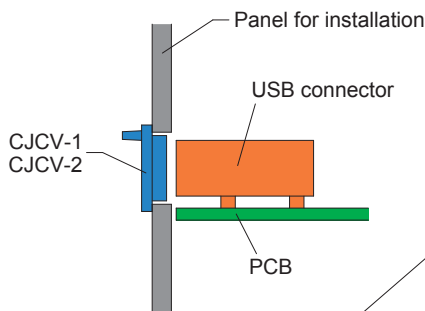


- USB TYPE-A connector dust cover plug with stopper cord.
- Hole milling is required for flap installation.

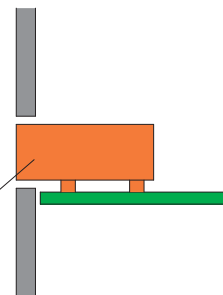
Mounting hole dimension



How to Install



Incorrect Position



- The USB connector should be mounted such that it does not protrude out from the panel's inner side.

Product no. / Feature

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

USBC SERIES

USB TYPE-A DUSTPROOF BLIND PLUG



USB TYPE-A

- Easy insertion plug for USB type-A connector

USBC-2 (Pull-tab type)



USBC-8 (No pull-tab type)



Product no. / Feature

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

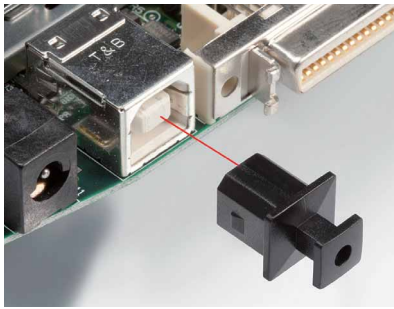
**USBC SERIES**

**USB TYPE-B • TYPE-C DUSTPROOF BLIND PLUG**

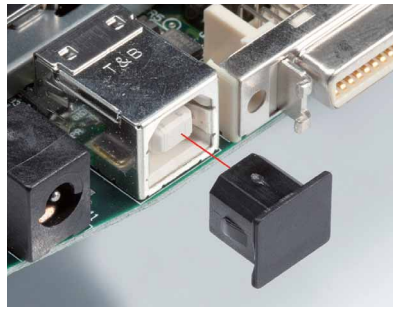


**USB TYPE-B**

USBC-1 (Pull-tab type)



USBC-3 (No pull-tab type)



Product no. / Feature

Product no.	Material	Color	Pack of
<b>NEW</b> USBC-1	ABS UL94V-0	Black	10
<b>NEW</b> USBC-3	PP UL94HB	Black	10

**USB TYPE-C**

USBC-3C



USB Type-C connector



Product no. / Feature

Product no.	Material	Color	Pack of
<b>NEW</b> USBC-3C	PE	Black	10

**USBC SERIES**

**MINI USB • MICRO USB DUSTPROOF BLIND PLUG**



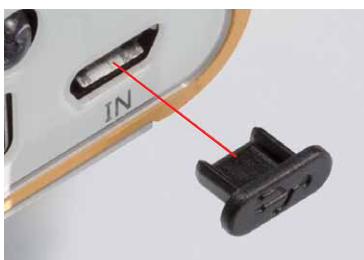
**MINI USB** USBC-10



Product no. / Feature

Product no.	Material	Color	Pack of
<b>NEW</b> USBC-10	TPE	Black	10

**MICRO USB** USBC-31



Product no. / Feature

Product no.	Material	Color	Pack of
<b>NEW</b> USBC-31	PE	Black	10



**KPS SERIES**

**USB DUSTPROOF CONNECTOR COVER**

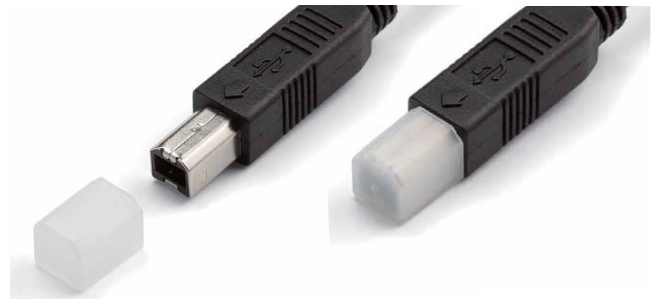
**USB TYPE-A**



**Product no. / Feature**

Product no.	Material	Color	Pack of
KPS-6	PE	Natural	10

**USB TYPE-B**



**Product no. / Feature**

Product no.	Material	Color	Pack of
KPS-5	PE	Natural	10

**MINI USB**



**Product no. / Feature**

Product no.	Material	Color	Pack of
KPS-20	PE	Natural	10

**MICRO USB**

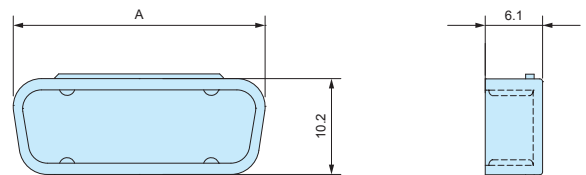


**Product no. / Feature**

Product no.	Material	Color	Pack of
KPS-21	PE	Natural	10

**DTC SERIES**

**D-SUB • DVI DUSTPROOF CONNECTOR COVER**

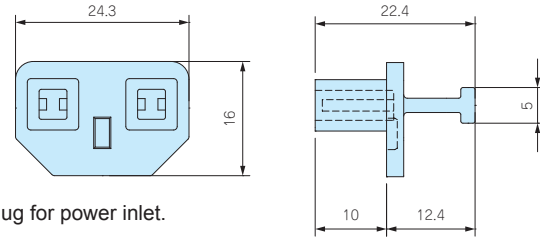
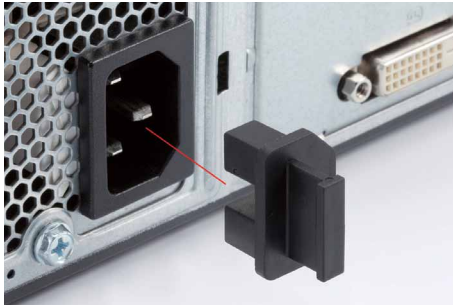


**Product no. / Feature**

Product no.	Matching connector	A	Material	Color	Pack of
DTC- 9F	D-sub 9 pin	18.5	PP UL94HB	Gray	10
DTC-15F	D-sub 15 pin • DVI	26.8	PP UL94HB	Gray	10
DTC-25F	D-sub 25 pin	40.6	PP UL94HB	Gray	10

**PLC-3TV**

**POWER INLET DUSTPROOF BLIND PLUG**



■ Pull-tab type blind plug for power inlet.

**Product no. / Feature**

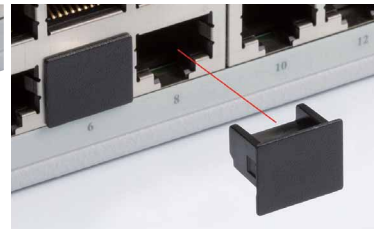
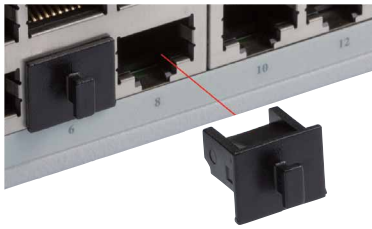
Product no.	Material	Color	Pack of
PLC-3TV	TPE UL94V-0	Black	5

**PJR • PJS SERIES**

**RJ45 DUSTPROOF BLIND PLUG**

PJR-45 (Pull-tab type)

PJS-45 (No pull-tab type)



**Product no. / Feature**

Product no.	Material	Color	Pack of
PJR-45	PE	Black	10
PJS-45	ABS UL94HB	Black	10

**PJCV-1**

**RJ45 DUSTPROOF CONNECTOR COVER**



**Product no. / Feature**

Product no.	Material	Color	Pack of
PJCV-1	PE	Natural	10

**HDMIC SERIES**

**HDMI DUSTPROOF BLIND PLUG**



HDMIC-1 (Pull-tab type)

HDMIC-3 (No pull-tab type)

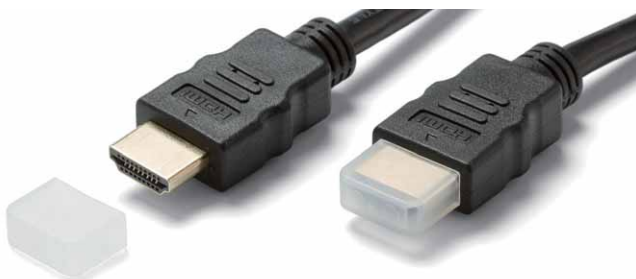


**Product no. / Feature**

Product no.	Material	Color	Pack of
HDMIC-1	PE	Black	10
HDMIC-3	ABS UL94HB	Black	10

**HDMIT SERIES**

**HDMI DUSTPROOF CONNECTOR COVER**

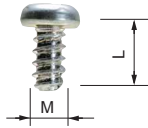


**Product no. / Feature**

Product no.	Material	Color	Pack of
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

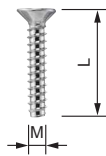
Product no.	M	L	Material	Finish	Suitable enclosures	Pack of
EM-1.6	1.6	4	Steel	Trivalent chromate	WC • CSS • CS • PS (M1.6 size)	50
EM-2	2	5	Steel	Trivalent chromate	PS • TW • TWN • TWF • WP (M2 size)	50
EM-2.3	2.3	6	Steel	Trivalent chromate	WH • LC • LCT • LCS • LCE • PFE WSC (Top cover bosses) PF •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

MR SERIES

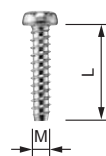
TORX SCREW



Countersunk head



Pan head



With pin



★ Without pin



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

Product no. / Dimensions

★Mark = Without pin

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

# DIGITAL PRINTED OVERLAY



## 3 reasons for low initial costs

Reason 1



**Cutting process**



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

Reason 2

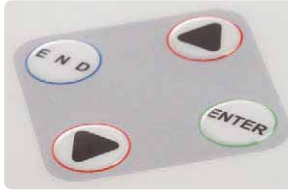


**Printing process**



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

Reason 3



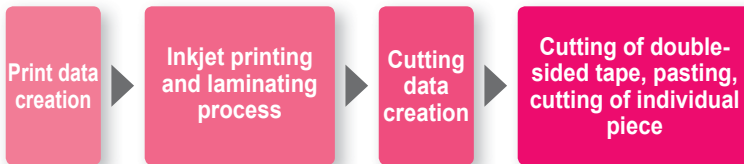
**Embossing process**



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

## Comparison of current and previous manufacturing methods

Current



Previous





# PRODUCTION PROCESS



1. Inkjet printing on film



2. Laminating



3. Cutting double-sided tape



4. Sticking double-sided tape on printed film



5. Cutting the sheet to size



6. Embossing



7. Machining on enclosure



8. Sticking overlay sheet onto enclosure



9. Complete

# CUSTOMIZATION EXAMPLE

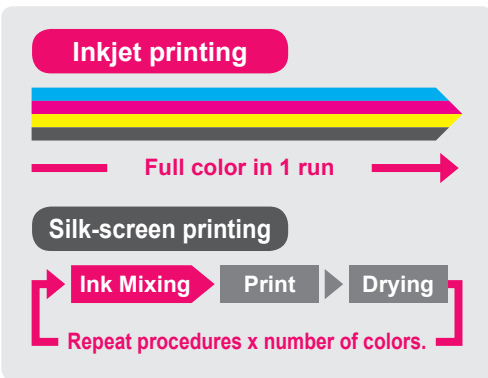




# INKJET PRINTING



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



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

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

Printing cost Full color

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

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

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

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



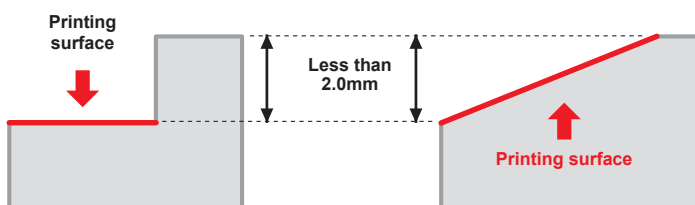
## Maximum printable enclosure size



## Printable on surfaces with height differential

Printing is possible on recessed, sloped and rounded sections.

Gap difference is less than 2.0mm.



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



Printed example





# CNC MACHINING

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



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

