


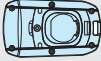
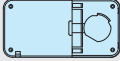







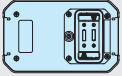
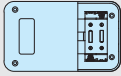
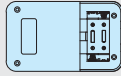
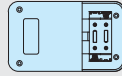
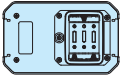
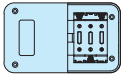
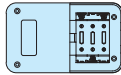
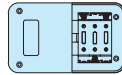
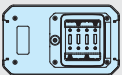
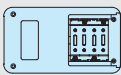
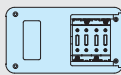
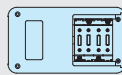

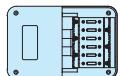
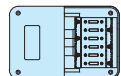
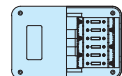
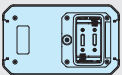
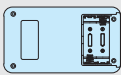
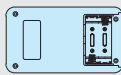
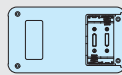
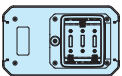
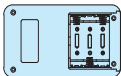
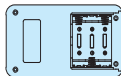
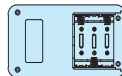
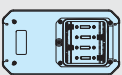
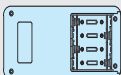
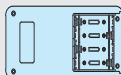
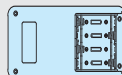
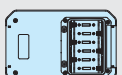
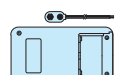
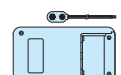
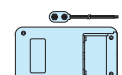


BUILT-IN BATTERY COMPARTMENT MODEL CHART

Series	WC Series Page37 ~ 42	CS Series Page47 ~ 52	CSS Series Page45 ~ 46
Battery Compartment			
CR2032 x 1	 <p>WC72-15 (43×15.5×72) WC72-21 (43×21.5×72) WC90-15 (44.2×15.7×90)</p>	 <p>CS75 (35×12×75) CS90 (45×12×90)</p>	 <p>CSS75 (38.6×15.5×78.6) CSS90 (48.6×15.5×93.6)</p>
CR2032 x 2		 <p>CS115 (63×12×115)</p>	 <p>CSS115 (67.1×16×119.1)</p>
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
			
 <p>WH125-20-F2 (79×20×126) WH125-28-F2 (79×28×126)</p>	 <p>LC115-F2 (69×19.5×115) LC115H-F2 (69×28×115)</p>	 <p>LCS115-F2 (74×24×120) LCS115H-F2 (74×32.5×120)</p>	 <p>LCT115-F2 (76×28×121.9) LCT115H-F2 (76×36.5×121.9)</p>
 <p>WH125-20-F3 (79×20×126) WH125-28-F3 (79×28×126)</p>	 <p>LC115-F3 (69×19.5×115) LC115H-F3 (69×28×115)</p>	 <p>LCS115-F3 (74×24×120) LCS115H-F3 (74×32.5×120)</p>	 <p>LCT115-F3 (76×28×121.9) LCT115H-F3 (76×36.5×121.9))</p>
 <p>WH145-20-F4 (88×20×146)</p>	 <p>LC135-F4 (76×27×135) LC135H-F4 (76×35×135)</p>	 <p>LCS135-F4 (81×32×141) LCS135H-F4 (81×40×141)</p>	 <p>LCT135-F4 (85×40×143.9) LCT135H-F4 (85×48×143.9)</p>
 <p>WH145-25-F6 (96×20×145) WH145-33-F6 (96×27×145) WH145-41-F6 (96×35×145)</p>	 <p>LC145-F6 (96×20×145) LC145H-F6 (96×27×145) LC145H-F6 (96×35×145)</p>	 <p>LCS145-F6 (101×25×151) LCS145H-F6 (101×32×151) LCS145H-F6 (101×40×151)</p>	 <p>LCT145-F6 (105×33×153.9) LCT145H-F6 (105×40×153.9) LCT145H-F6 (105×48×153.9)</p>
 <p>WH145-25-M2 (88×25×146) WH145-33-M2 (88×33×146)</p>	 <p>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)</p>	 <p>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)</p>	 <p>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)</p>
 <p>WH145-25-M3 (88×25×146) WH145-33-M3 (88×33×146)</p>	 <p>LC135-M3 (76×27×135) LC135H-M3 (76×35×135)</p>	 <p>LCS135-M3 (81×32×141) LCS135H-M3 (81×40×141)</p>	 <p>LCT135-M3 (85×40×143.9) LCT135H-M3 (85×48×143.9)</p>
 <p>WH170-25-M4 (95×25×171) WH170-33-M4 (95×33×171)</p>	 <p>LC145-M4 (96×27×145) LC145H-M4 (96×35×145) LC165-M4 (80×27×165) LC165H-M4 (80×35×165)</p>	 <p>LCS145-M4 (101×32×151) LCS145H-M4 (101×40×151) LCS165-M4 (85×32×171) LCS165H-M4 (85×40×171)</p>	 <p>LCT145-M4 (105×40×153.9) LCT145H-M4 (105×48×153.9) LCT165-M4 (89×40×173.9) LCT165H-M4 (89×48×173.9)</p>
 <p>WH190-25-M6 (126×25×191) WH190-33-M6 (126×33×191)</p>			
	 <p>LC115H-9V (69×28×115) LC135-9V (76×27×135) LC135H-9V (76×35×135)</p>	 <p>LCS115H-9V (74×32.5×120) LCS135-9V (81×32×141) LCS135H-9V (81×40×141)</p>	 <p>LCT115H-9V (76×36.5×121.9) LCT135-9V (85×40×143.9) LCT135H-9V (85×48×143.9)</p>

*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).

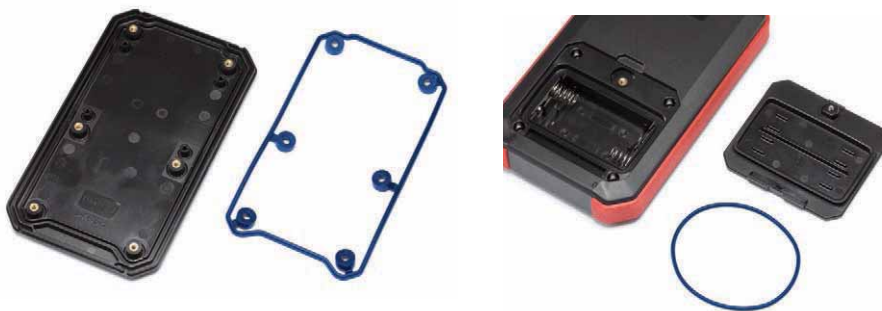
IPx7 : No ingress of water when submerged up to a depth of 1 meter for 30 minutes

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.



ULTRASONIC THICKNESS MEASUREMENT GAUGE

Product by NOVOTEST (Ukraine)



SIGFOX NETWORK MEASUREMENT DEVICE

Product by Simple Hardware (Czech Republic)

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)



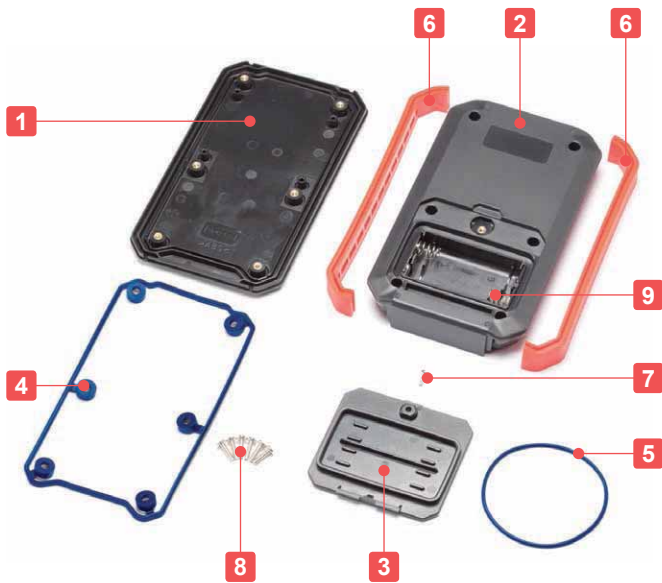
AUTOMATIC VIDEO TIMING TRACKING SYSTEM

Product by FlashTiming (USA)





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
5	O-ring (None for N-type)	1	Silicone	M2 type : Blue
				M3 • F4 • type : Light gray
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 EM • MR-1



Tapping standoff TPS series
See page TPS • MT-1



Cable gland
See cable gland pages



Neodymium magnet NMG series
See page NMG-1

Battery Compartment Types

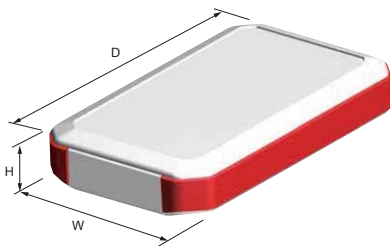
Type	N None	F2 AAA x 2	F3 AAA x 3	F4 AAA x 4	M2 AA x 2	M3 AA x 3	M4 AA x 4	M6 AA x 6
Battery Compartment								

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.

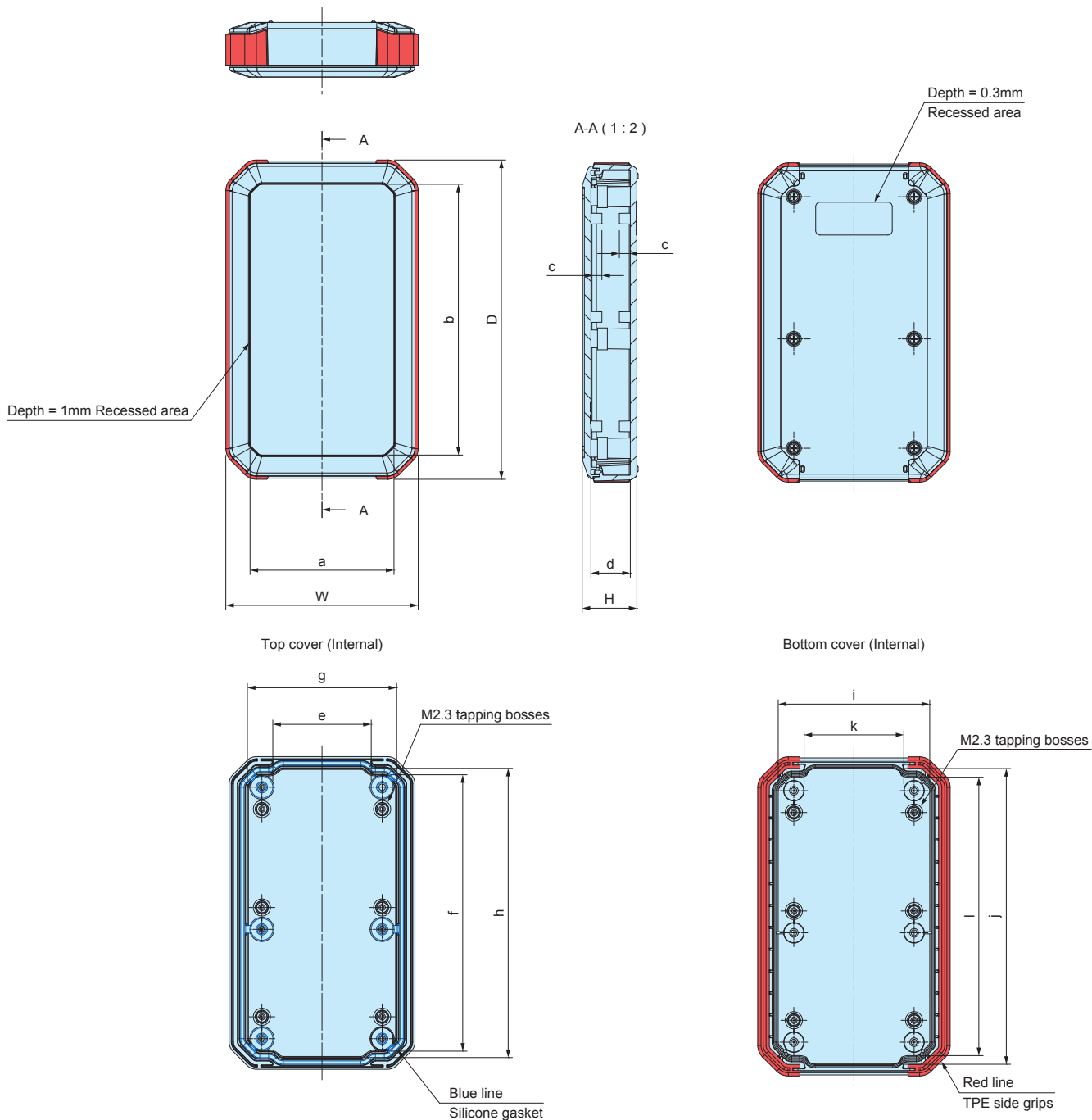


Product no.	W	H	D	Battery compartment	Weight (g)
WH125-20-N -□□	79	20	126	None	101.0
WH125-20-F2 -□□	79	20	126	AAA x 2	102.0
WH125-20-F3 -□□	79	20	126	AAA x 3	109.0
WH125-28-N -□□	79	28	126	None	119.0
WH125-28-F2 -□□	79	28	126	AAA x 2	121.0
WH125-28-F3 -□□	79	28	126	AAA x 3	127.0
WH145-20-N -□□	88	20	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
NEW WH190-25-N -□□	126	25	191	None	226.0
NEW WH190-25-M6 -□□	126	25	191	AA x 6	276.0
NEW WH190-33-N -□□	126	33	191	None	252.0
NEW WH190-33-M6 -□□	126	33	191	AA x 6	307.0

WH dimensions

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

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

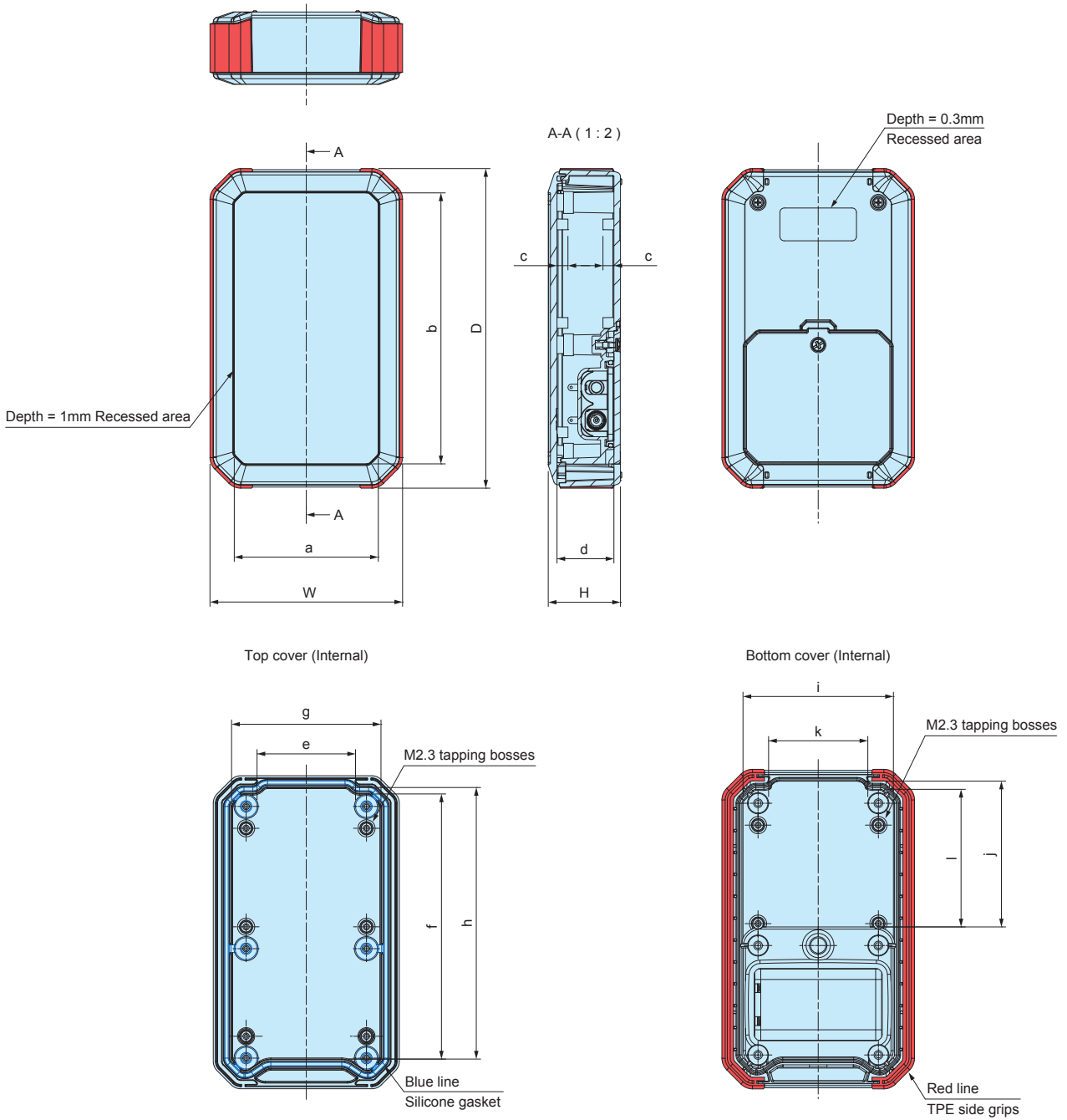


Product no.	W	H	D	a	b	c	d	e	f	g	h	i	j	k	l
WH125-20-N-□□	79	20	126	58.8	105.8	4	13	39	107	60	112.6	61.6	115.8	39	108
WH125-28-N-□□	79	28	126	58.8	105.8	4	21	39	107	60	112.6	61.1	115.8	39	108
WH145-20-N-□□	88	20	146	65.8	123.8	5	13	45	125.2	68.3	132.3	69.6	135.2	45	127.6
WH145-25-N-□□	88	25	146	65.8	123.8	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

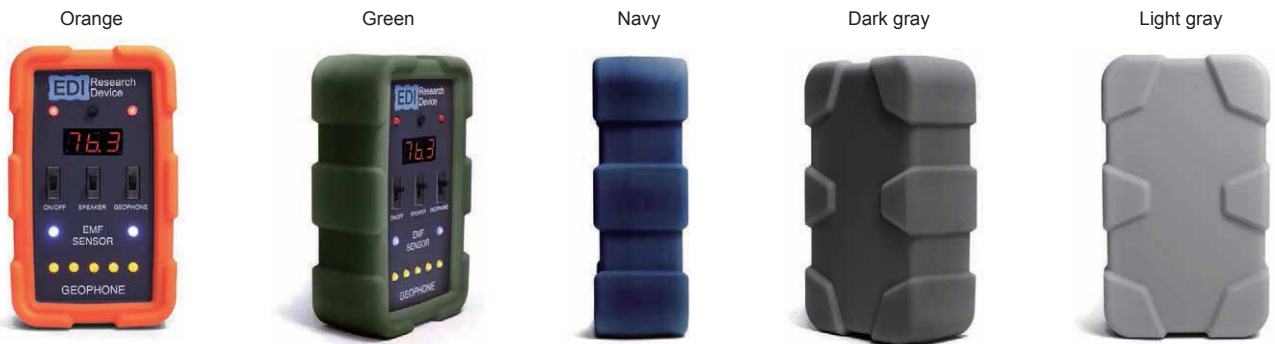
Hand-held case suitable for industrial measuring equipments, wireless communication devices and medical equipments.

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 DEMAQ (Argentina)



HYPERHIDROSIS TREATMENT DEVICE

Product by Merebit (Czech Republic)



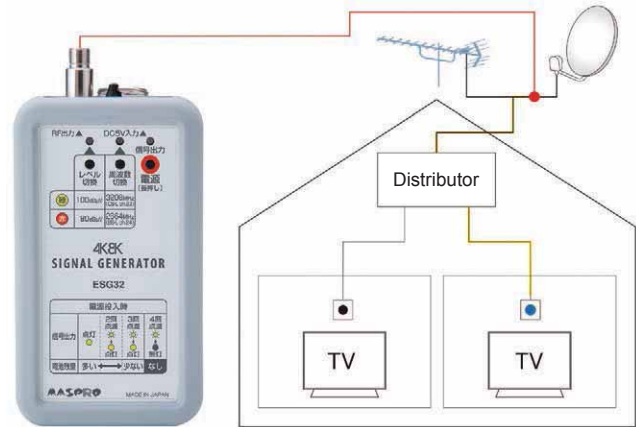
RF SCOPE

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 incised 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 TPS • MT-1



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



TORX screw MR series
 See page EM • MR-1

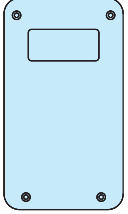
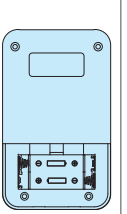
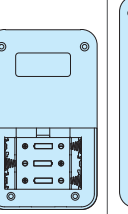
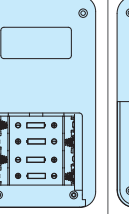
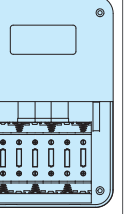
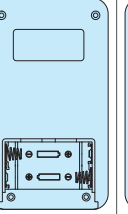
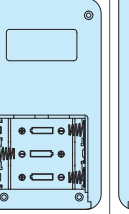
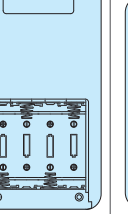
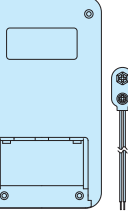


Key ring CR-20
 See page STP • CR-1



Strap STP series
 See page STP • CR-1

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					

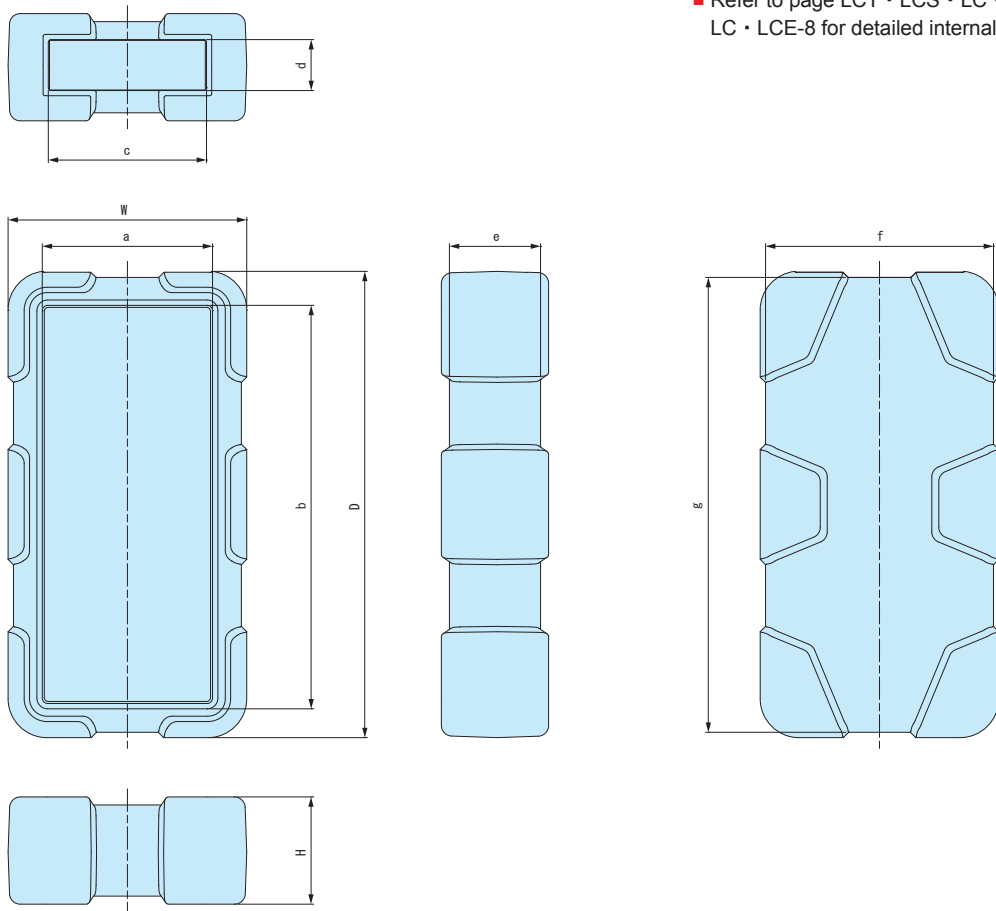
Product no. / Dimensions

■ 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

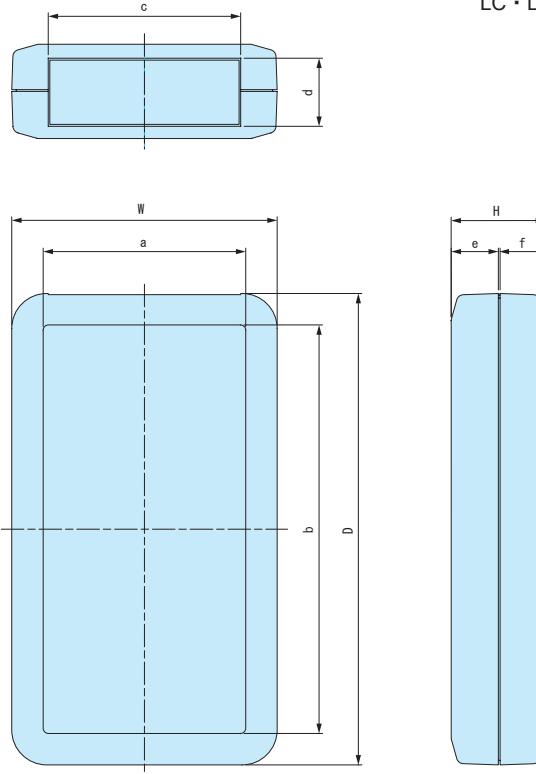


- Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.
- Refer to page LCT · LCS · LC · LCE-5 ~ LCT · LCS · LC · LCE-8 for detailed internal enclosure dimensions.

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 LCT · LCS · LC · LCE-5 ~ LCT · LCS · LC · LCE-8 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

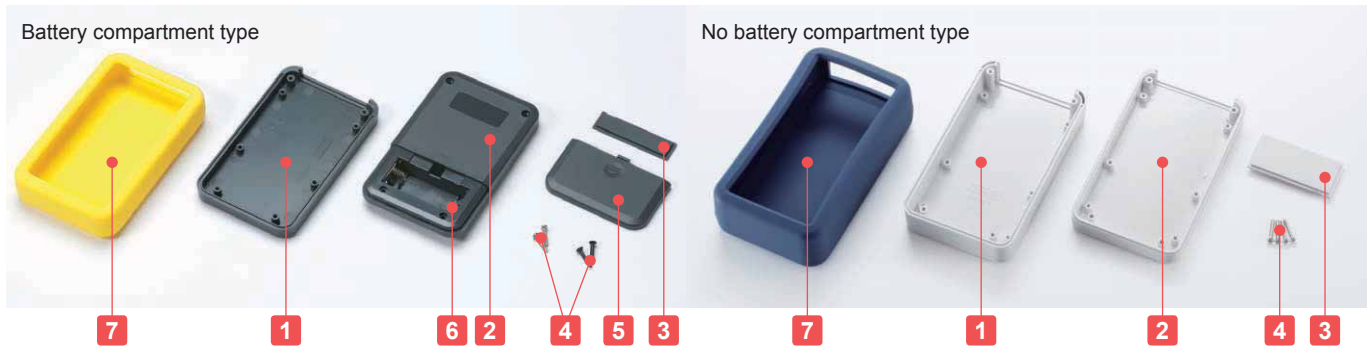
LCS SERIES

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.



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 TPS • MT-1



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



TORX screw MR series
See page EM • MR-1

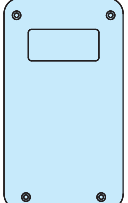
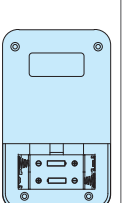
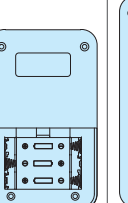
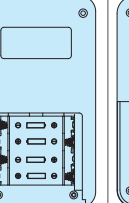
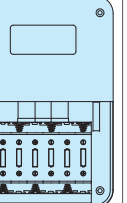
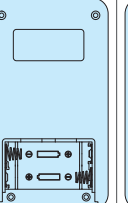
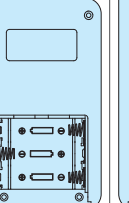
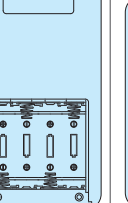
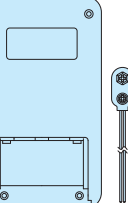


Key ring CR-20
See page STP • CR-1



Strap STP series
See page STP • CR-1

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							

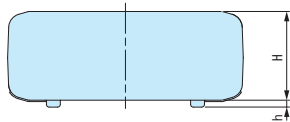
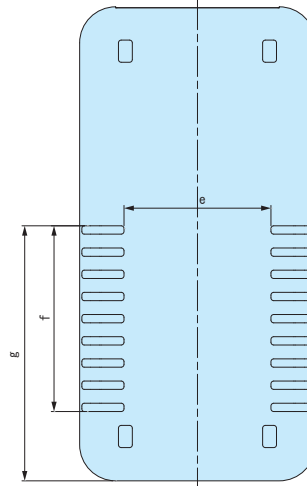
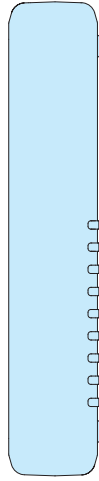
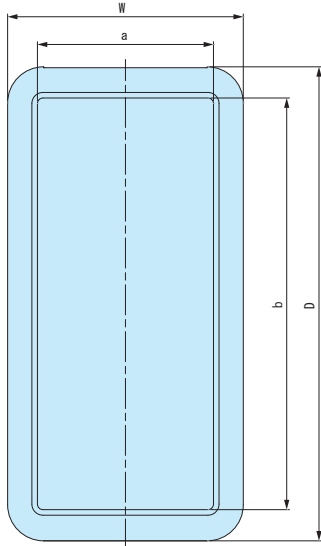
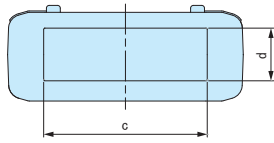
Product no. / Dimensions

■ 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

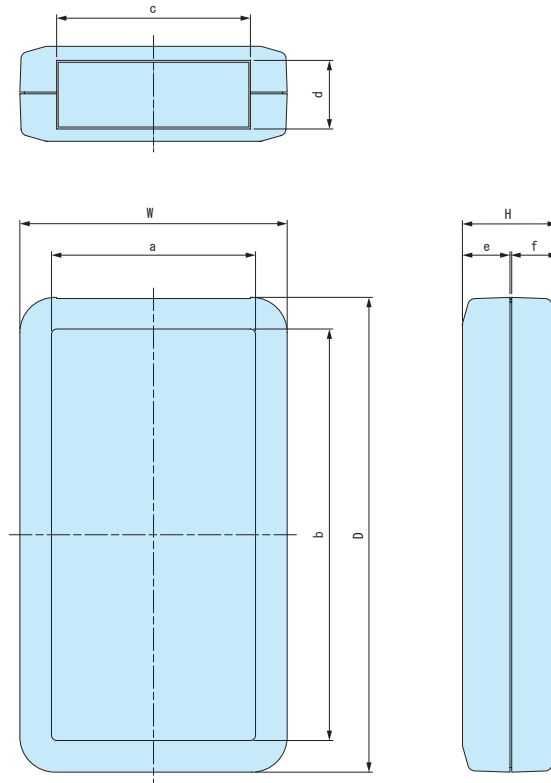


- Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.
- Refer to page LCT · LCS · LC · LCE-5 ~ LCT · LCS · LC · LCE-8 for detailed internal enclosure dimensions.

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

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DXF/DWG/PDF drawings available on our website.
- Refer to page LCT · LCS · LC · LCE-5 ~ LCT · LCS · LC · LCE-8 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



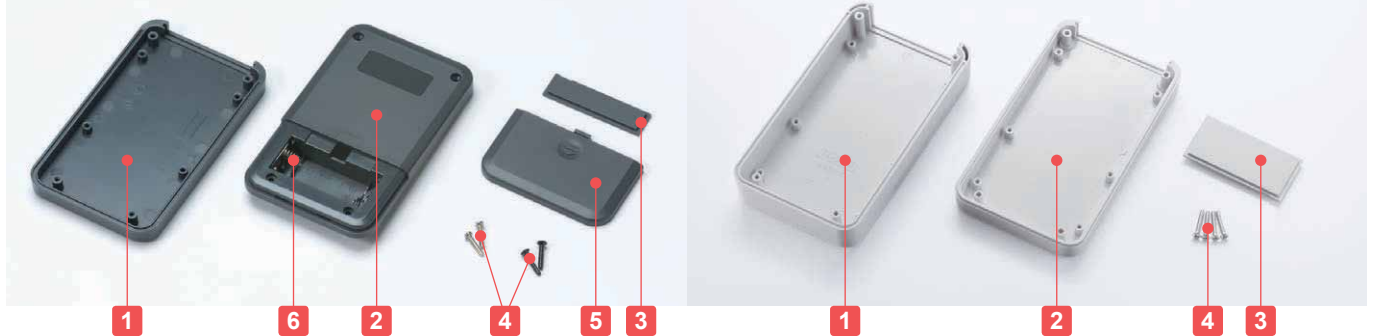
Technical Data

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, AAAx6, 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 TPS • MT-1



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



TORX screw MR series
See page EM • MR-1



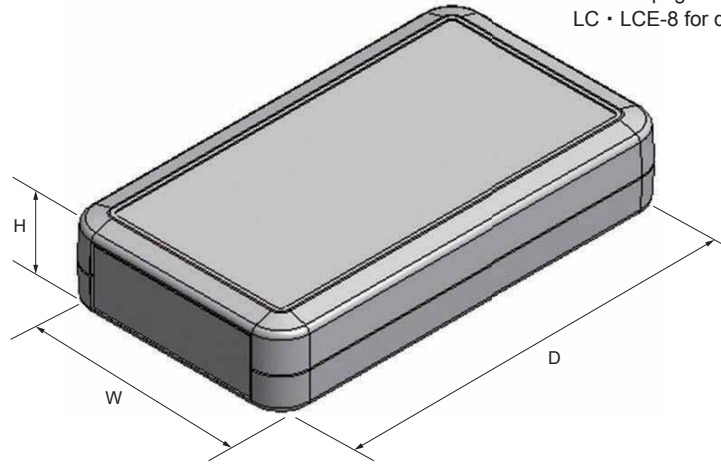
Key ring • Strap CR-20 • STP series
See STP • CR-1



Suspension bracket WM series
See page WM-1

Neodymium magnet NMG series
See page NMG-1

- Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.
- Refer to page LCT · LCS · LC · LCE-5 ~ LCT · LCS · LC · LCE-8 for detailed internal enclosure 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



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 LCTP-1 ~ LCSC-1



Tapping standoff TPS series
See page TPS • MT-1



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



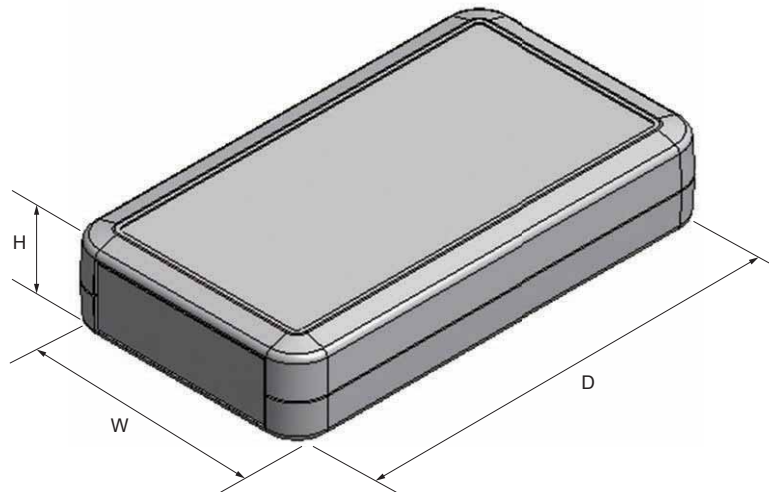
TORX screw MR series
See page EM • MR-1



Suspension bracket WM series
See page WM-1

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

■ Refer to page LCT · LCS · LC · LCE-5 ~ LCT · LCS · LC · LCE-8 for detailed internal enclosure 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.

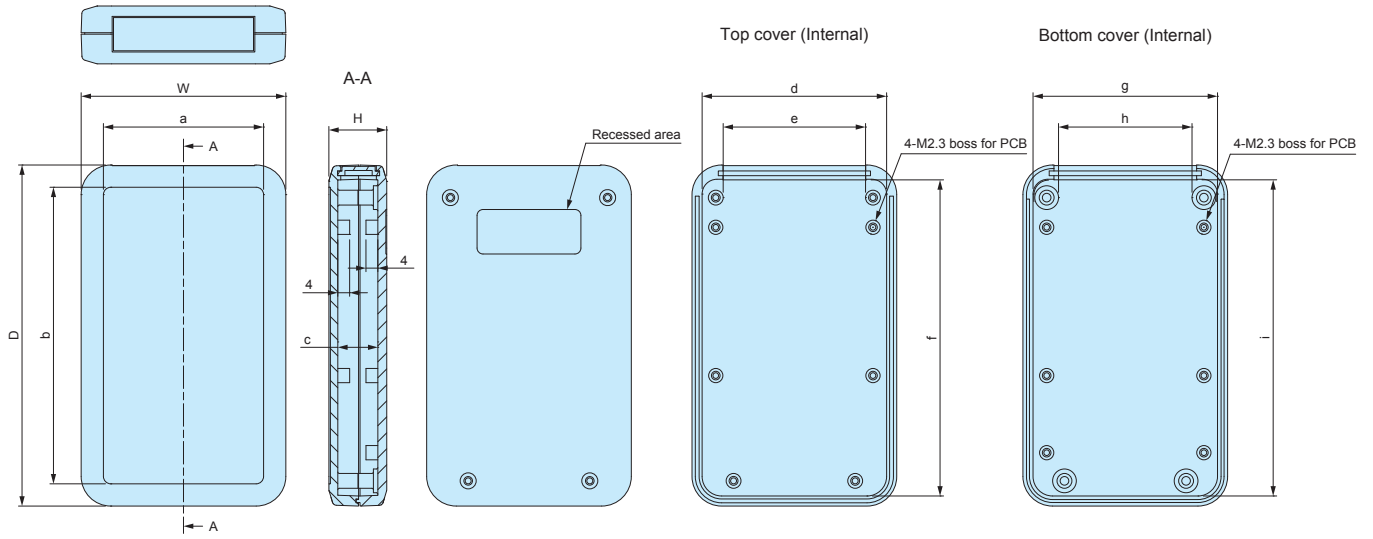
Contact us for more details.
E-mail : sales@takachi-el.co.jp



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

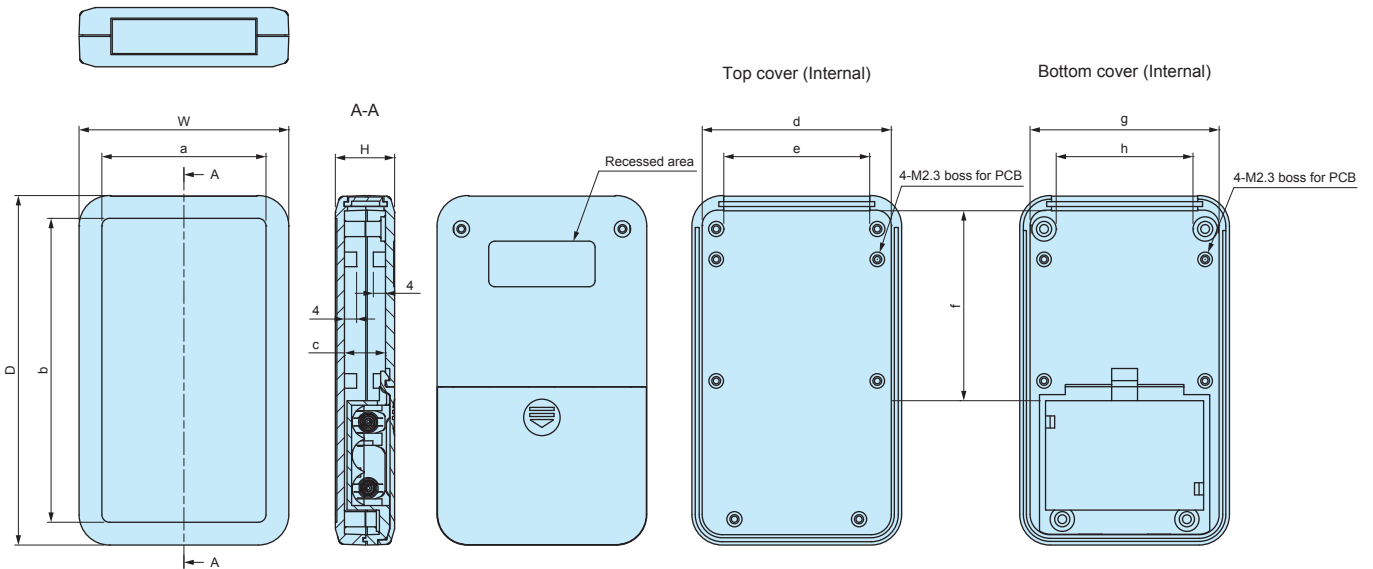
■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

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



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

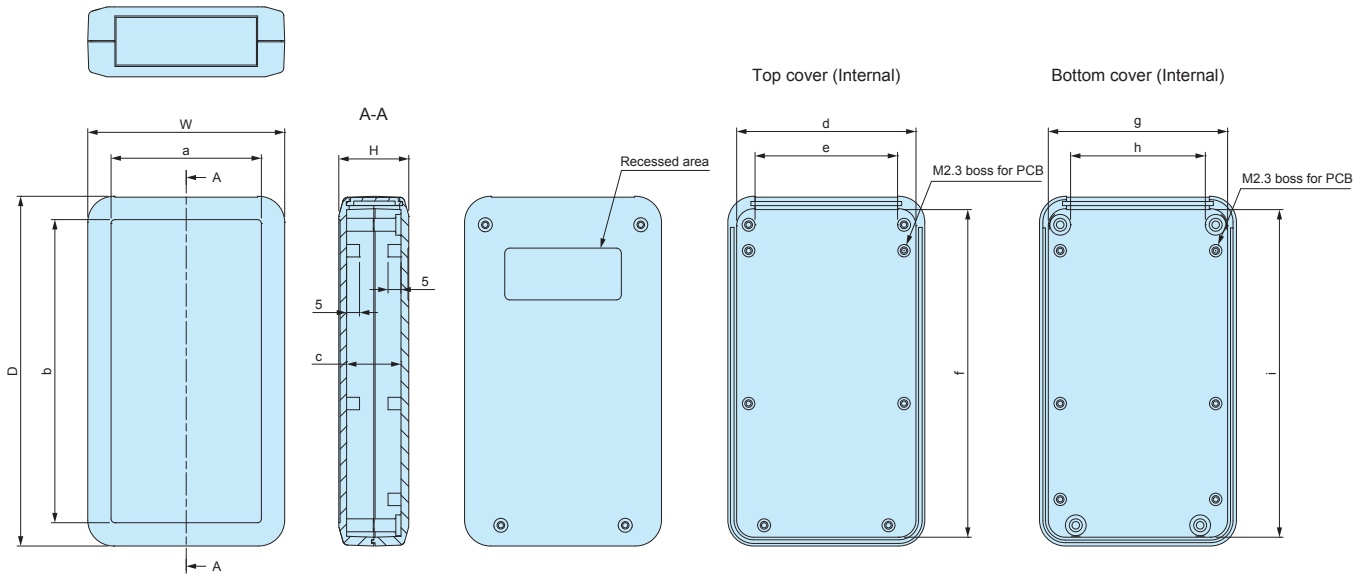
LC / LCS / LCT115-F2 • LC / LCS / LCT115H-F2
LC / LCS / LCT115-F3 • LC / LCS / LCT115H-F3
LC / LCS / LCT115H-M2 • LC / LCS / LCT115H-9V



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

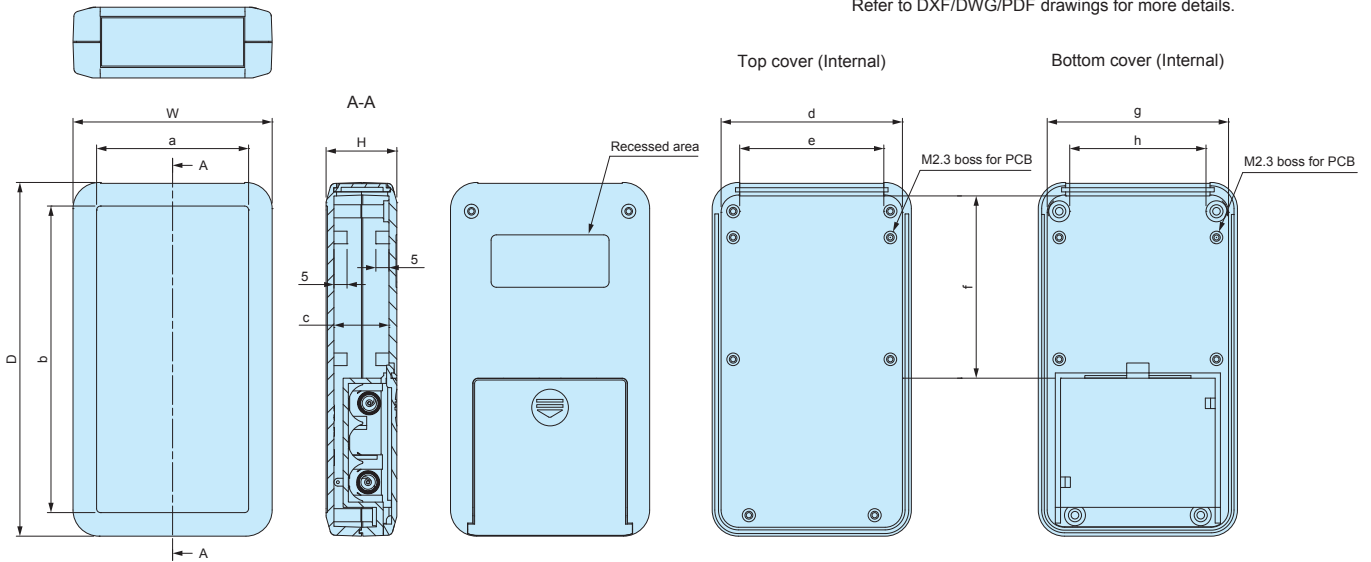
※ Number of PCB bosses vary by model.
Refer to DXF/DWG/PDF drawings for more details.



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.

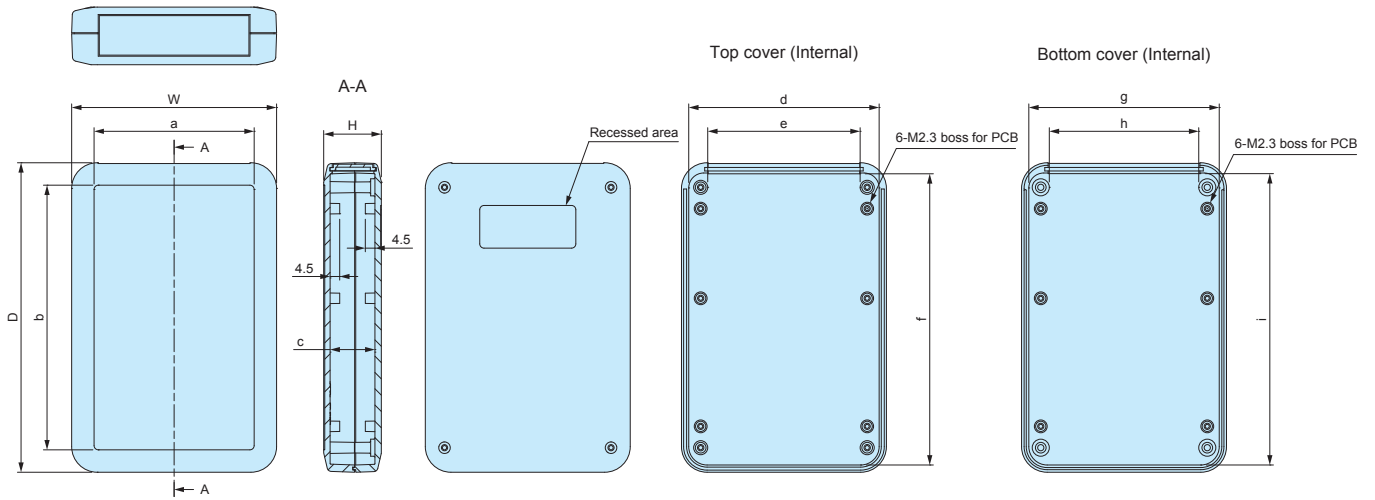


Product no.	W	H	D	a	b	c	d	e	f	g	h
LC • LCS • LCT135 -F4	76	27	135	58	117	21	68.2	55	69.4	68.3	51
LC • LCS • LCT135 -M2	76	27	135	58	117	21	68.2	55	84.5	68.3	51
LC • LCS • LCT135 -M3	76	27	135	58	117	21	68.2	55	69.4	68.3	51
LC • LCS • LCT135 -9V	76	27	135	58	117	21	68.2	55	84.5	68.3	51
LC • LCS • LCT135H-F4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

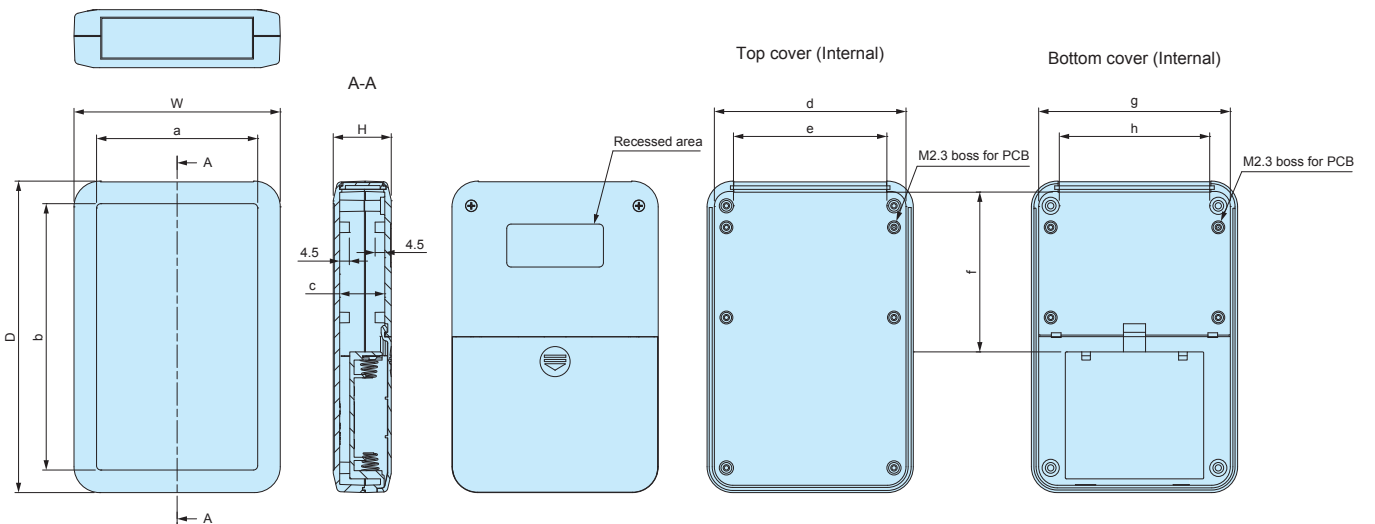
LC / LCS / LCT145S-N
LC / LCS / LCT145-N
LC / LCE / LCS / LCT145H-N



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

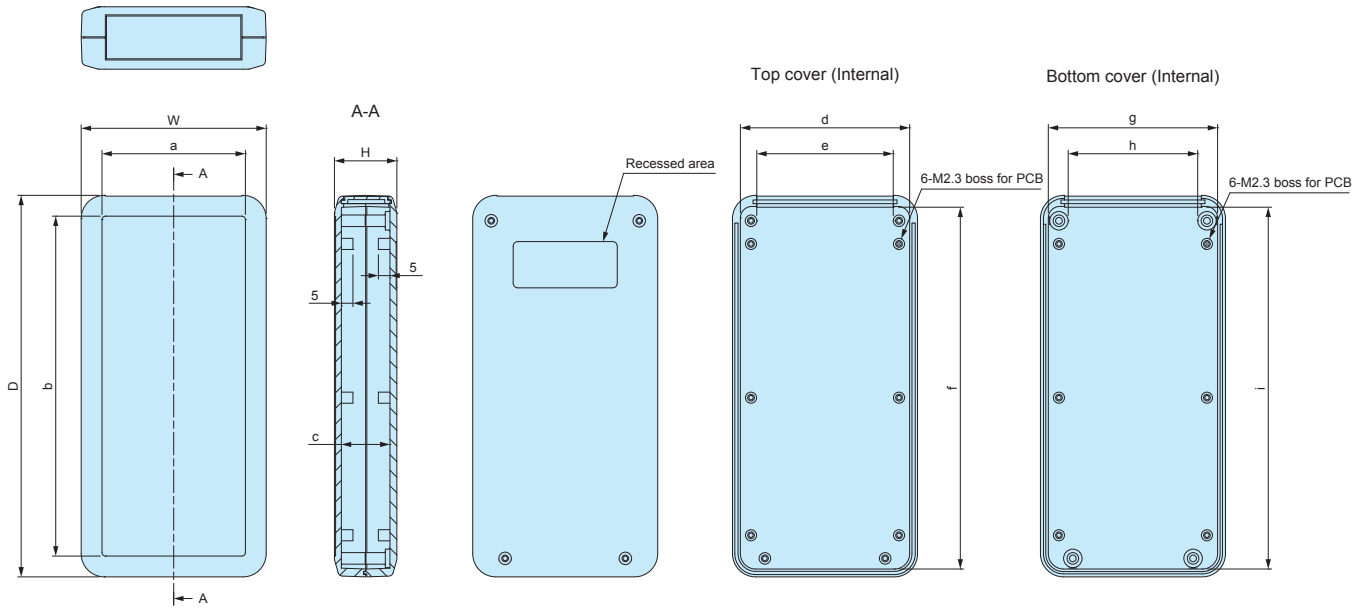
LC / LCS / LCT145S-F6 • LC / LCS / LCT145-F6 • LC / LCS / LCT145H-F6
LC / LCS / LCT145-M2 • LC / LCS / LCT145H-M2
LC / LCS / LCT145-M4 • LC / LCS / LCT145H-M4

※ 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

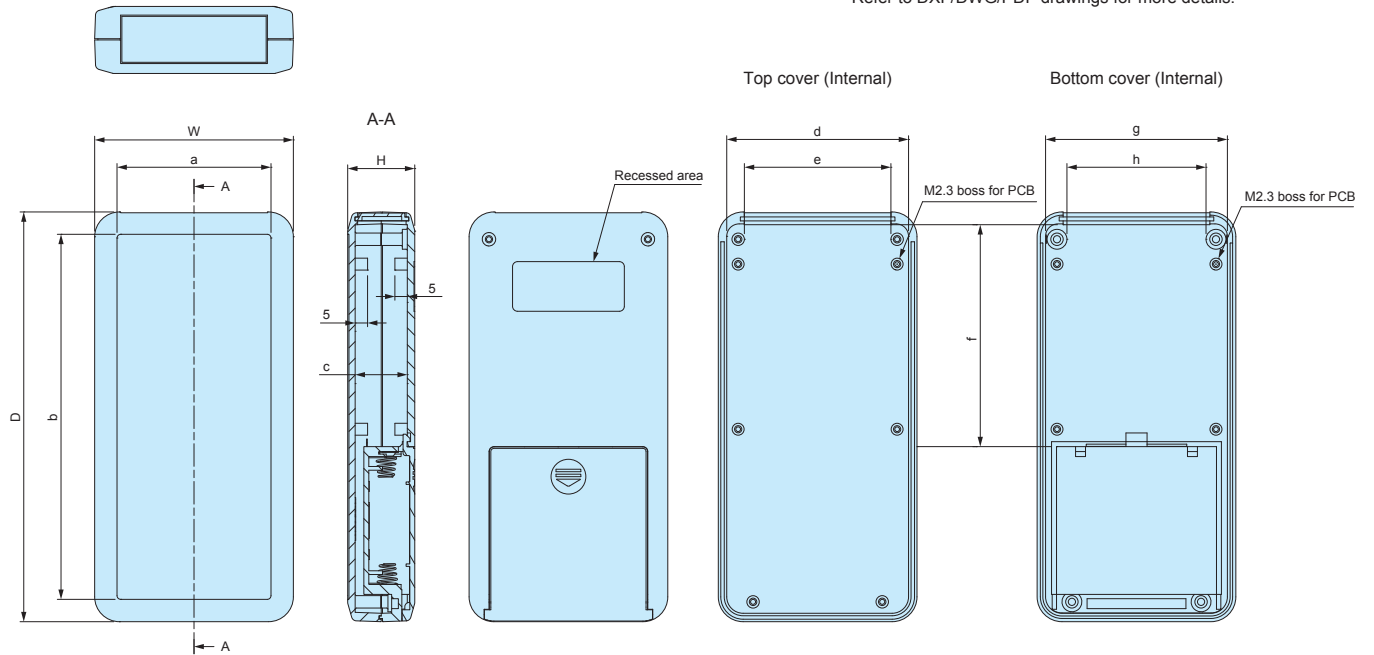
LC / LCS / LCT165-N
 LC / LCE / LCS / LCT165H-N



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

※ 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 • 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

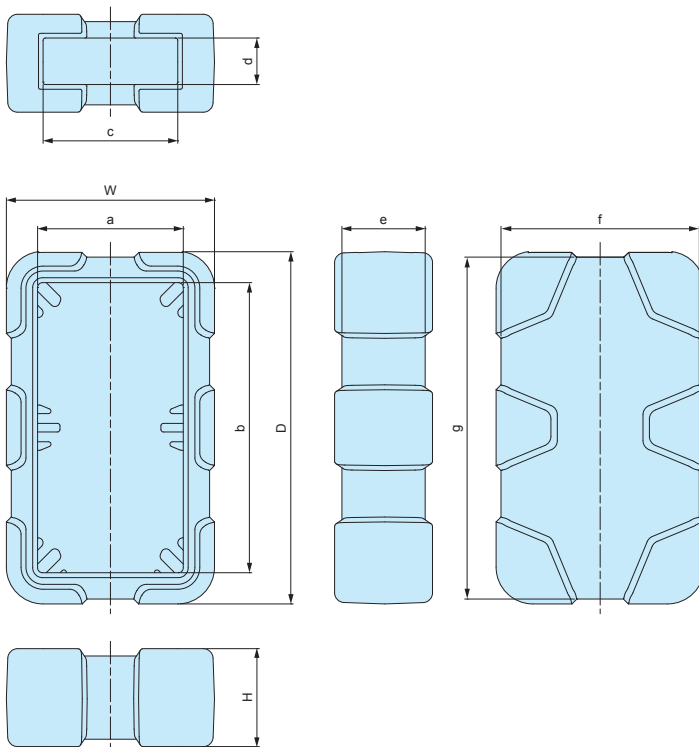
LCTP SERIES

SHOCK-PROOF SILICONE COVER

Color Type



- 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

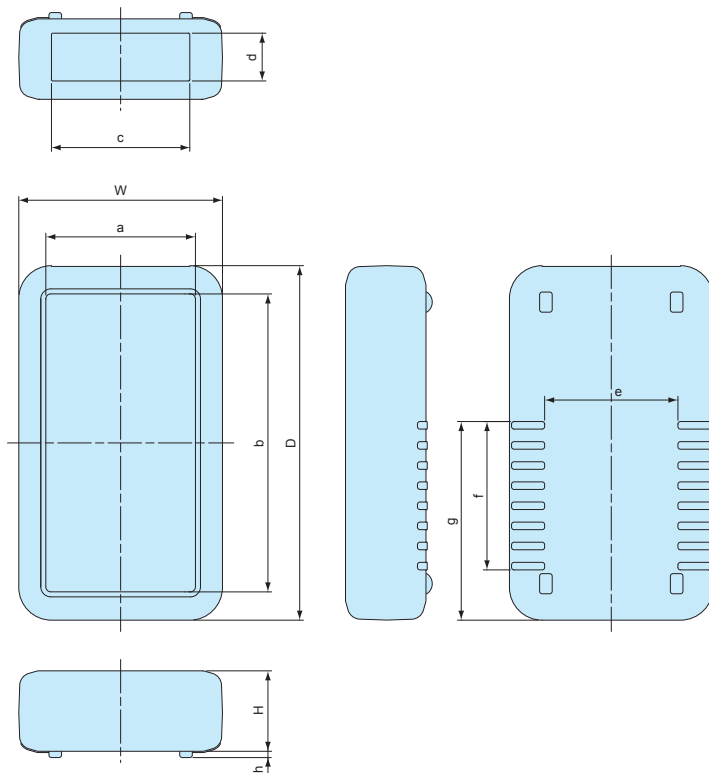
LCSC SERIES

SILICONE COVER

Color Type



- 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



Emergency Call Receiver / Transmitter

Product by Knop Elektronik A/S (Denmark)
Website : knop.dk



GPS Transmit Trigger

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



- Double shot injection molded TPE Grip and ABS Body.
- New AAA x 2 battery compartment model added. Case with a CR2032 coin battery, and no battery compartment types are also available. Solder battery contacts on PCB for CR2032 models.
- 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.
- See page WC-4 for coin battery contact installation step.

Technical Data
Protection class : IP67
Operating temperature : -10°C ~ +50°C
Recommended torque :
WC72 • WC90 : 0.06 ~ 0.08N • m
WC105 : 0.13 ~ 0.15N • m

WC72-□, WC90-□

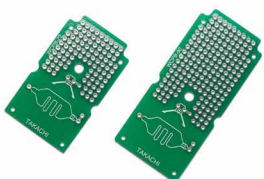
WC105-28



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	WC72 • WC90 : Stainless steel SUS304 WC105 : Brass • Hard steel wire	Nickel plated
5	O-ring	1	Silicone	Black
6	Screw	7	Stainless steel SUS304	Unfinished

Accessories (Optional parts)



Exclusive PCB WCPB series
See page WCPB-1



Strap STPS series
See page STPS-1

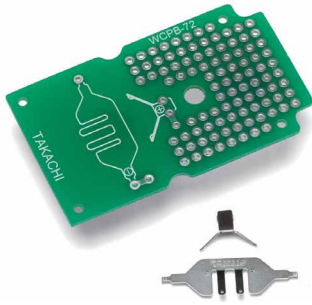


PCB mounting screw EM-1.6
See page EM • MR-1



Neodymium magnet NMG series
See page NMG-1

Coin battery contact installation step



Solder the contacts onto the PCB



Install the PCB in the top cover

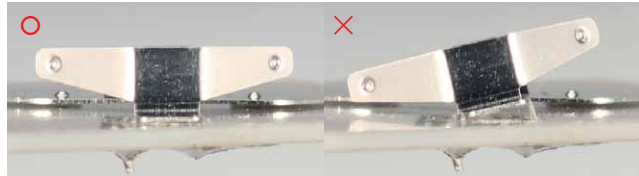


All set!

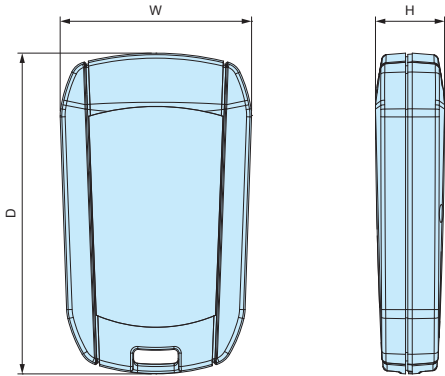
CAUTION ■ Use caution when mounting battery contacts.



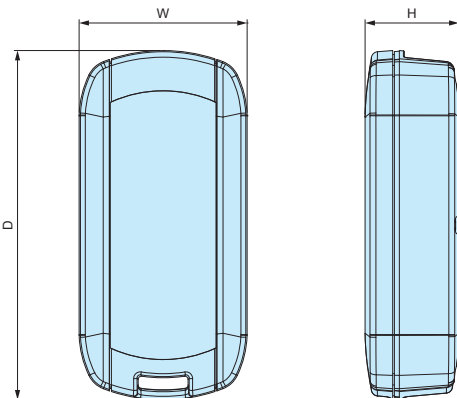
■ Battery direction is incused on the inner side of the battery lid.



WC72-□, WC90-□



WC105-28



Battery Compartment Types

Type	N	C	F2
	None	CR2032 x 1	AAA x 2
Battery Compartment			

Color Type

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

Product no. / Dimensions

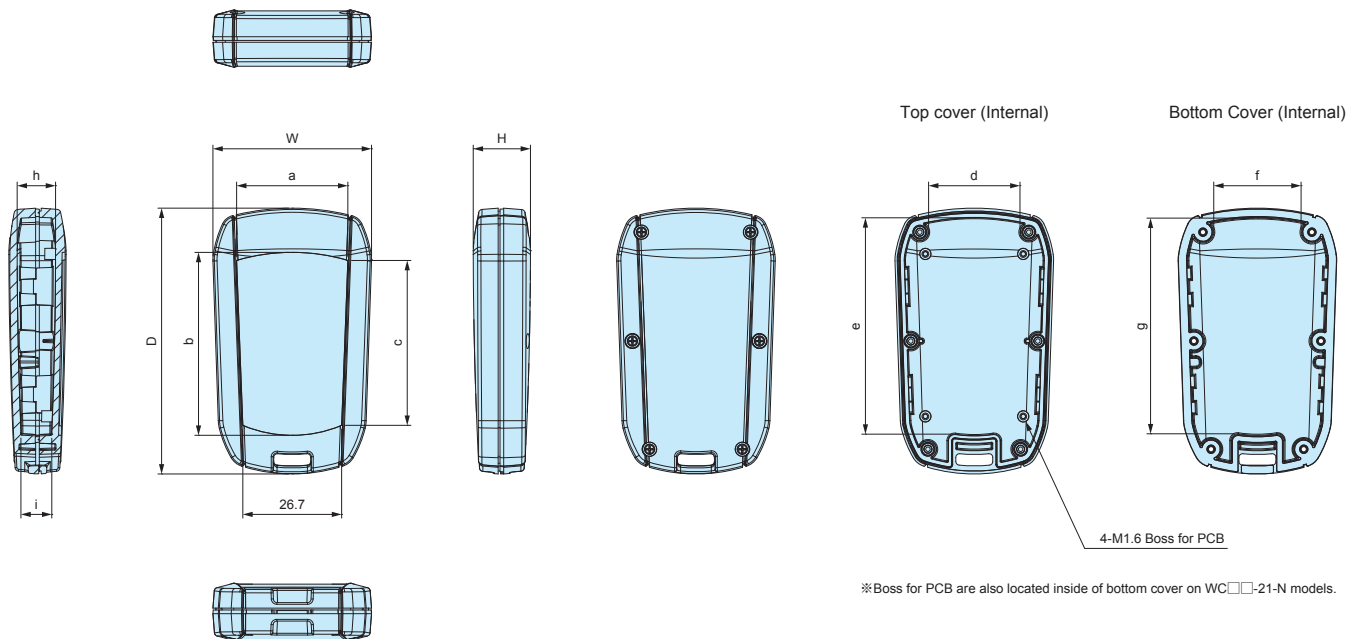
■ Please suffix color code at the end of the product number.

Product no.	W	H	D	Battery Compartment	Weight(g)
WC 72-15-N -□□	43	15.5	72	None	18.5
WC 72-15-C -□□	43	15.5	72	CR2032	22
WC 72-21-N -□□	43	21.5	72	None	22
WC 72-21-C -□□	43	21.5	72	CR2032	25.5
WC 90-15-N -□□	44.2	15.7	90	None	23
WC 90-15-C -□□	44.2	15.7	90	CR2032	26.5
WC 90-21-N -□□	44.2	21.7	90	None	27
NEW WC105-28-N -□□	50.5	28.2	105	None	47
NEW WC105-28-F2-□□	50.5	28.2	105	AAA x 2	58.5

WC dimensions

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

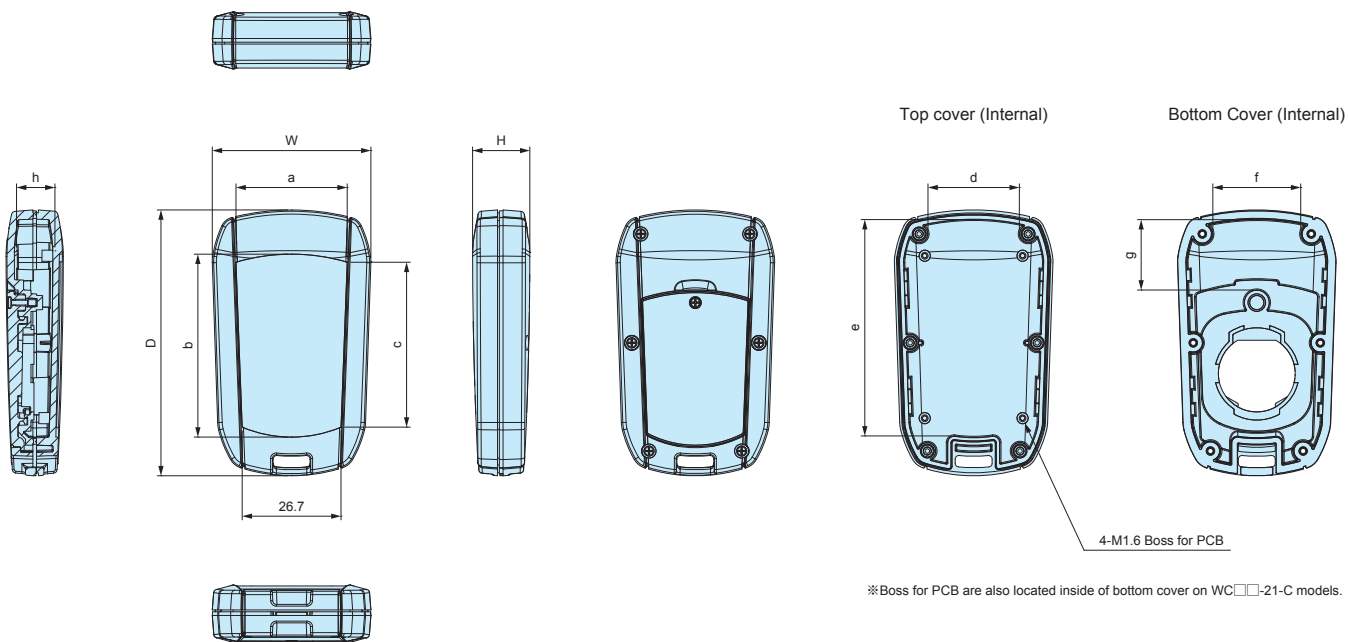
WC72-15-N / WC72-21-N
WC90-15-N / WC90-21-N



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

Product no.	W	H	D	a	b	c	d	e	f	g	h	i
WC72-15-N-□□	43	15.5	72	30.1	49.5	44.7	24.7	58.6	23.6	58.4	10.4	8.3
WC72-21-N-□□	43	21.5	72	30.1	49.5	44.7	24.7	58.6	23	56.3	16.3	14.3
WC90-15-N-□□	44.2	15.7	90	31.4	67.5	62.7	26.1	76.6	25	76.4	10.4	8.3
WC90-21-N-□□	44.2	21.7	90	31.4	67.5	62.7	26.1	76.6	24.4	74.3	16.4	14.3

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



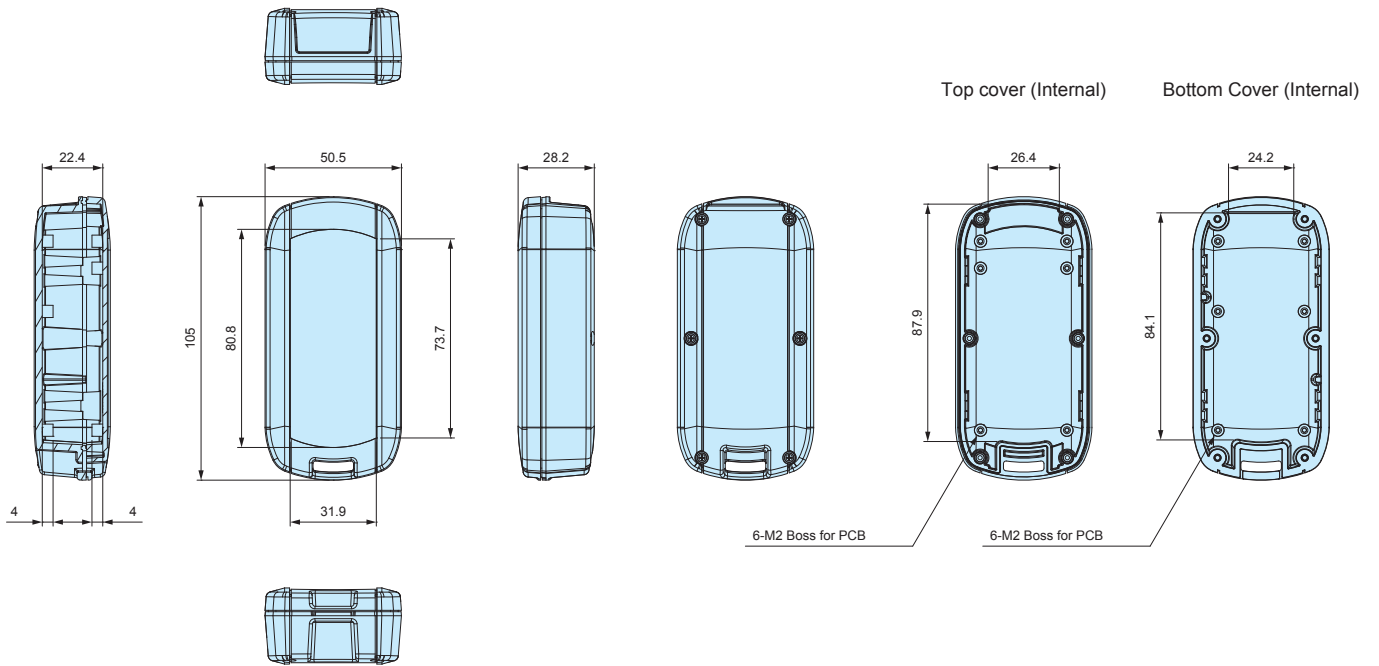
※Boss for PCB are also located inside of bottom cover on WC□□-21-C models.

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

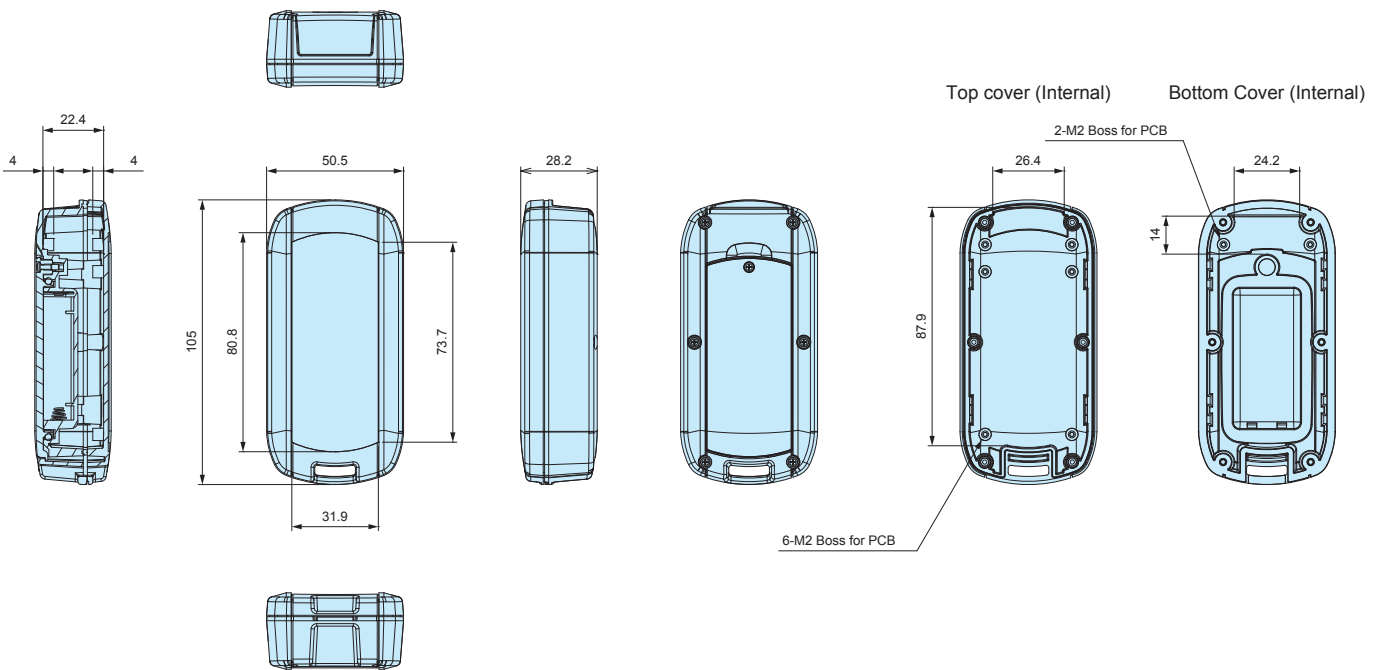
WC dimensions

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

WC105-28-N



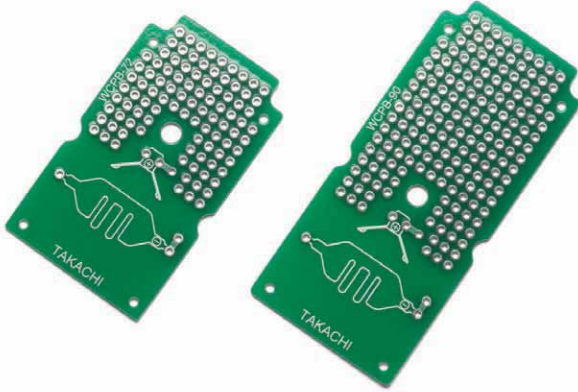
WC105-28-F2



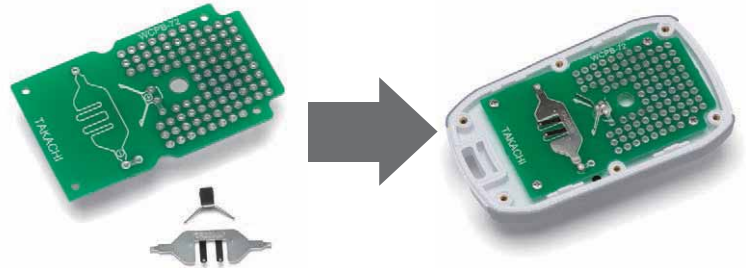
WCPB SERIES

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.

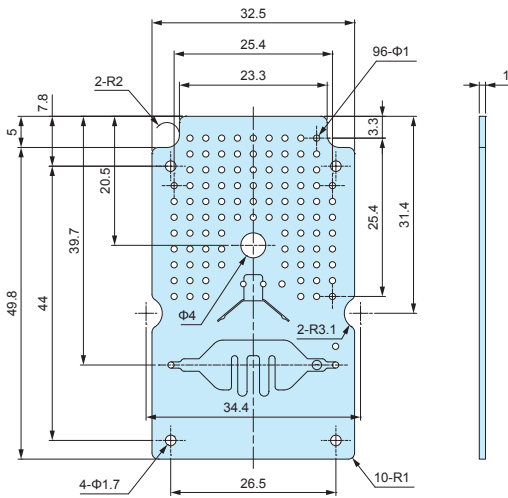


Please use battery contacts included with WC case.

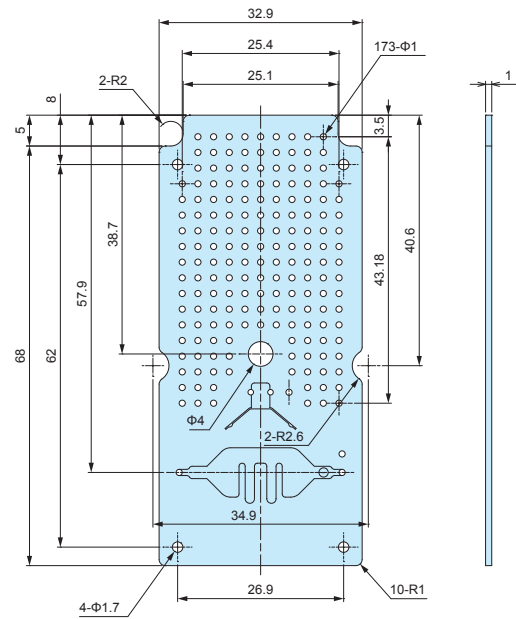


- DXF/DWG/PDF drawings available on our website.

WCPB-72



WCPB-90



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

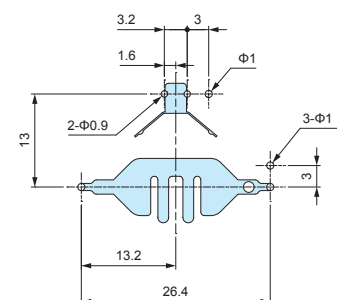
Components

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

Product no. / Dimensions

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

Battery contact position details



CSS - CS SERIES

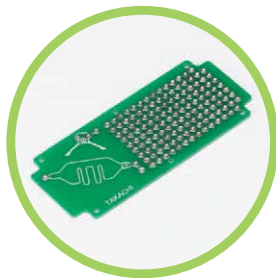
SMALL PLASTIC CASE WITH SILICONE COVER

Built-in CR2032 Coin Battery Compartment

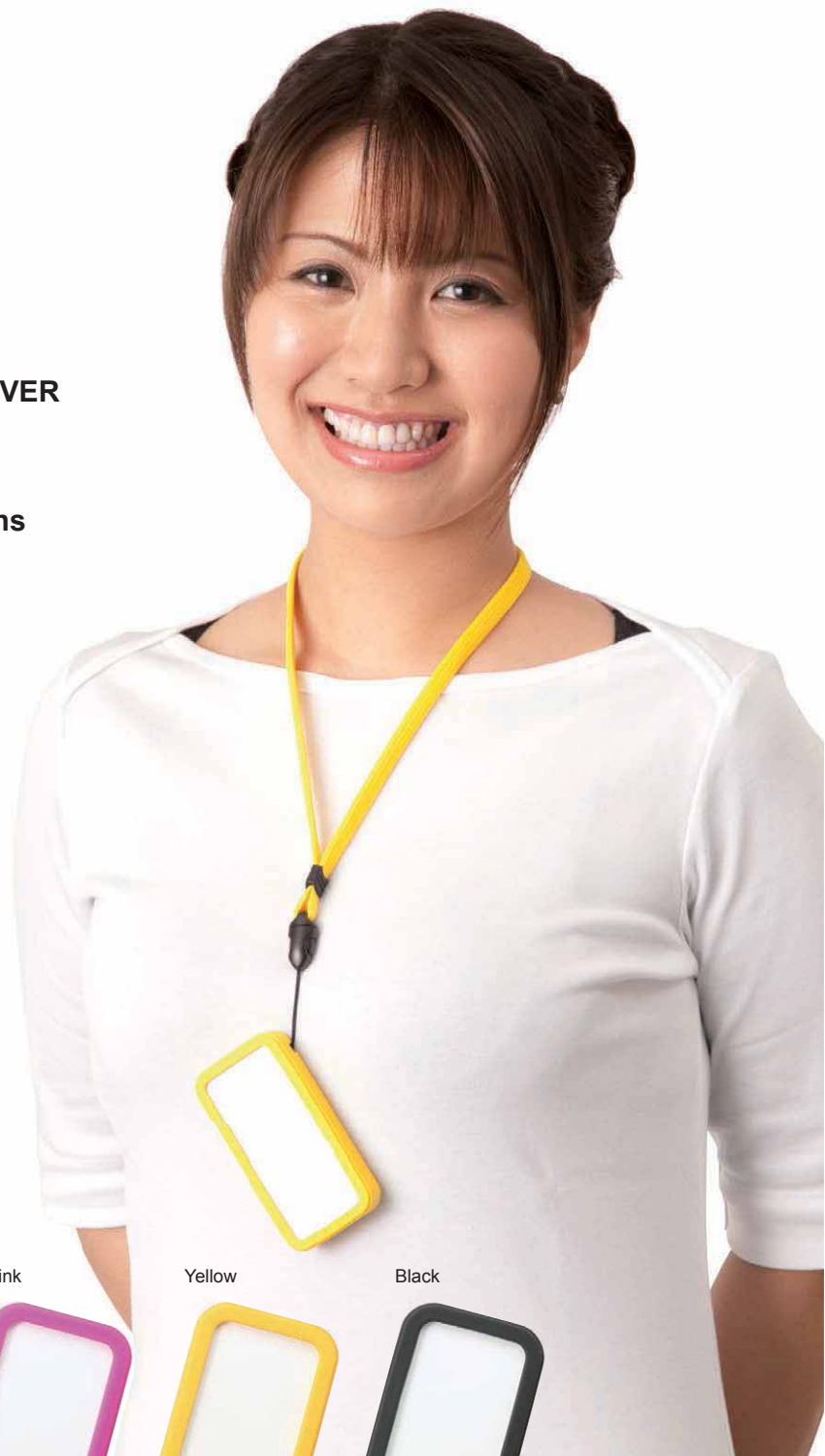
Selectable in 3 sizes & 12 color combinations



Built-in CR2032
battery compartment



Exclusive
universal PCBs



Pink



Yellow



Black



Green



Blue



Light gray

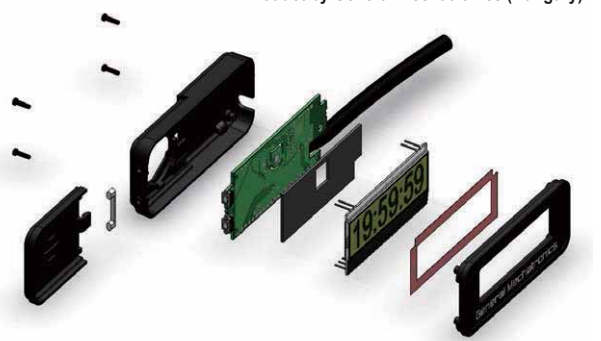


6 Colors

APPLICATION EXAMPLE

MOTOR SPORT INFRARED LAPTIMER (BLUETOOTH 4.0 & ANDROID 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 REMOTE 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)



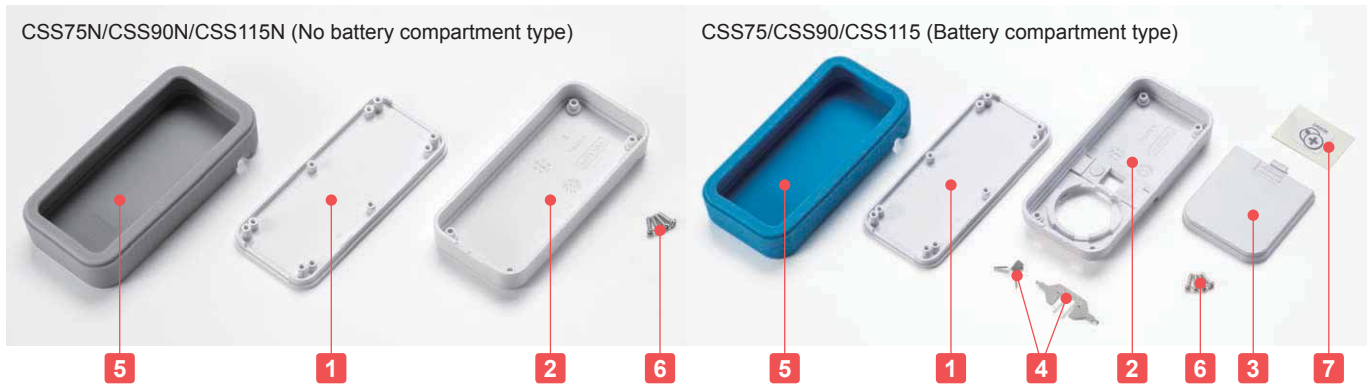
CSS SERIES

PORTABLE PLASTIC CASE with SILICONE COVER



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

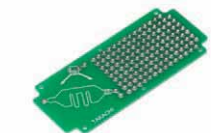
- Small plastic case with silicone cover. Strong against drop impact while providing a secure grip.
- Smart phone sized CSS115 comes with 2 CR2032 battery compartment while smaller sized single battery and no battery compartment types are also available.
- Suitable for remote controller, wireless key 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.



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 CSPB-1



Strap STPS series
See page STPS-1



PCB mounting screw EM-1.6
See page EM • MR-1



TORX screw MR1.6-6S
See page EM • MR-1



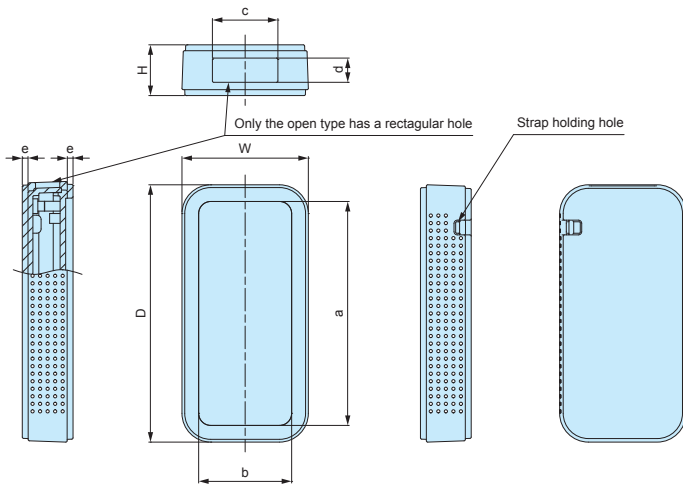
Neodymium magnet NMG series
See page NMG-1

Silicone Cover Type



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 CSPB-1 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.

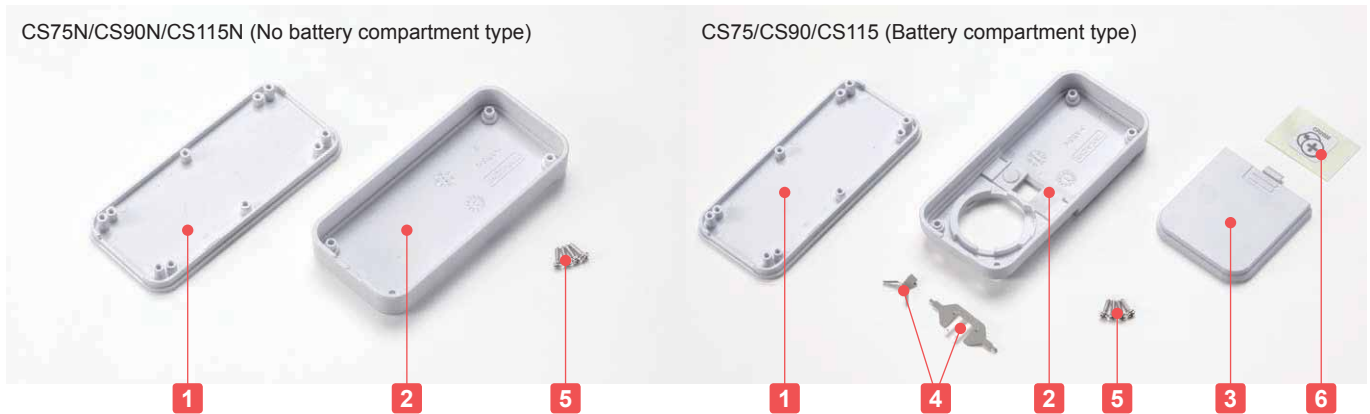


- Easy replacement of batteries. Battery contact included in each case (except for N type).
- Suitable for remote controller, wireless key fob, or small tester/device, and so on.
- 3 sizes with 2 different color types available.

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 CSPB-1

Strap STPS series
See page STPS-1

PCB mounting screw EM-1.6
See page EM • MR-1

TORX screw MR1.6-6S
See page EM • MR-1

Suspension bracket WM series
See page WM-1

Neodymium magnet NMG series
See page NMG-1

Coin battery contact installation instructions

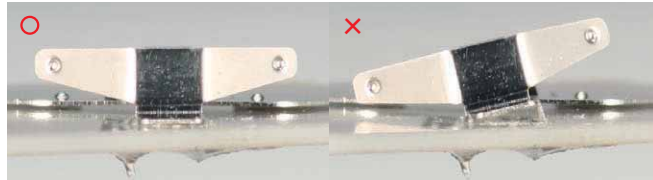


■ Exclusive PCB is available as an optional part. See page CSPB-1 for more details.
Refer to drawings on page CSPB-1 for suitable PCB dimensions and screw hole layout.

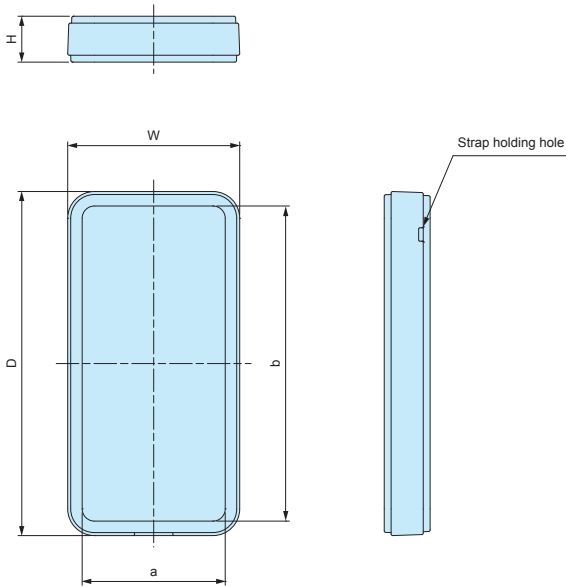


Stick the CR2032 sticker on the backside of the battery cover to avoid incorrect placement of the battery.

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

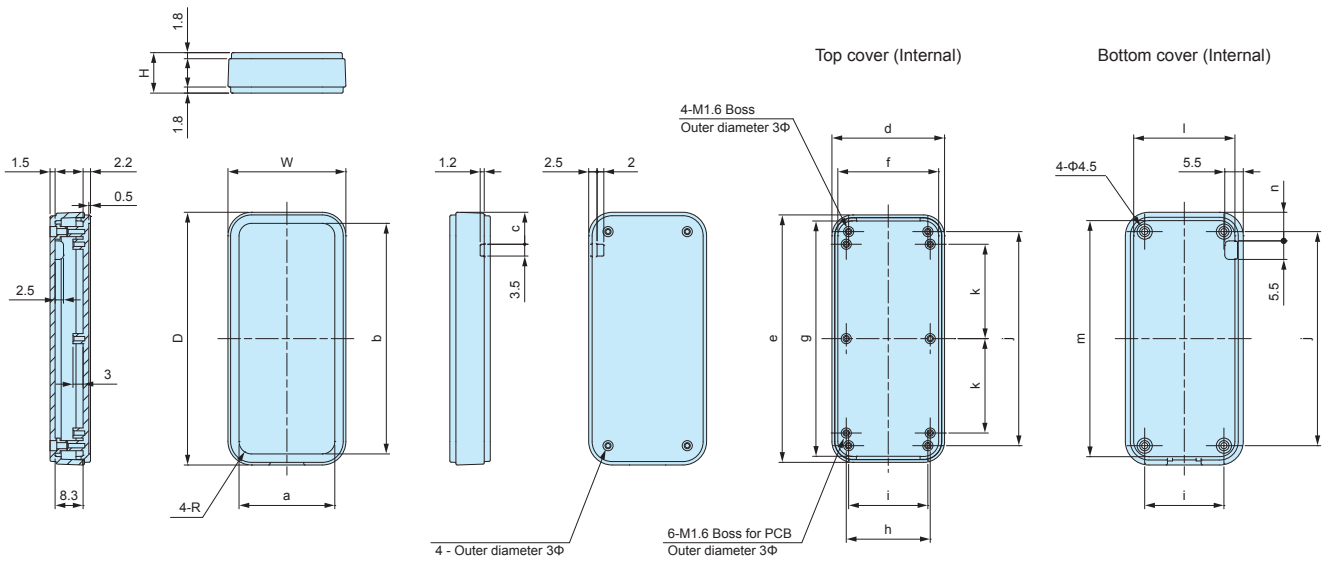
■ Please suffix color code at the end of the product number.

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

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

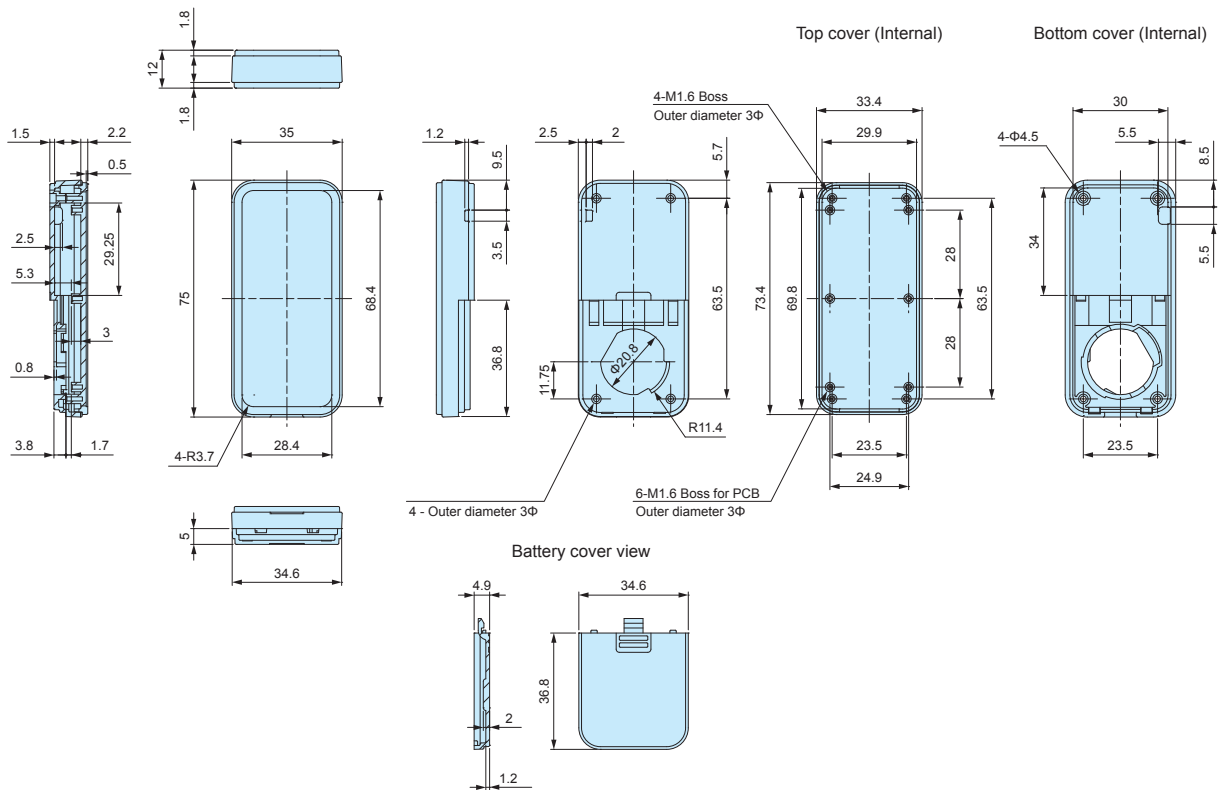
CS75N/CS90N/CS115N



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

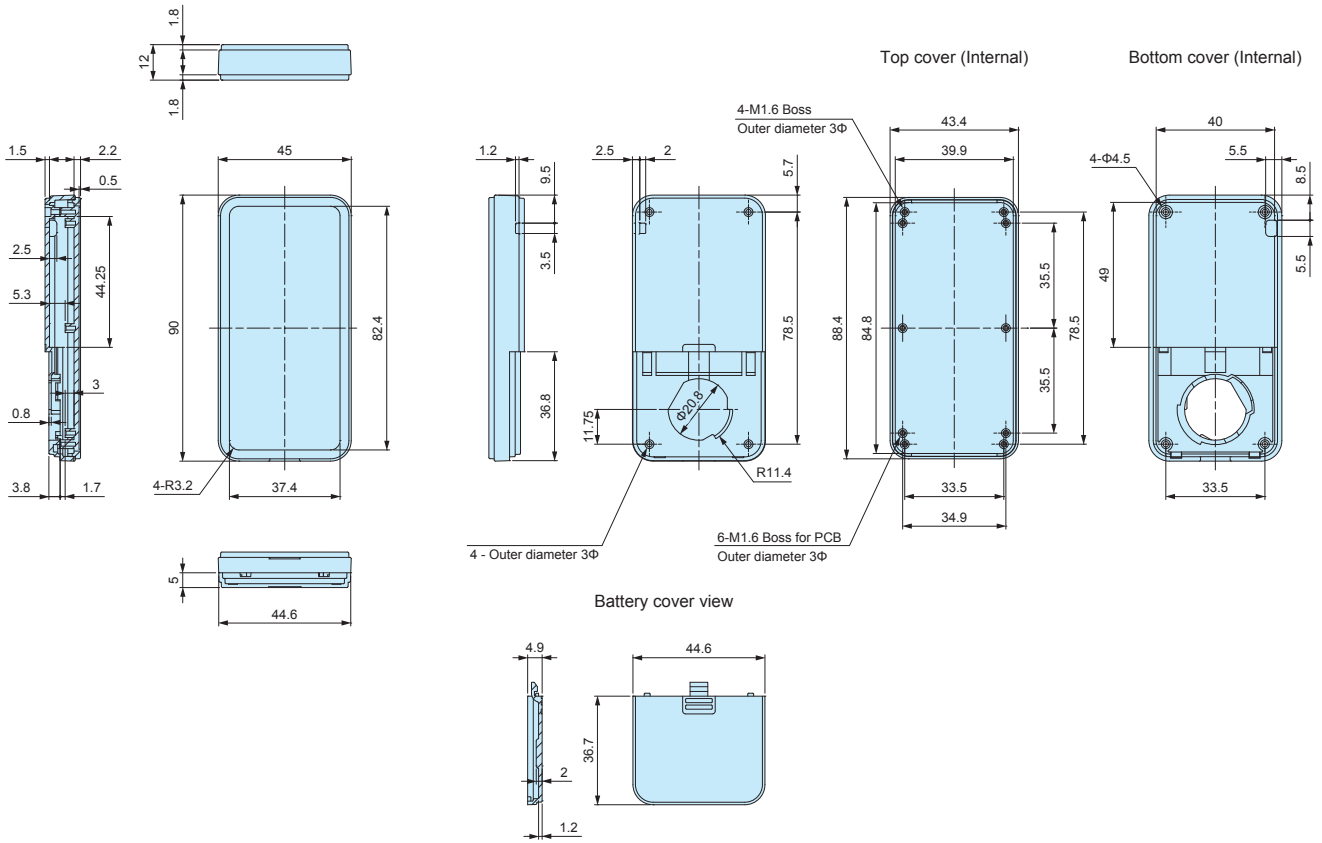
CS75

■ Refer to drawings on page CSPB-1 for suitable PCB dimension and screw hole layout.



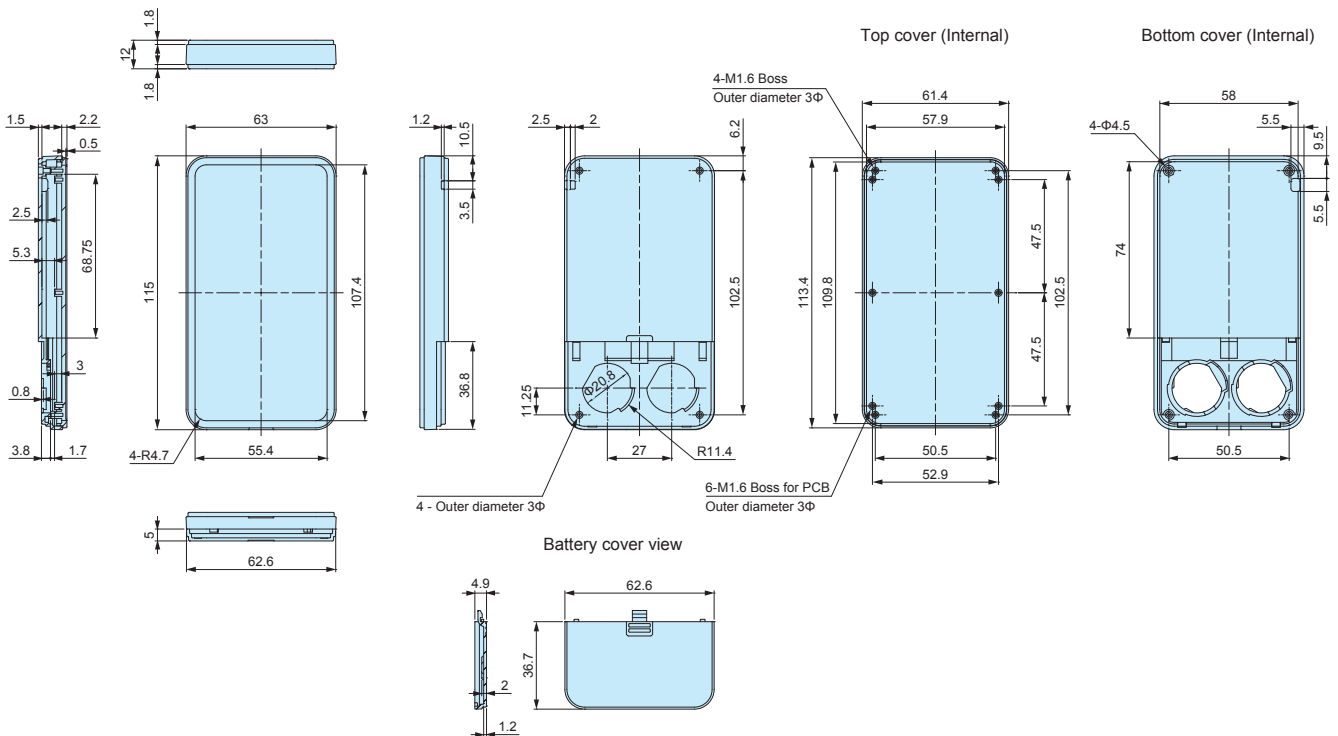
CS90

■ Refer to drawings on page CSPB-1 for suitable PCB dimension and screw hole layout.



CS115

■ Refer to drawings on page CSPB-1 for suitable PCB dimension and screw hole layout.



CSSC SERIES

SILICONE COVER

Silicone Cover Type



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

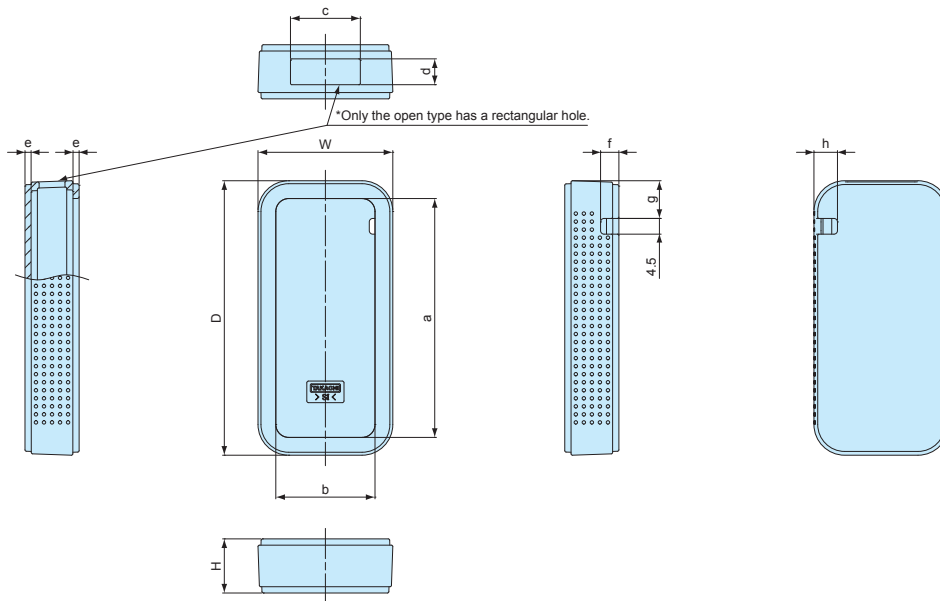
- Custom color is available from 1,000pcs per order batch.

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

Color Type



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



Components

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

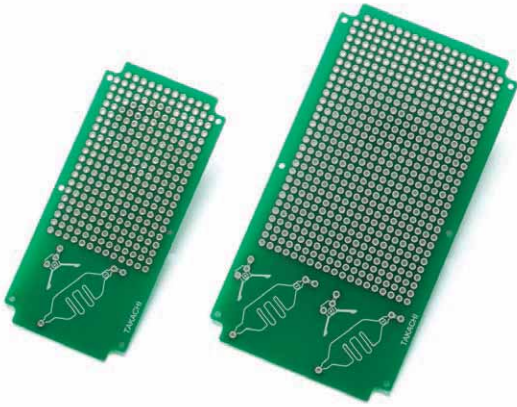
Product no. / Dimensions

- 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

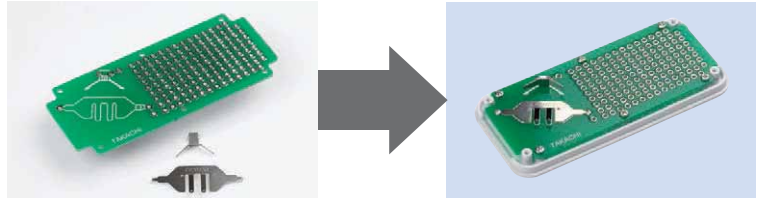
CSPB SERIES

EXCLUSIVE PCB for CS • CSS



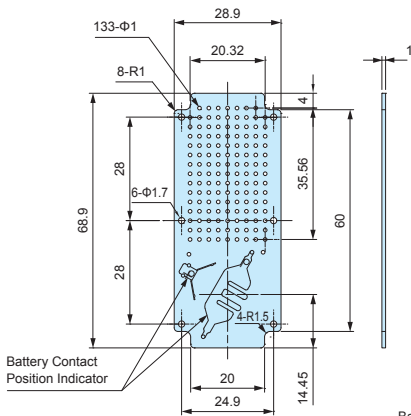
- Exclusive PCB for CS • CSS case.
- Glass epoxy board (FR-4), through-hole on both sides and 2.54mm hole distance.
- Prefabricated holes for battery contact use with CS • CSS case. The contact directions are printed on the PCB.

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

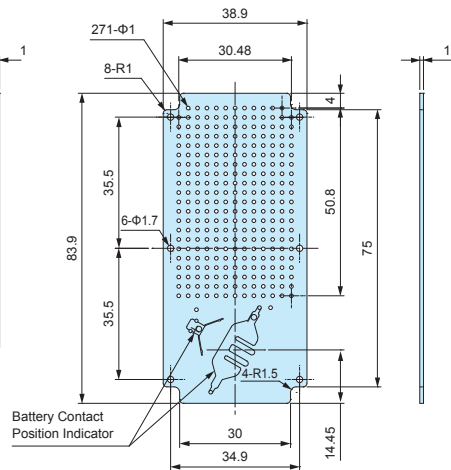


- DXF/DWG/PDF drawings available on our website.

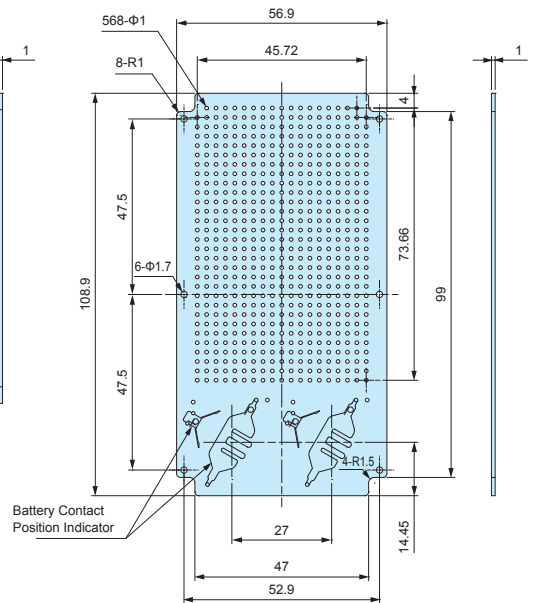
CSPB-75



CSPB-90



CSPB-115



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

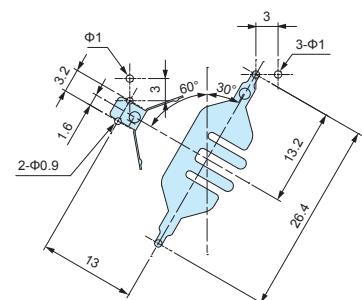
Components

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

Product no.

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

Battery Contact Position Indicator Details



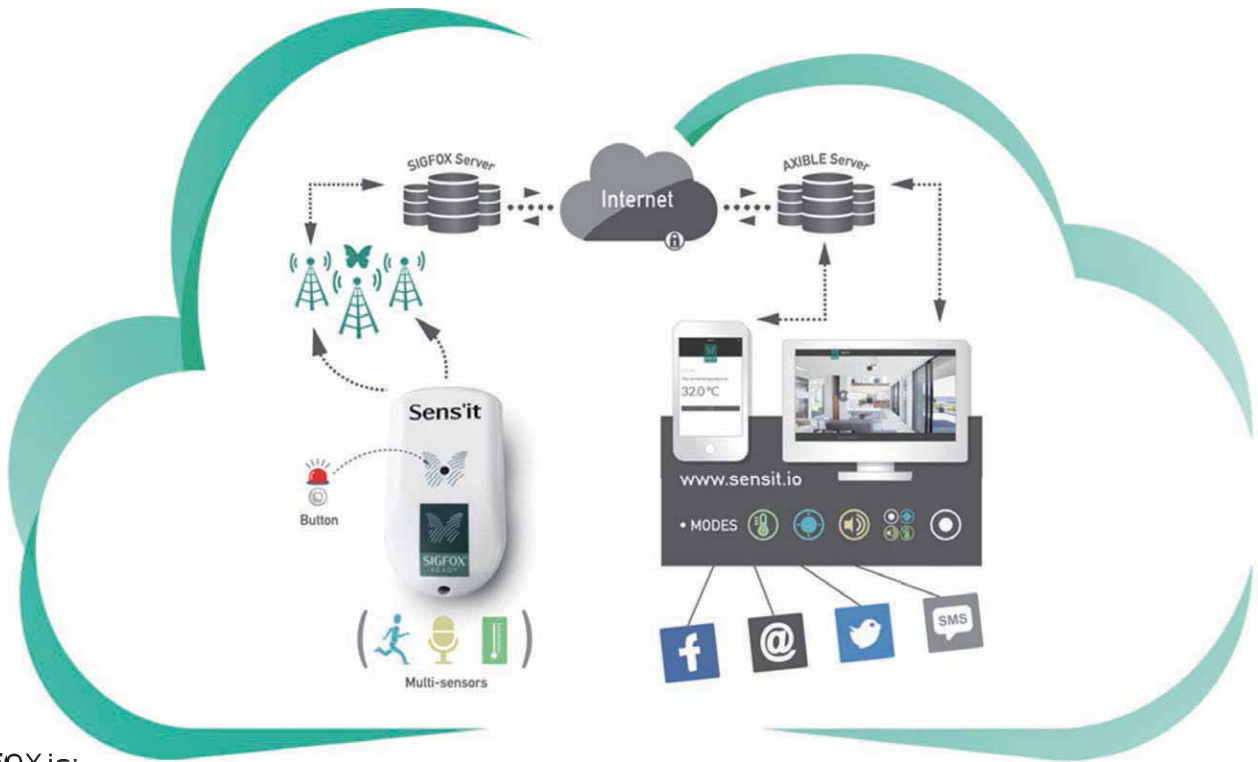
PS SERIES PORTABLE PLASTIC CASE

Suitable for wireless device, remote controller, key fob, and so on.
Available in 4 different sizes with 5 selectable colors.

PORTABLE MULTI-SENSOR SYSTEM Product by Axible Technologies (France)



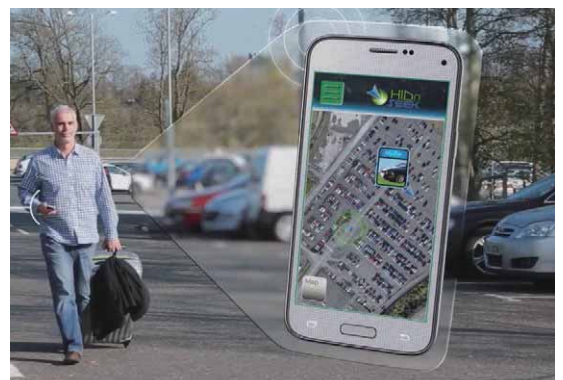
Multi-sensor system which detects motion, temperature, humidity and sound. Warnings are sent to the owner, or 3rd parties via SMS, Twitter or Facebook when events such as a home invasion, or when a fire occurs.



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

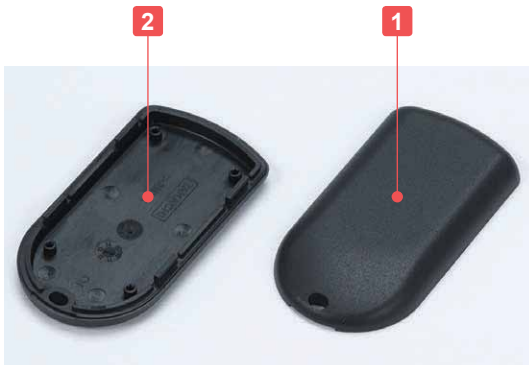


PS SERIES

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 EM • MR-1



Strap STPS series
See page STPS-1

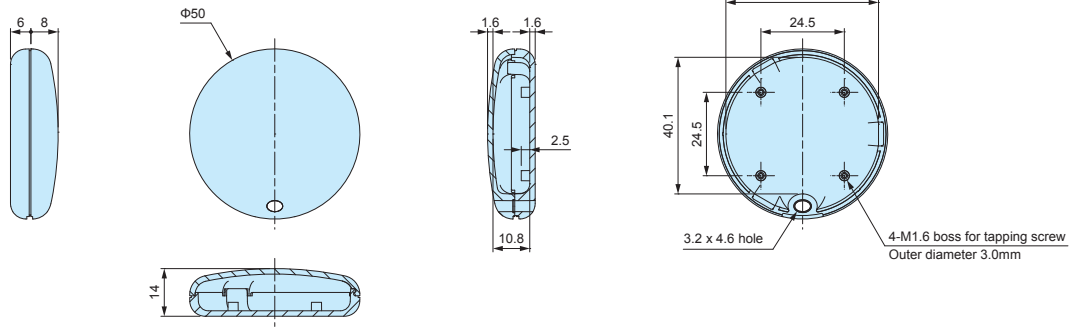


Neodymium magnet NMG series
See page NMG-1

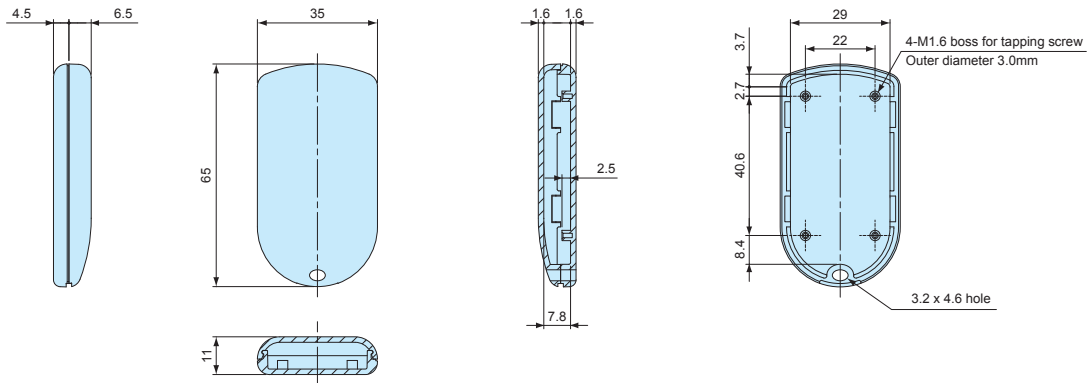
PS dimensions

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

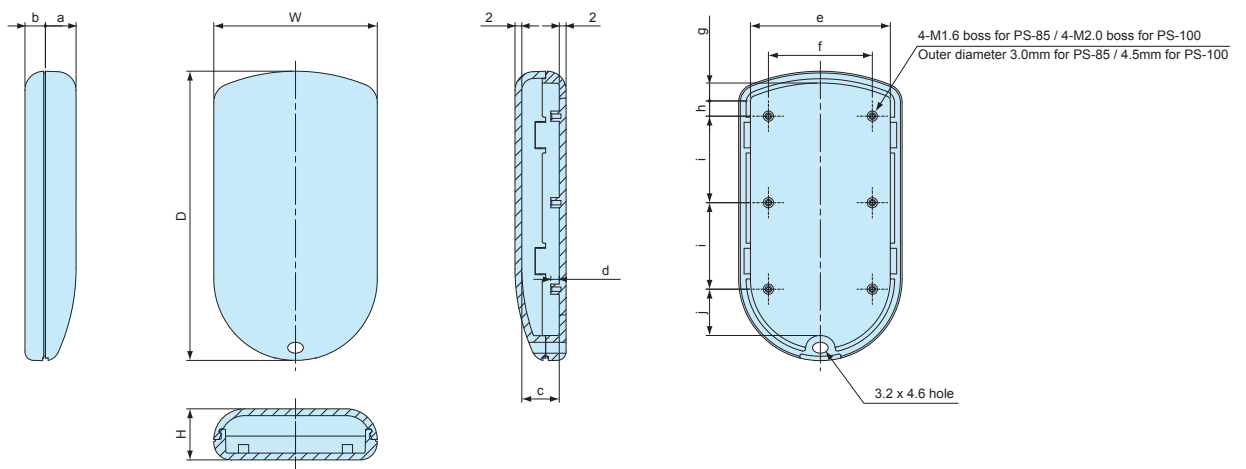
PS-50□



PS-65□

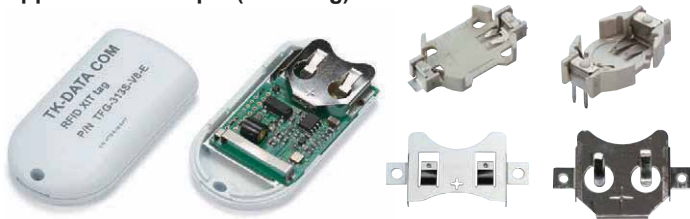


PS-85□ / PS-100□



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)



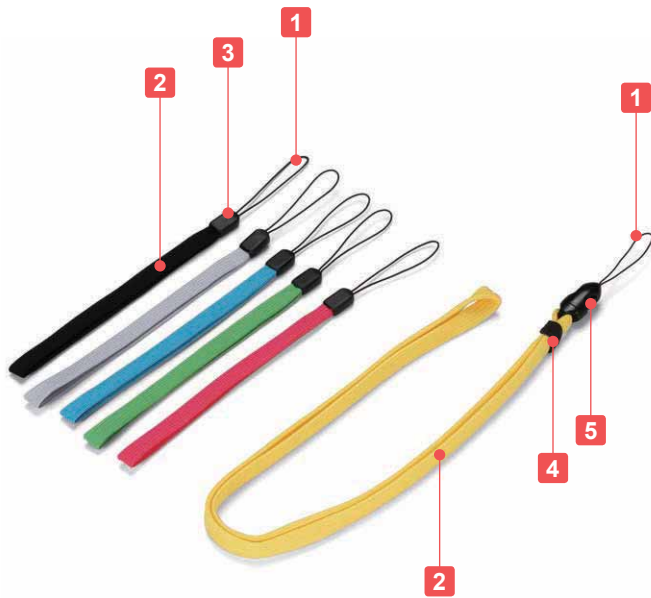
■ A variety of suitable coin battery holders are available.
See battery holder pages for more details.

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						

Components

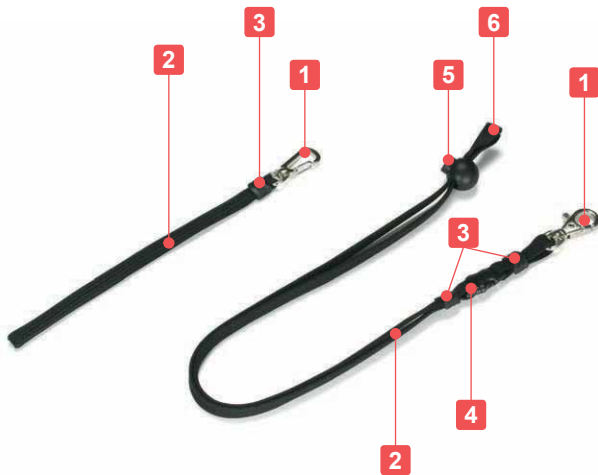
No.	Part name	Material	Color
1	String	Polyester	Black
2	Strap	Polyester	Pink • Yellow • Green • Cyan • Light gray • Black
3	Cap (wrist strap only)	Nylon	Black
4	Clamp (neck strap only)	Elastomer	Black
5	Joint (neck strap only)	Polyacetal	Black

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

STP SERIES

STRAP



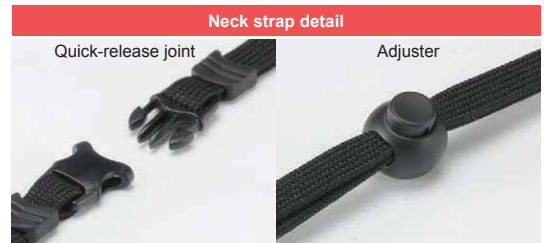
Wrist strap (STP-200)



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

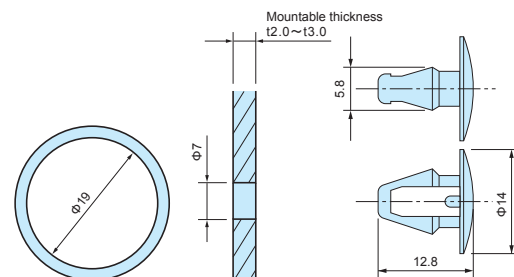
Product no.	Strap width	Strap length	Strap material	Cap material
STP-200	8	200	Nylon	Polyurethane x 1
STP-450	10	450	Polyester	Elastomer x 2

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 Φ	Installation hole	Mounting thickness
CR-20	$\phi 19$	$\phi 7$	t2.0 ~ t3.0

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)

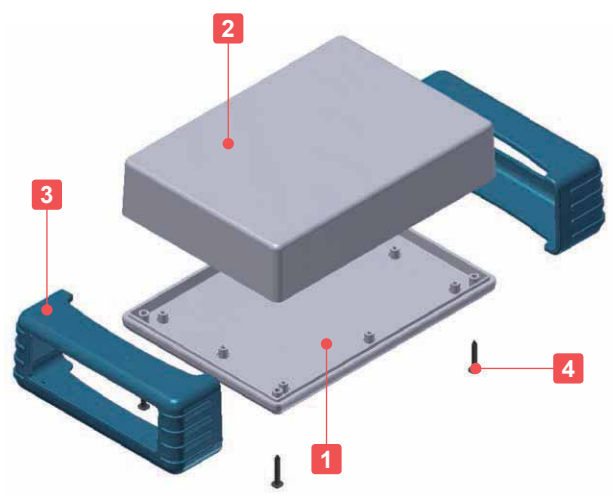


TWS SERIES

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

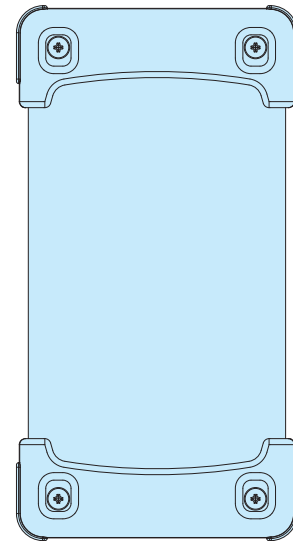
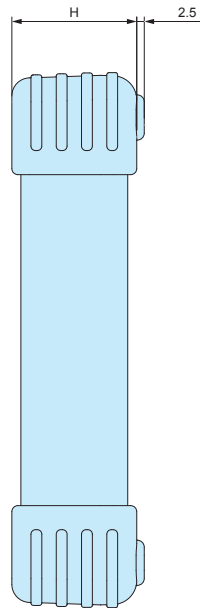
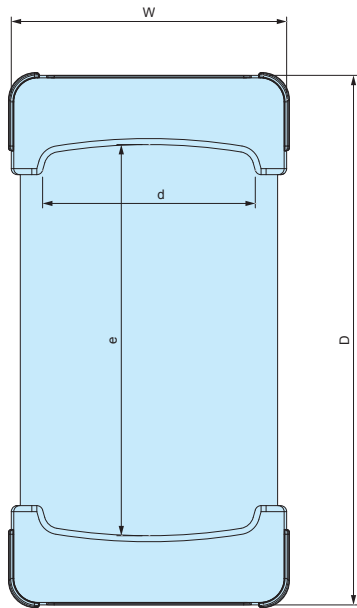
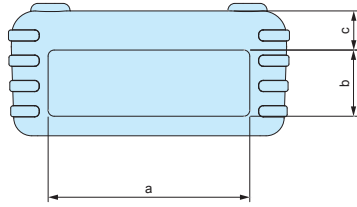
■ Please suffix color code at the end of the product number.

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.

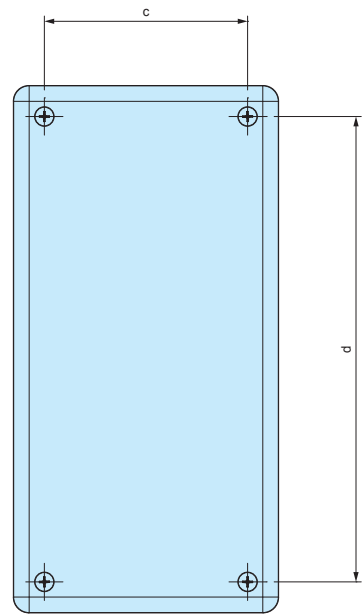
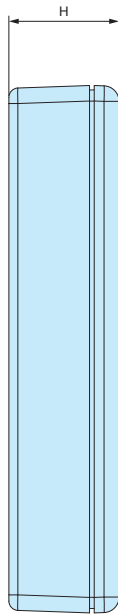
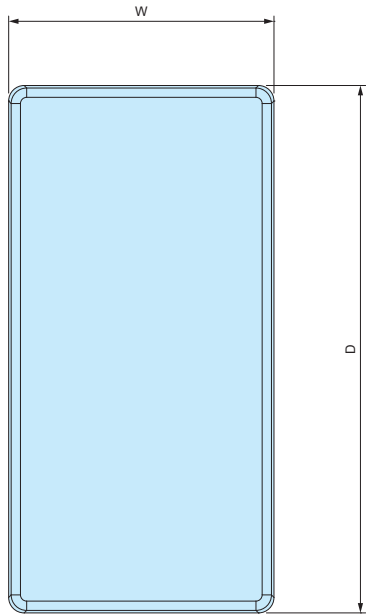
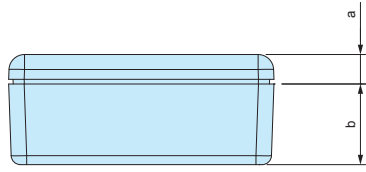


■ Please suffix color code at the end of the product number.

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.

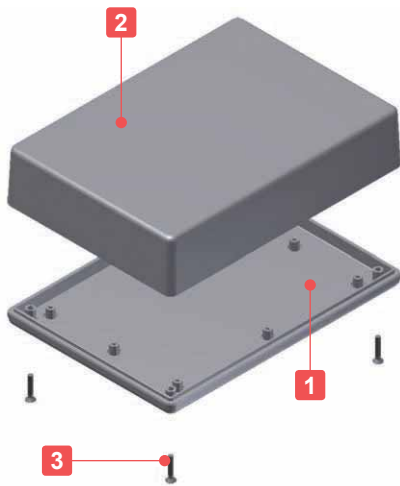


■ Please suffix color code at the end of the product number.

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

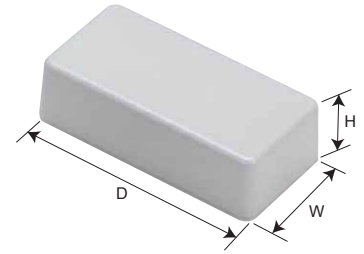


SURGE PROTECTION DEVICE CHECKER

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

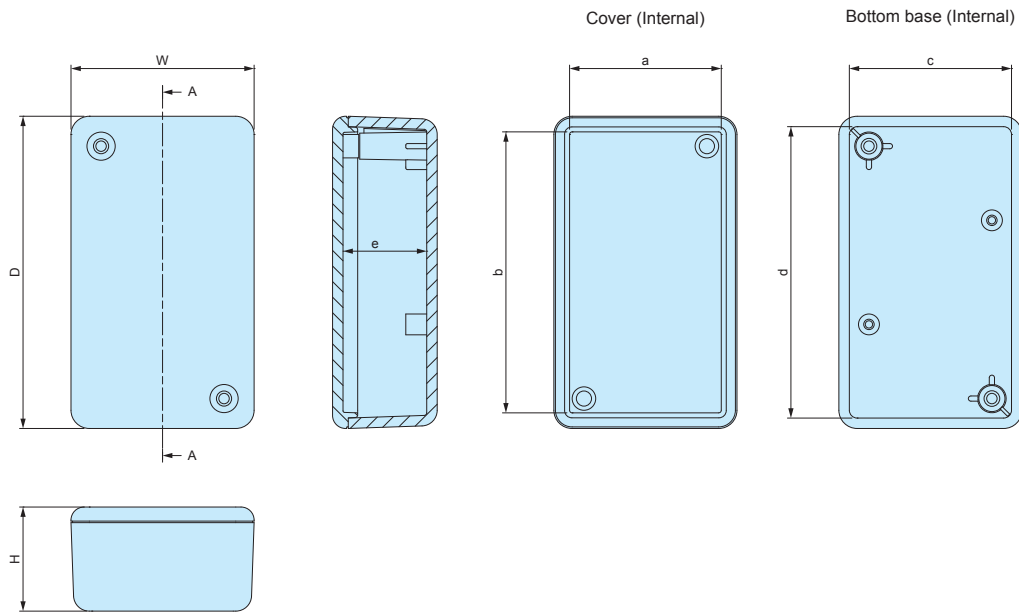
TWN series (ABS UL94V-1 • UL94V-0)
Product no. / Dimensions

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

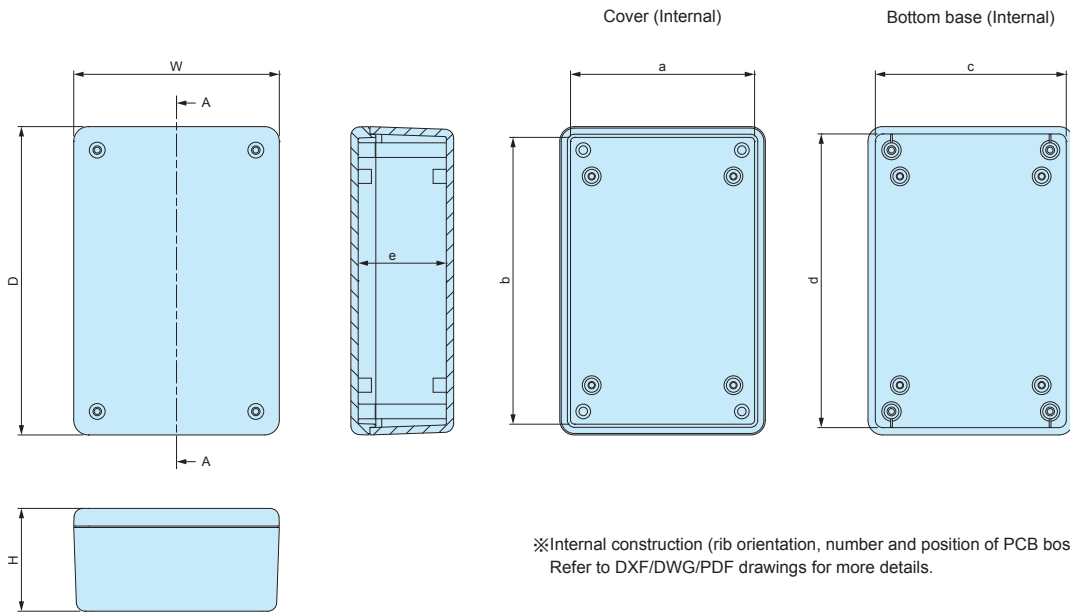
■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

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.

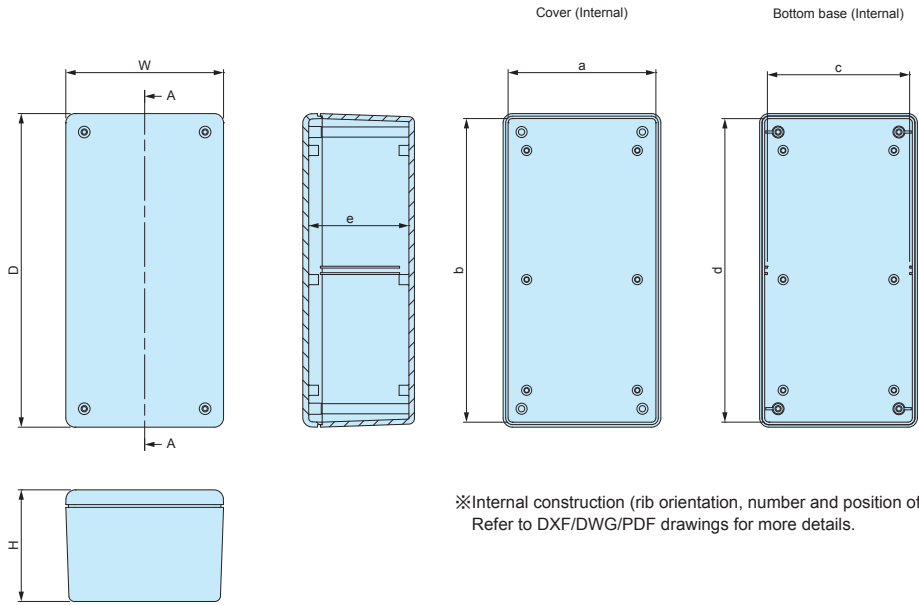
Product no.	W	H	D	a	b	c	d	e
TW 5-2- 5□	50	15	50	42.8	42.8	44.3	44.3	11
TW 5-3- 5□	50	25	50	42.8	42.8	43.6	43.6	21
TW • TWN5-2- 7□	50	15	70	43.2	63.2	44.3	64.3	11
TW • TWN5-3- 7□	50	27.5	70	43.2	63.2	43.4	63.4	23.5
TW • TWN5-4- 7□	50	40	70	43.2	63.2	42.5	62.5	36
TW • TWN7-2-11□	70	20	105	61.2	96.2	63.2	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)



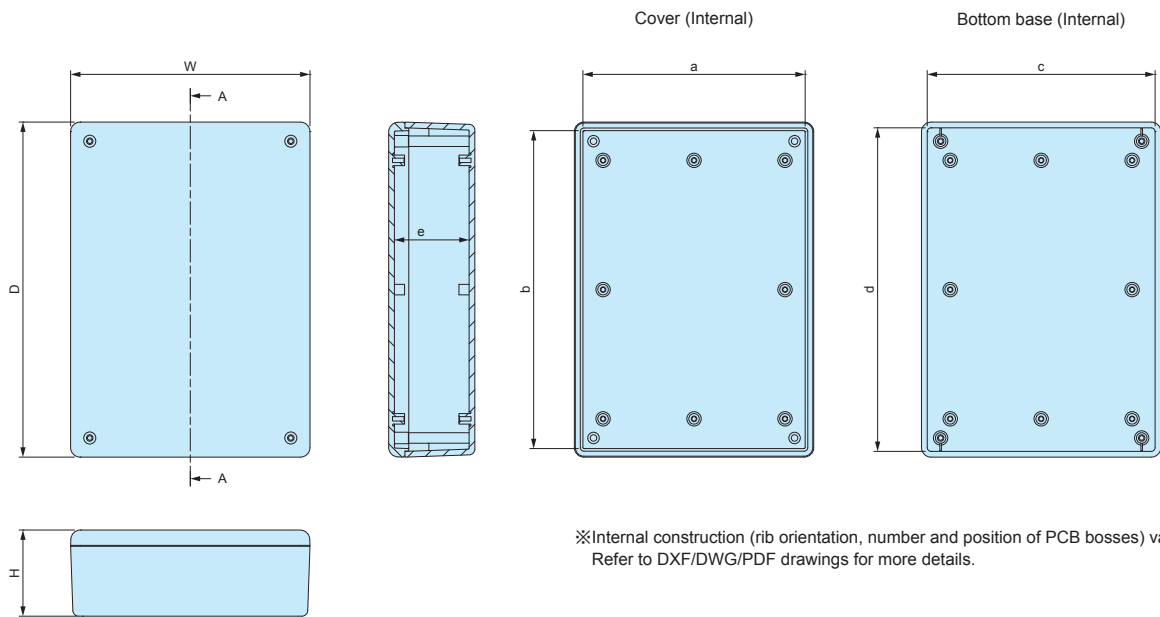
※Internal construction (rib orientation, number and position of PCB bosses) vary by model
Refer to DXF/DWG/PDF drawings for more details.

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)

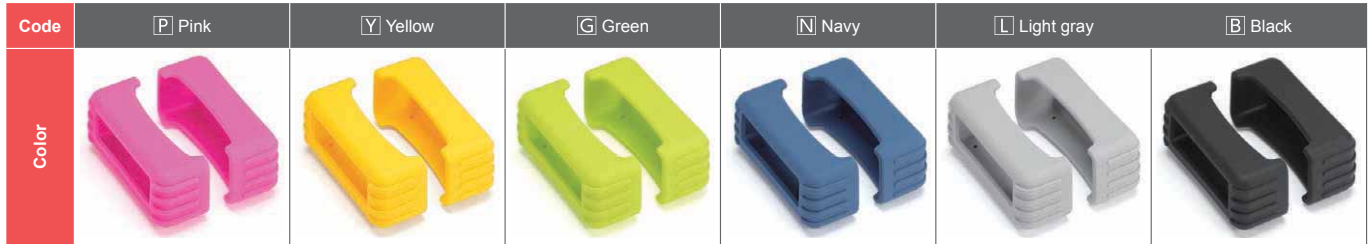


※Internal construction (rib orientation, number and position of PCB bosses) vary by model
Refer to DXF/DWG/PDF drawings for more details.

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

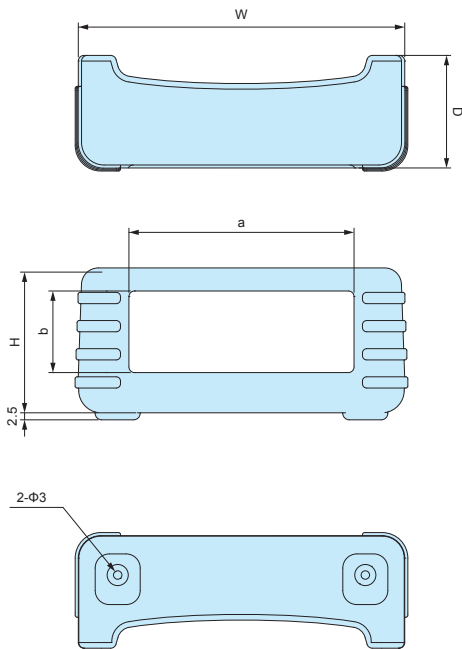
TWSC SERIES SILICONE PROTECTOR for TW•TWN

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.

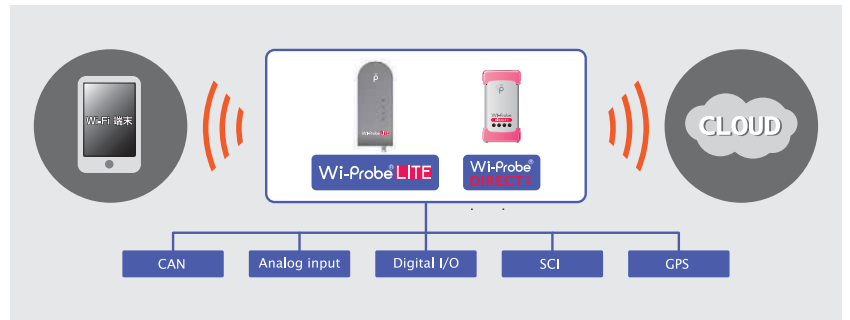
■ DXF/DWG/PDF drawings available on our website.



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

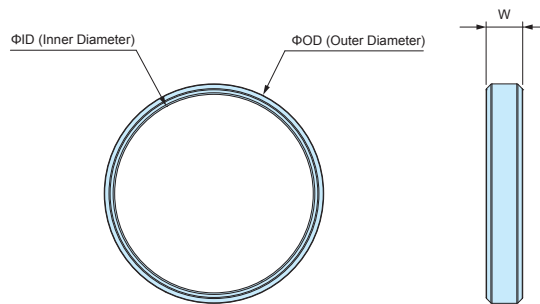


- Silicone band designed to fit TW & TWN series. Refer to the table below for size suitability.
- Silicone band provides both shock resistance and non-slip grips for the TW & TWN enclosure.

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)
NEW 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
NEW 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
NEW SIB-58□	8	58	63	TW/TWN7-5-11 • 7-5-13 • 8-4-8 • 9-4-17	10
NEW 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

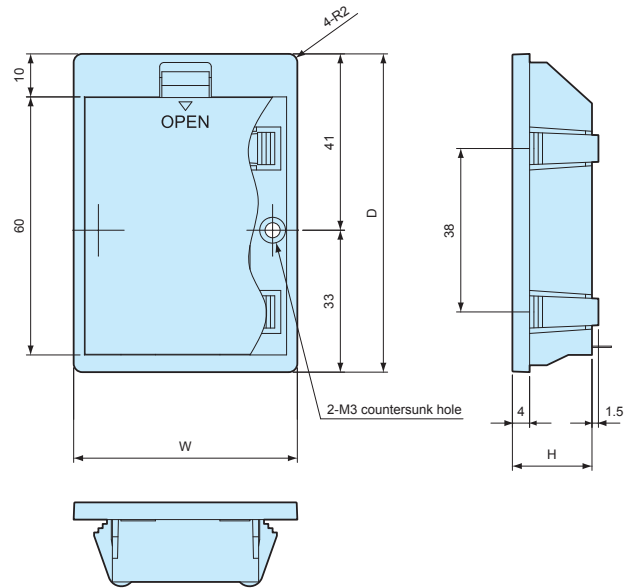
LD • LDN SERIES

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

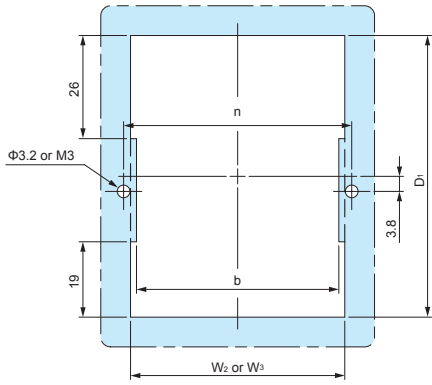
※ See website for more details

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



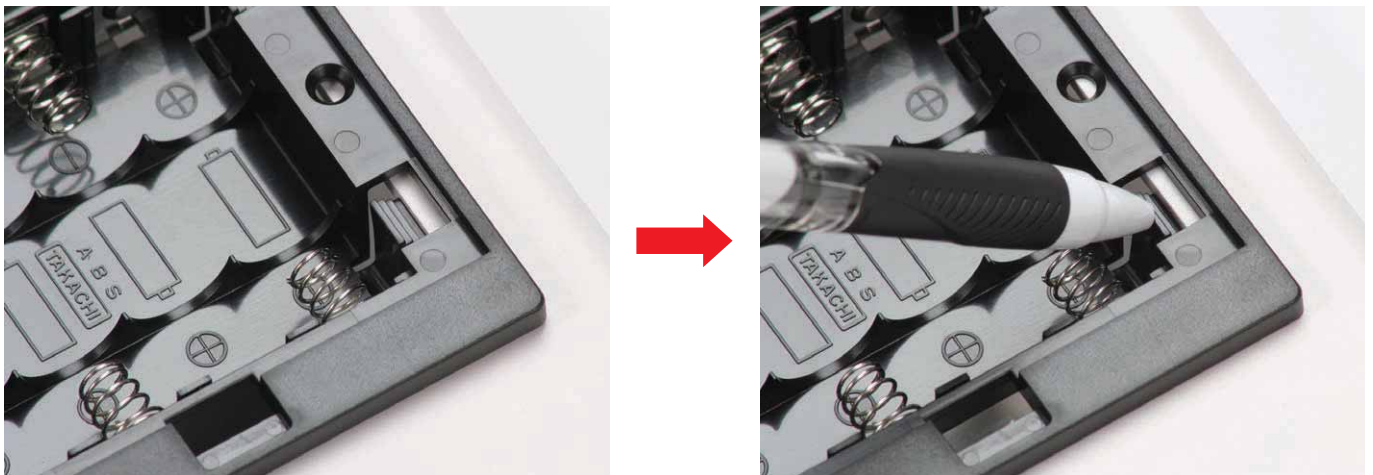
Mounting hole dimension

Product no.	W ₂ (thickness=2.5mm)	W ₃ (thickness=3.0mm)	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

■ W₂ or W₃ 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

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

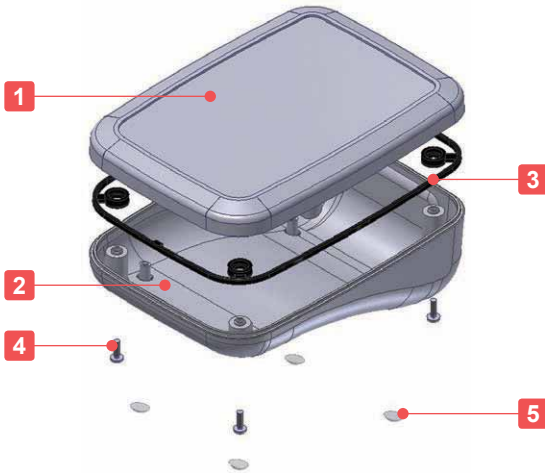
Please utilize a waterproof membrane keypad, membrane switch or overlay.
Note that the waterproof performance will be lost by drilling/milling holes or cutouts for buttons or switches on waterproof enclosures.



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



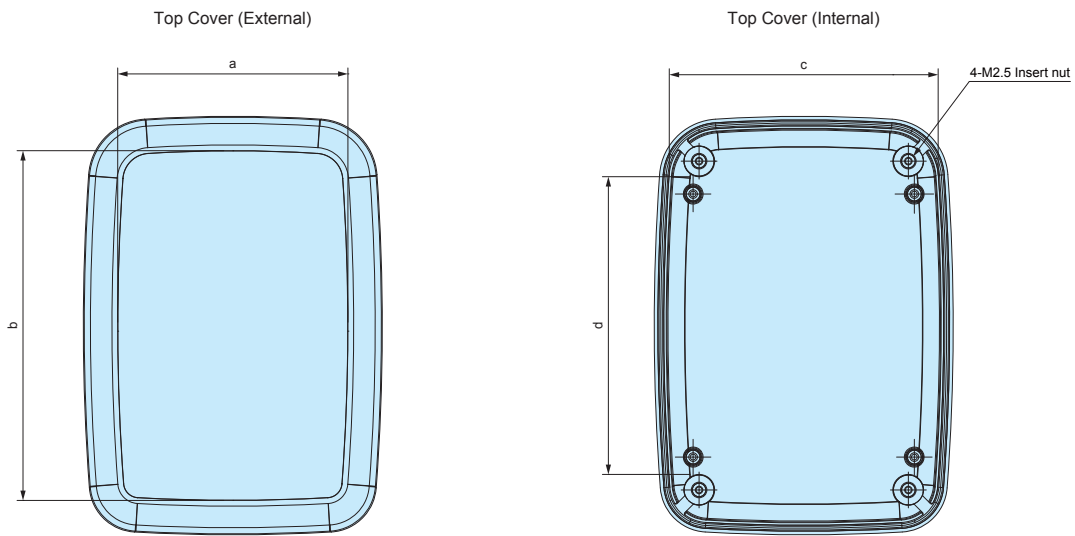
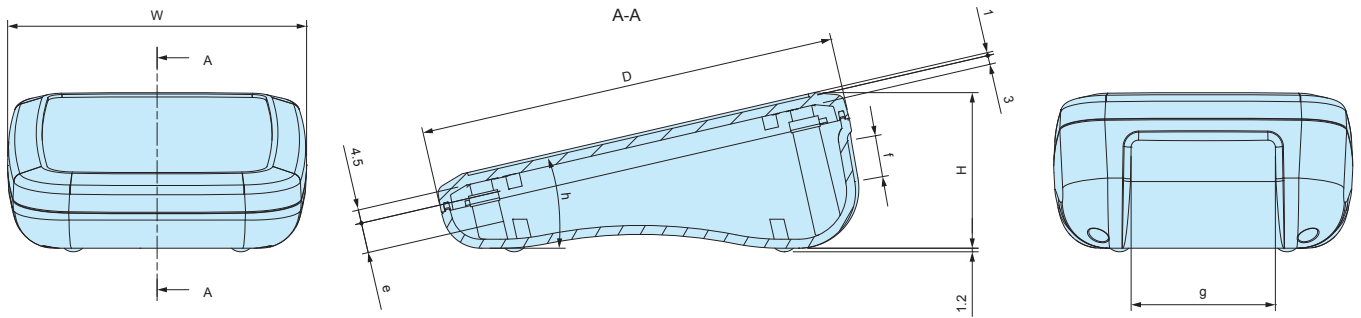
Cable gland
See cable gland pages



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.

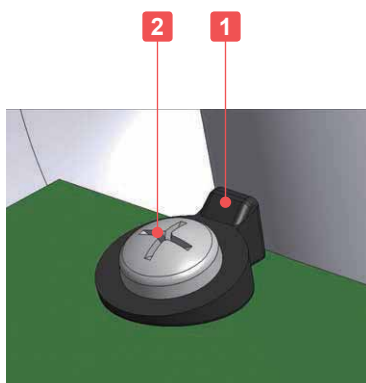


Product no. / Dimensions

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

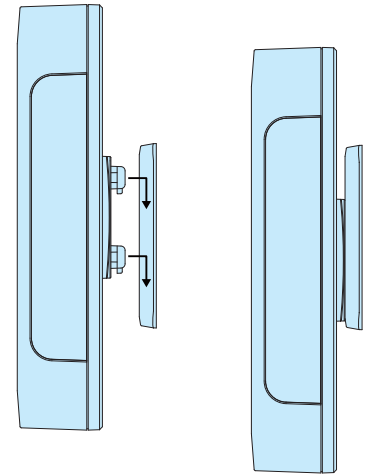
Product no. / Details

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

WM SERIES

SUSPENSION BRACKET

How to install

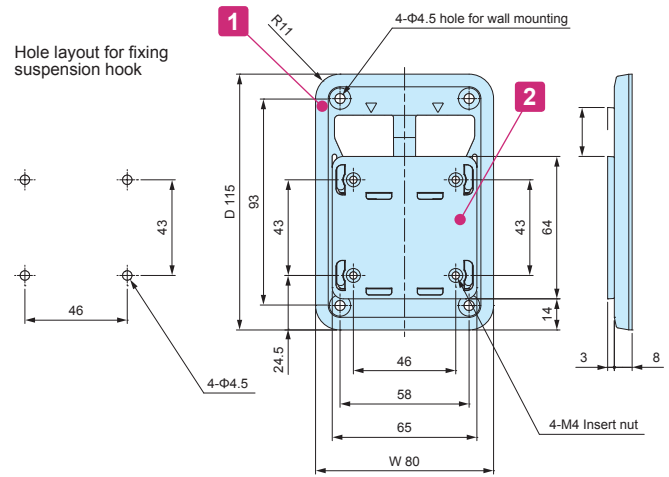
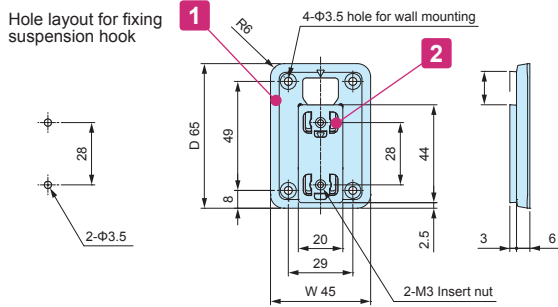


- Plastic wall mounting bracket. Easy attachment and removal.
 - Large and small brackets are available.
 - Applicable not only for the PF series, but also other plastic/metal enclosures with a panel thickness of 0.8 ~ 3.5mm.
 - To attach the suspension hook onto the enclosure, hole milling is required.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

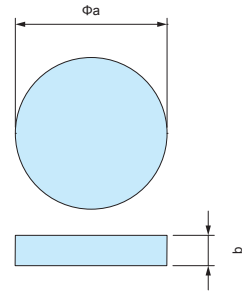
NEODYMIUM MAGNET



Round magnet



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



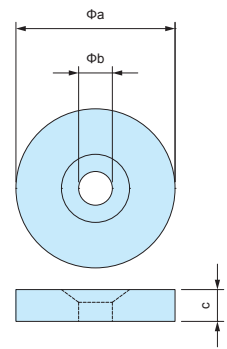
Components

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.



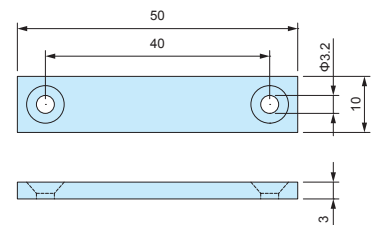
Components

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.

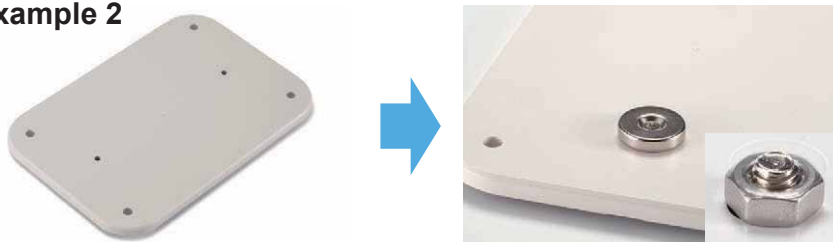


Make recessed pocket on the inside wall.

Glue on.

Attach onto a metallic surface.

Example 2



Make holes

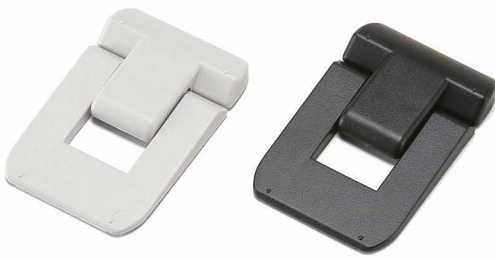
Fasten with a screw and nut.

Attach onto a metallic surface.

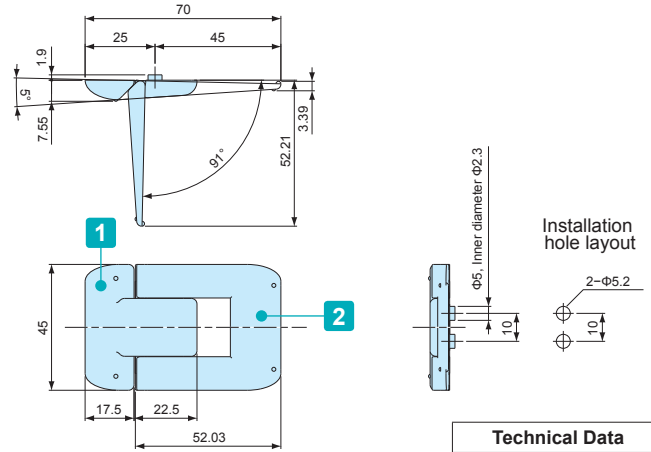
CAUTION: Handle with care to avoid personal injury or damage to the magnet.

TI SERIES

TILT STAND



Installation Example



Technical Data
Max load : 3kg

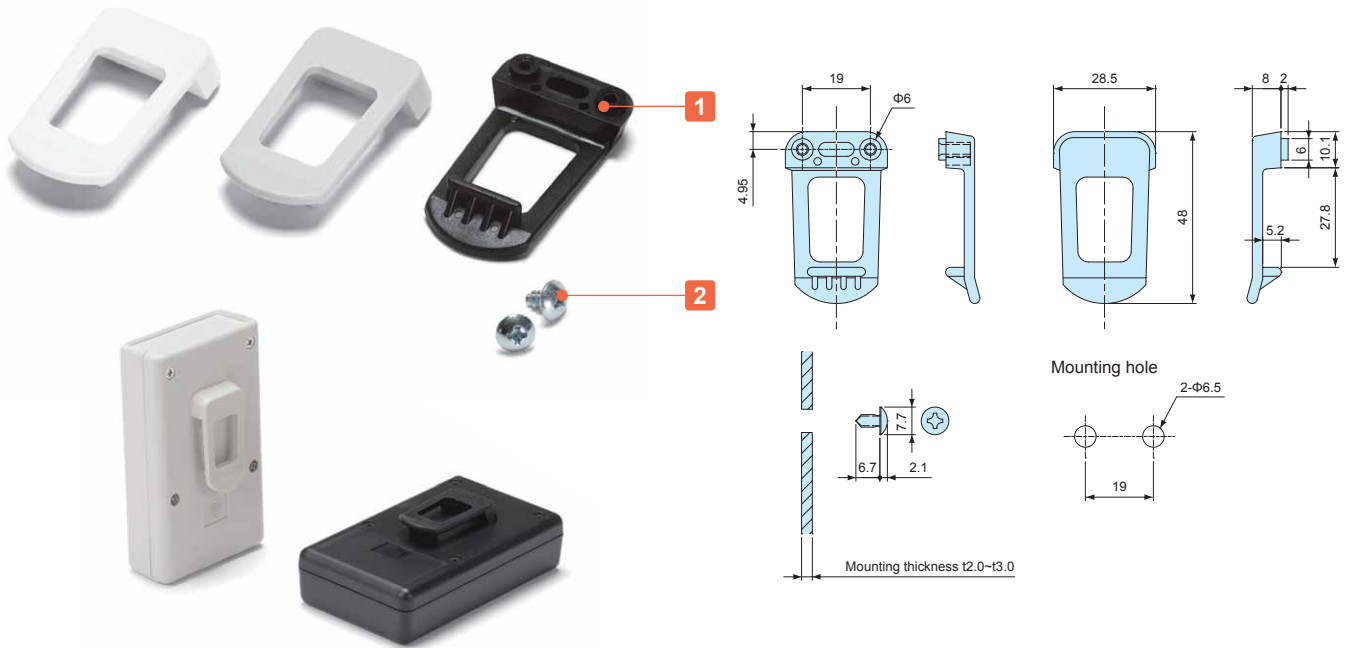
Components

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

DXF/DWG/PDF drawings available on our website.



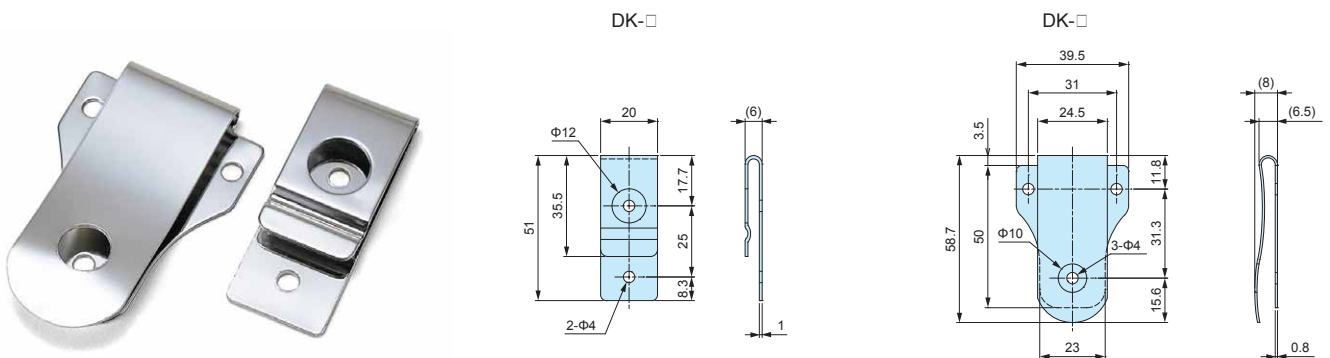
New White color type is added to match LC, PF, and TWN series color.

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			
NEW GDH-1W	GDH-1G	GDH-1B	28.5	10	48



Product no. / Dimensions

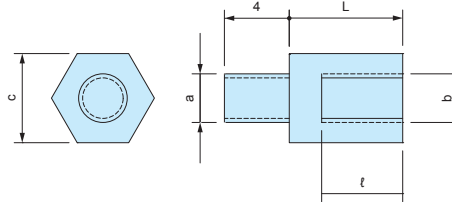
Product no.	Material	Finish
DK-1	Steel SPCC t=1.0	Chrome plated
DK-2	Steel SPCC t=0.8	Chrome plated

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.

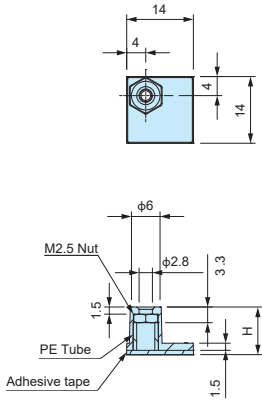
Product no. / Dimensions

Product no.	M	L	Head style	Material	Finish	Pack of
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

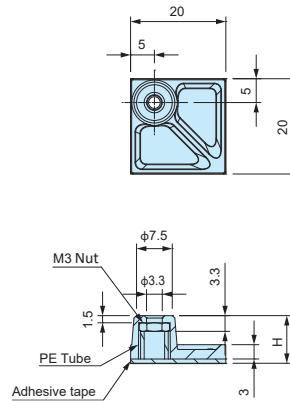


- Double -sided adhesive tape allows the standoff to be mounted quickly and easily; allows PCB mounting in non-boss enclosures.
- Convenient for installing PCBs into enclosures without the need for customization.
- Please ensure that surface is cleaned and grease-free before adhering.
- Once removed,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

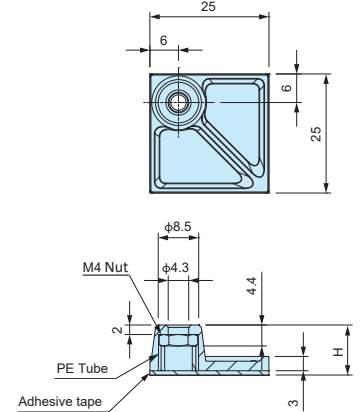
AST2.5-□



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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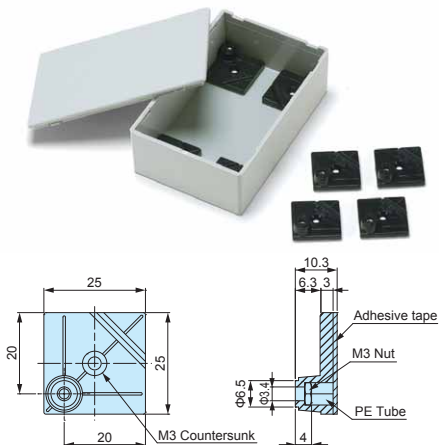
www.takachi-enclosure.com
sales@takachi-el.co.jp

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

NEW PRODUCT Vol.1 2020.7

T-600

M3 INSERT NUT ADHESIVE STANDOFF



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

NOTE

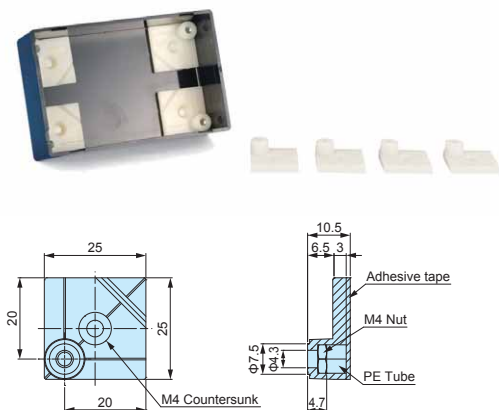
- Please ensure the surface is cleaned and grease-free before adhering.
- Once removed, it cannot be adhered on again.
- Recommended screw torque: 4kgf • cm (0.4N • m).

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 STANDOFF



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

NOTE

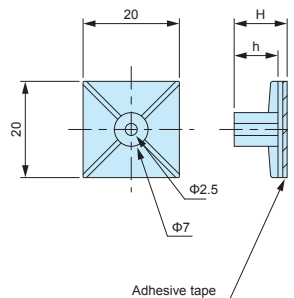
- Please ensure the surface is cleaned and grease-free before adhering.
- Once removed, it cannot be adhered on again.
- Recommended screw torque: 8.1kgf • cm (0.81N • m).

Product no. / Dimensions

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

ASR SERIES

ADHESIVE STANDOFF



- M3 tapping screw use adhesive standoff. Recommended to be used with EM-3 or EM-3-6 tapping screws (See page EM • MR-1).

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).

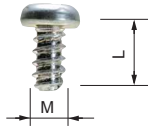
Product no. / Dimensions

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

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

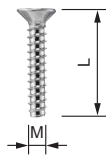
Product no.	M	L	Material	Finish	Suitable enclosures	Pack of
EM-1.6	1.6	4	Steel	Trivalent chromate	WC • CSS • CS • PS (M1.6 size)	50
EM-2	2	5	Steel	Trivalent chromate	PS • TW • TWN • TWF • WP (M2 size)	50
EM-2.3	2.3	6	Steel	Trivalent chromate	WH • LC • LCT • LCS • LCE • PFE WSC (Top cover bosses) PF •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

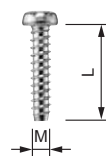
TORX SCREW



Countersunk head



Pan head



With pin



pin

★ Without pin



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

Product no. / Dimensions

★Mark = Without pin

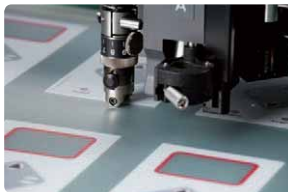
Product no.	M	L	head no.	Head style	Material	Finish	Suitable enclosures	Pack of
MR1.6-6S★	1.6	6	T3	Pan	Steel	Nickel plated	CS • CSS	20
MR2.5-8PS	2.5	8	T8	Pan	Steel	Nickel plated	PF • PFE • PFF (M2.5 size)	20
MR2.6-10S★	2.6	10	T8	Countersunk	Steel	Nickel plated	TW • TWN (M2.6 models) TWF (M2.6 models)	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

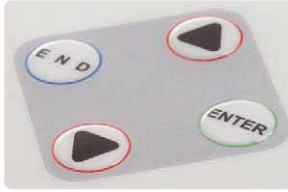


Printing process



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

Reason 3



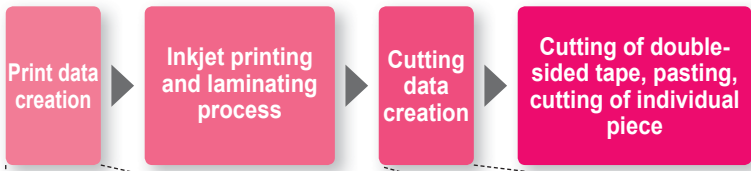
Embossing process



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

Comparison of current and previous manufacturing methods

Current



Previous



PRODUCTION PROCESS



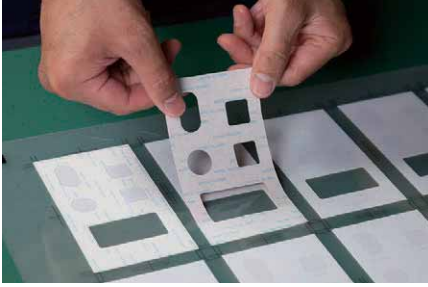
1. Inkjet printing on film



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

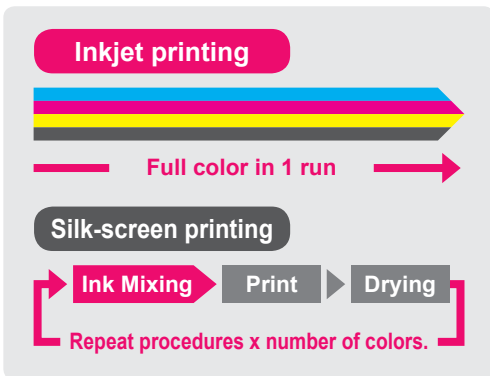
CUSTOMIZATION EXAMPLE



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.



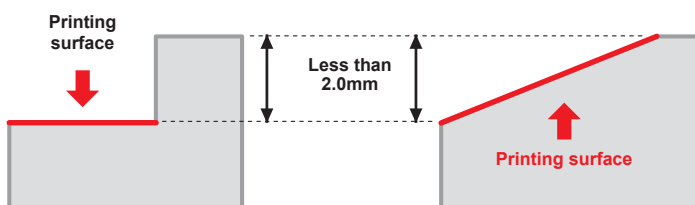
Maximum printable enclosure size



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.

