

SIB4H Series

(Eng)

It is recommended that only persons who have sufficient knowledge and experience such as system designers and responsible persons deal with this product after carefully reading the product manual.

1 The matters of safety

WARNING

- * If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- * Do not let the water touch the product. It may cause electric shock or fire due to malfunction.
- * When you check or maintain the product, make it sure you turn off the power. It may cause electric shock or fire due to malfunction.
- * Secure the product firmly when you want to secure it. There is a possibility of accident due to fall-over or malfunction, etc.
- * Secure working space when you install the product. If working space is not secured, the checking or maintenance of the product is made impossible leading to failure of the product.
- * Always use either one of the following materials for air supply: CDA(Celan Dry Air) or N2. If there are any water or oil contamination in the air supply, it will cause malfunction or cause of accident.
- * Do not use the product at the place where dangerous material such as inflammable or ignitable material exists. This product is not the product of anti-explosive type.
- * This device is made only for industrial uses. You need to ground the device beforehand. Otherwise, there are in case of malfunction, electric shock, or fire damage.

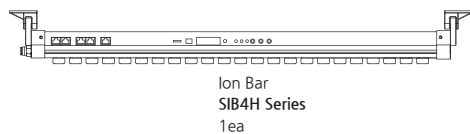
CAUTION

- * Do not contact the discharge needle or terminal with power applied. There is a possibility of electric shock or malfunction.
- * Handle the discharge needle with care as its tip is very sharp.
- * Connect wires referring to the product manual. Wrong connection can cause failures.
- * Take precautions as cables of the adaptor, the power line and communication line of each product may disconnect. If the cable is damaged, replace it immediately.
- * Do not install the device where the vibration can be detected. Any minor impact or vibration on the device, the malfunction or danger of accident might happen.
- * Do not use the product for the purpose outside of the range of the product use. If the product is used for the purpose outside of the range of the use, it can result in the trouble or the shortened service life. Or an unexpected problem may occur.
- * The ionizer generates ozone(below 0.05ppm) if you sense the smell of ozone when you use more than two units, ventilate the air.
- * When installing or transporting the ion bar, be prepare not to bend the item during the process.

2 Check the package contents

Product compositions

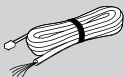
The package includes the following products composition.



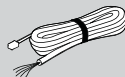
Ion Bar
SIB4H Series
1ea



Middle Bracket
SBR-B4-2-001
1~3ea



Power Cable
SUC-3R-3-001
10m / 1ea



Signal Cable
SUC-MT-2-001
10m / 1ea

Option

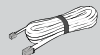
If you require extra functions with the basic accessories we provided, you need to purchase optional items in below for further assistant.



DC Power Supply
SBP-RD



Remote Controller
SIB-RC1



UTP Cable (10m)
SUC-B3-1-001



UTP Cover
SUC-MT-1-001



Slim Side Bracket
SBR-B4-3-001



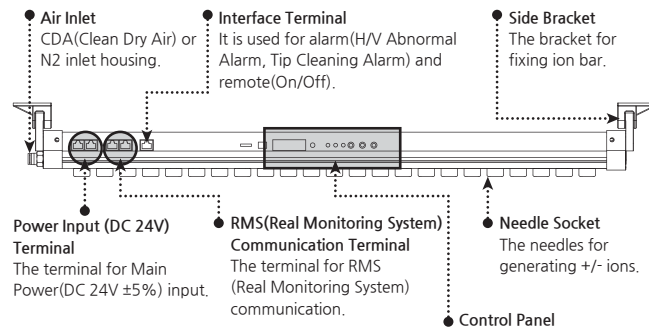
Slim Middle Bracket
SBR-B4-4-001



Slim Side Bracket
SBR-B4-1-002

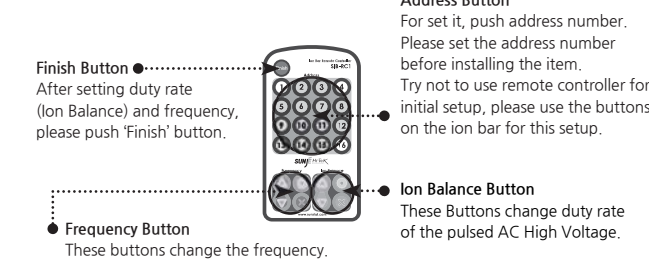
3 Nomenclatures of parts

Ion Bar (SIB4H Series)



NO	Name	Function
1	Dip Switch	This switch is for setting the detailed function of ion bar.
2	TX/RX (LED)	The LED for RMS(Real Monitoring System) operating.
3	TIP (LED)	It indicates when tip cleaning alarm is set.
4	H/V (LED)	When H/V unit has some problem to generate high voltage, H/V LED is turned on.
5	Alarm Code	<A-01 ~ 16> : Address <AL-1> : High Voltage output error of POS, NEG <AL1P> : High voltage output error of POS <ALIN> : High voltage output error of NEG <AL-2> : When tip cleaning setting time is over.
6	POS+ (LED)	(+) High voltage normal operating signal.
7	NEG- (LED)	(-) High voltage normal operating signal.
8	IR Receiver	The receiver for signal between remote controller and ion bar.
9	Duty (LED)	When auto duty mode is activated, LED indicates to the center position(Default value). According to characteristic of electric charge, it indicates (+)ion or (-)ion.
10	SET Button	It is for changing the address, frequency, duty rate,
11	Up / Down Button	output voltage and tip cleaning time.

Remote Controller (SIB-RC1)_Option

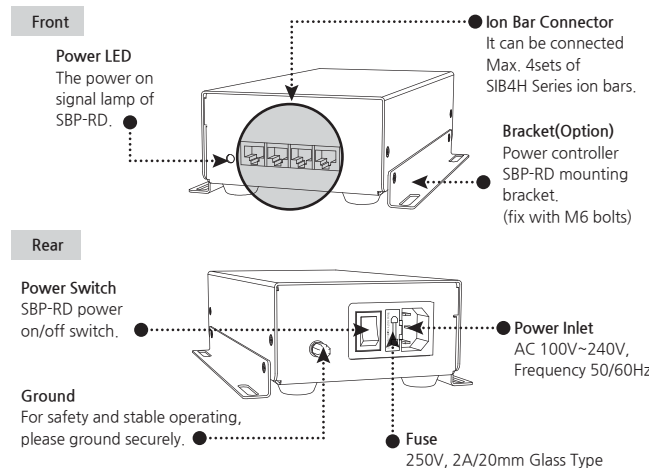


UP	Use it when you increase frequency level.
DOWN	Use it when you decrease frequency level.
SET	Use it when setting modified frequency.
CANCEL	Use it when cancelling the set frequency.

* After setting frequency, take a test for the performance using the CPM.

DC Power Supply (SBP-RD)_Option

The SBP-RD is a DC 24V power supply for SIB4H Series. When there is not a power source for DC 24V on an installation point or equipment, it can supply DC 24V to SIB4H Series and be connected up to Max. 4sets.



4 Installation and connection

Ion bar installation

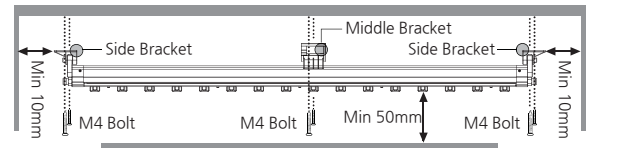
When you install the ion bar, please check the distance between ion bar and object.
* Please, handle with care when you carry or install not to break or bend an ion bar.

CAUTION

- * The radius of curvature of the air hose is install with R10mm or more for operation. (Due to excessive bending of the air hose The product may be damaged.)

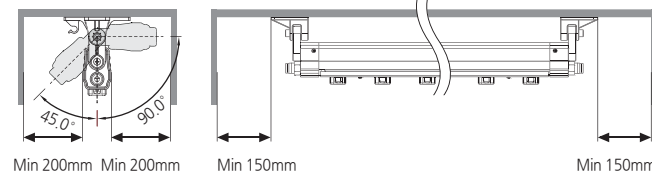
Basic Installation

Please, firmly fix to wall or rack and brackets and middle bracket which are provided as accessories by M4 or M5 bolts.



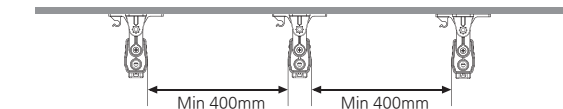
Interference by Grounding Matters

If there is any conductive object close to ion bar, SIB4H Series may not operate properly. Please install it with reference to figure below.



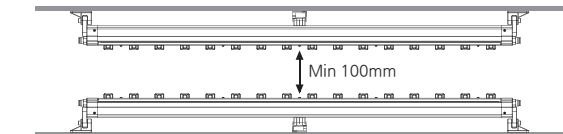
Side to Side Installation

When the more than two ion bars are installed, to avoid interference, the range between two ion bars should be more than 400mm.



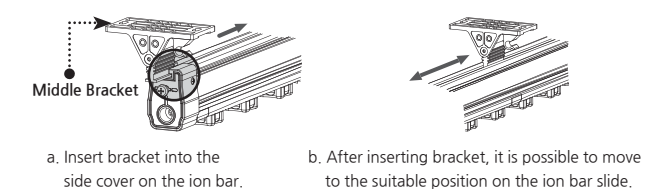
Face to Face Installation

When two ion bars are installed face to face, to avoid interference, the range between two ion bars should be more than 100mm. (Air Pressure Under 0.1MPa)



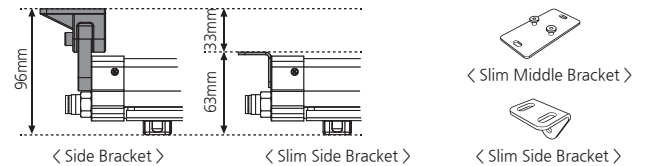
Installation by Middle Brackets

The middle bracket is used to protect bending problem by the weight of ion bar. Please fix the middle bracket with M4 or M5 bolts. The number of supporting middle bracket will differ from the models.



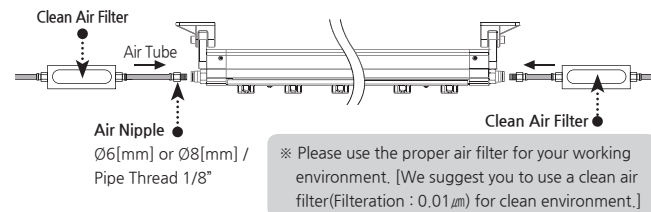
Installation by Slim Brackets (Option)

When you install tiny place, please use slim bracket. But with slim bracket, angle adjust is not available. Quantity and installation method of slim middle bracket is same as standard middle bracket.



Air supply method

CAUTION	<ul style="list-style-type: none"> * Air supply is one of the key factors. Please read the followings carefully in advance. * Please contact us directly if you periodically switch to use air in/out time after time. * If many ion bars are connected to one air line, with air lack of pressure, it may have difficulty to provide proper performance.
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Types of Air Use

Please supply air into an ion bar either one of CDA(Clean Dry Air) or N2 if possible. In the clean environment, we suggest you to use a clean air filter(Filteration:0.01 μ m) in order to pass impurities in the compressed air through the filter when using the ion bar.

Allowed Air Pressure

The maximum air pressure level for SIB4H Series is 0.5MPa. Try not to exceed the maximum level when supplying air. Since the air pressure has some relation with ionization performance, fully consider the proper air pressure level for your environment.

Air Nipple

Please use to connect $\phi 6$ [mm] or $\phi 8$ [mm] nipple for air inlet, but the standard is $\phi 8$ [mm].

CAUTION

- * This Nipple Gender is a clean fitting and should not be used under conditions where the fitting area is rocked or impacted. This may cause damage to the fitting body, tube pullout, or air leakage.
- * Plastic may be degraded by direct sunlight and ultraviolet rays.

Recommended Model (For Clean Nipple)

Material	Shape	Tube Size	Screw Size
Polypropylene (PP)	Straight or Elbow	$\phi 8$ or $\phi 6$ [mm]	Taper Screw 01(R1/8)

The installation with DC Power Supply SBP-RD

The Installation with SBP-RD

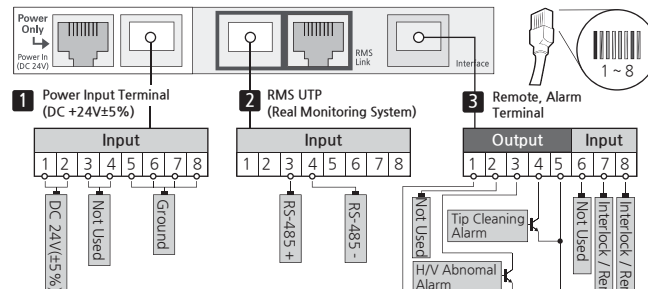
The SBP-RD can supply DC 24V to SIB4H Series and be connected up to Max.4sets. The power cable length is max.10m. It is not able to have normal performance if longer than 10m.

Parallel Power Connection Function

SIB4H Series can be connected up to Max.4 ion bars by parallel power connection function. It can be connected up to Max.10m. If it is not, it might have not normal performance.

* When supplied power by SBP-RD, regardless of the power connection methods, the total number of ion bars with one SBP-RD should not exceed 4 sets and remainder sockets should be plugged up a cap.

Interface



No	Color	Function	Output	Picture
1	Brown	DC 24V($\pm 5\%$)	Photo Relay Output (Run-Close, Stop-Open)	Run
2	White & Brown	1A Min	-	Stop
3	No Connect	-	-	-
4	Green	-	-	-
5	White & Green	Ground	-	-
6	Blue	-	-	-
7	White & Blue	-	-	-

No	Color	Function	Output	Picture
1	Brown	Run / Stop State	Photo Relay Output (Run-Close, Stop-Open)	Run
2	White & Brown	-	-	Stop
3	Orange	High Voltage Abnormal	Photo Relay Output (Normal-Open, Alarm-Close)	Normal Alarm
4	White & Orange	Tip Cleaning Alarm	Photo Relay Output (Normal-Open, Alarm-Close)	Normal Alarm
5	Green	Common	-	-
6	White & Green	-	-	-

No	Color	Function	Input	Picture
1	Brown	Not Used	-	-
2	White & Brown	Not Used	-	-
3	Orange	RS-485+	-	-
4	White & Orange	RS-485-	-	-
5	Green	Not Used	-	-
6	White & Green	Not Used	-	-
7	Blue	Remote(+)	DC 24V	-
8	White & Blue	Remote(-)	Ground	-

* Remote stops when Input signal(DC24V) is applied.

Power Input (DC24V)

Interface terminal for main power(DC 24V $\pm 5\%$) input. Please make sure that main power has to connect with designated interface terminal.

CAUTION

- * If it connects to RMS LINK or interface, it has malfunction.
- * Power cable cap is yellow.

Remote, Alarm Terminal

Interface terminal for ion bar run/stop, alarm output(H/V Abnormal Alarm, Tip Cleaning Alarm) and remote on/off control.

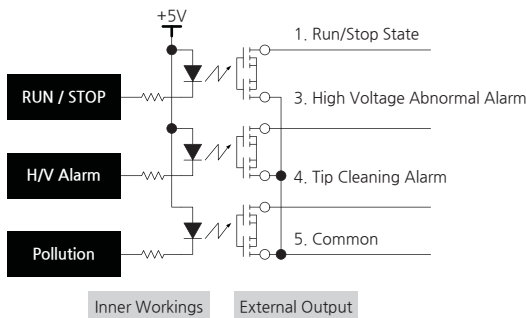
► Connection with PC

It is possible to control the run/stop, alarm and tip cleaning operation of the SIB4H Series by using a computer. (Max.16EA)

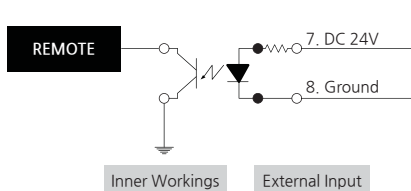


► Circuit

Circuit(Photo Relay Output)



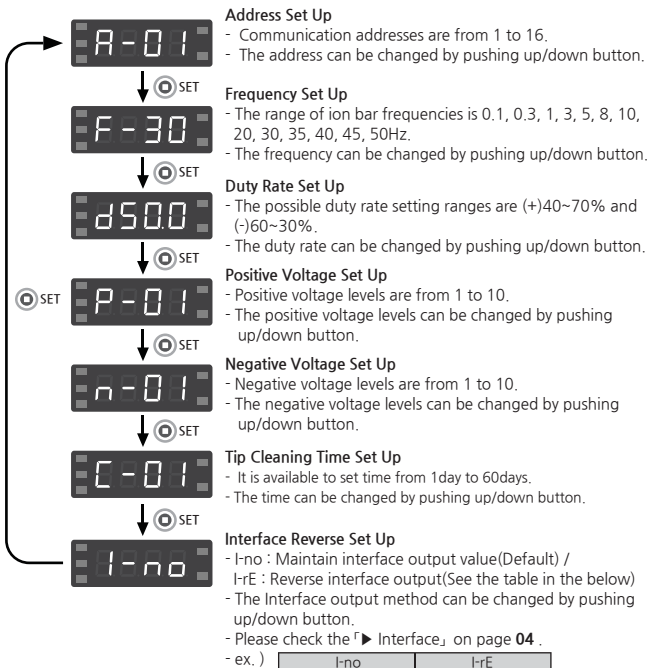
Circuit(DC 24V Input)



5 How to set

Setting Order

In the main body of ion bar, you can easily set address, frequency, duty rate, high voltage, tip cleaning time and interface reverse.



※ Once your setup is done, the device will automatically save your current setup value immediately(within 1 second).

Set the Dip Switch



< Dip Switch 1 >
On : When alarm occurs due to abnormal condition, LED indicates and Al-1 is displayed.
Off : When alarm occurs due to abnormal condition, ion bar is not working.



< Dip Switch 2 >
On : Auto Duty function is activated.
Off : It works as default duty value.
※ Please use this function within 100mm for accurate data.



< Dip Switch 3 >
On : Tip cleaning alarm function is activated.
(LED signal indicate when the set-time is passed)
Off : Do not used tip cleaning mode.
※ Please set the time after tip cleaning dip switch "On"

► Remote Controller

Set the Frequency

You can set frequency in the remote controller. See the following procedure.



- Select the address number of ion bar you are willing to control via pressing an address button. (#1~16)
- The current setup frequency value will be displayed in the ion bar when pressing a "⊙" button.
- If you need to change the frequency level, press a up(▲) or down(▼) button.
- Once you are done with setting, press a "⊙" button to save and exit.
- If you are willing to cancel the setup, press a cancel(X) button.
- Press a finish button if you are ready to use, then the ion bar will operate with set value you just have made.

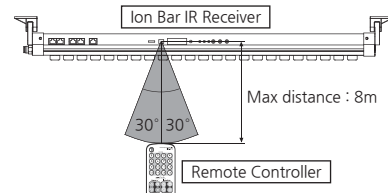
Set the Duty Rate

You can set frequency in the remote controller. See the following procedure.



- Select the address number of ion bar you are willing to control via pressing an address button. (#1~16)
- The current setup duty rate value will be displayed in the ion bar when pressing a "⊙" button.
- If you need to change the duty rate, press a up(▲) or down(▼) button.
- Once you are done with setting, press a "⊙" button to save and exit.
- If you are willing to cancel the setup, press a cancel(X) button.
- Press a finish button if you are ready to use, then the ion bar will operate with set value you just have made.

Remote Controller Range



Receiving angle is 30° and distance is within 8m.

If any obstacle is between remote controller and ion bar, the reception will be poor.

※ The remote controller might not function if the electrical stabilized lamp or three wave length lamps are installed in the surroundings. If you replace the lamps with standardized product(s), the remote will function without any problems.

6 Maintenance

Maintenance is an essential item for maintaining its capacity. Please conduct a routine maintenance according to the below description. The life time of a discharge needle can be a difference depending on using circumstance.

! CAUTION	* This device uses the high level of voltage. When operating maintenance, please power off and unplug the device. Otherwise, there might be in case of electric shock or fire damage.
	* The discharge needle is very sharp at the edge. Do not phsically(directly) touch the discharge needle.
	* When cleaning the discharge needle using an organic solvent, do not use the organic solvent to clean the socket around the discharge needle.

► Discharge needle cleaning

The contamination level of discharge needle is different among the areas where the user installs, please maintain own cleaning period that suits your environment.

► Discharge needle cleaning order

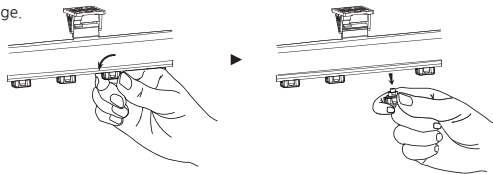
- Be sure to power off before cleaning the ionizer.
- Please clean it as the table below.

※ Cleaning with a cotton swab	
After moistening a cotton swab with alcohol, wipe the discharge needle from side to side with the swab. (do not use acetone)	

- Replace the damaged discharge needle.
- After the cleaning, let the alcohol applied to the discharge needle surface evaporate completely and then operate the Ion Bar.
- Please record the cleaning process as a reference in the file.

► How to replace the needle socket

When replacing, please be careful not to touch the discharge needle. It is very sharp at the edge.



► Discharge needle maintenance

If the discharge needle broken or severely damaged, please replace the needle socket immediately.
The needle socket becomes less durable with product usage time. To maintain the performance of the product, we recommend replacing the needle socket every one year.

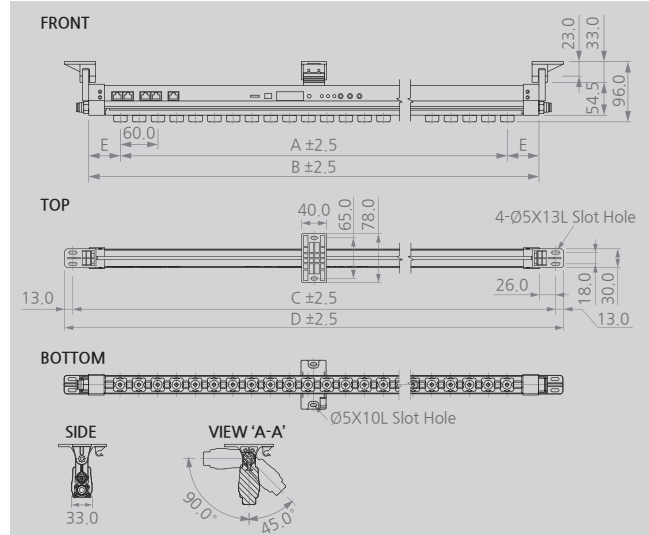
7 Problem solving

► Checklist before called

Problem	Identifying Problem	Solution
The product does not work.	Is your power cable still plugged in?	Please re-plug the power cable and then turn the device on again.
	Was the proper voltage level applied for this set-up?	Please use the proper level of power input for the device. (AC 100~240V, 50/60Hz)
	Is the switch off at back of the device?	Turn on the power switch.
There is no ionization.	Is there any conductive material around the device?	Please refer to 'Installation & Connection' for setting the proper target distance from the device.
	Does the installed environment have too high/low level of humidity or temperature?	Please install the device upon the proper working specification.
The ionizing performance has been decreased.	Any damages or cut on the cables?	You need to replace the cables if it gets cut or damaged.
	Any contamination on the discharge needle?	Please refer to 'Maintenance' for cleaning the discharge needle.

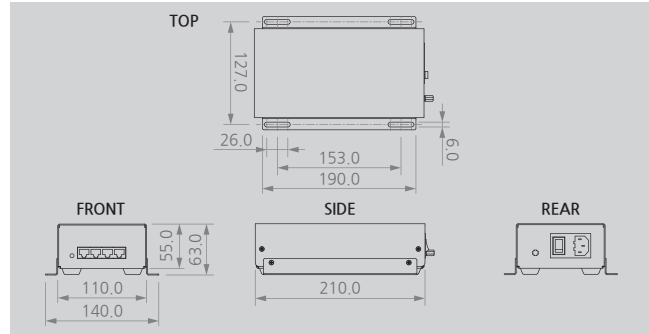
8 Dimensions

► SIB4H Series

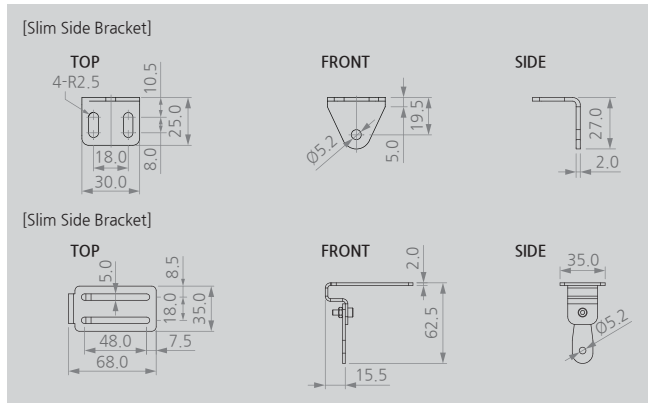
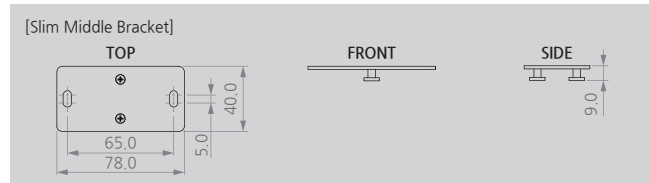


No.	Model No.	Tip Q'ty	A	B	C	D	E	Middle BKT Q'ty
1	SIB4-800H	23	660	800	851	877	70	-
2	SIB4-900H	27	780	881	932	958	50.5	-
3	SIB4-1000H	31	900	1001	1052	1078	50.5	1
4	SIB4-1100H	35	1020	1121	1172	1198	50.5	1
5	SIB4-1200H	39	1140	1241	1292	1318	50.5	1
6	SIB4-1300H	43	1260	1361	1412	1438	50.5	1
7	SIB4-1500H	47	1380	1481	1532	1558	50.5	1
8	SIB4-1600H	51	1500	1601	1652	1678	50.5	1
9	SIB4-1700H	55	1620	1721	1772	1798	50.5	2
10	SIB4-1800H	59	1740	1841	1892	1918	50.5	2
11	SIB4-2000H	63	1860	1961	2012	2038	50.5	2
12	SIB4-2100H	67	1980	2081	2132	2158	50.5	2
13	SIB4-2200H	71	2100	2201	2252	2278	50.5	2
14	SIB4-2300H	75	2220	2321	2372	2398	50.5	2
15	SIB4-2500H	79	2340	2441	2492	2518	50.5	3
16	SIB4-2700H	87	2580	2681	2732	2758	50.5	3

► SBP-RD (Option)



► Slim Bracket (Option)



9 Specification

► SIB4H Series

Parameter		Description / Value
Input Power		DC 24V (±5%)
Power Consumption		Max. 14.4W
Current Consumption		Max. 500mA (DC 24V)
Ion-Generation Method		Corona Discharge Pulse AC
Air Purge Supply Pressure		0.1 ~ 0.5MP (CDA, N2)
Air Purge Connection Port		Pipe Thread 1/8"
Ion Balance		Within ±30V (1,000mm)
Ozone(O3) Concentration		≤0.05ppm
Main Body Material		Non-Flammable ABS (Level V0)
Electrode Material	Standard	Tungsten
	Option	Titanium, Silicon
Electrode Replacement		Cartridge type
Operation Circumstance		0℃ ~ +50℃(32ℱ ~ 122ℱ), 35% ~ 85% RH
Dimensions		See the accompanying drawing paper
Mounting Method		Bolt Mounting with Bracket
Function		Remote Control
Adjust Function	Frequency [Hz]	0.1, 0.3, 1, 3, 5, 8, 10, 20, 30, 35, 40, 45, 50
	Voltage [Level]	Positive 1 ~ 10, Negative 1 ~ 10
	Duty Ratio [%]	40 ~ 70
	Auto Duty	Mode Set (Distance 50 ~ 100mm)
Alarm Function		High Voltage Abnormal Alarm, Tip Cleaning Alarm(Setting)
Interface		Run State, Remote, RS485, Alarm(High Voltage Abnormal, Tip Cleaning)
Operating Distance		50 ~ 2,000mm
Option		SBP-RD (DC Power Supply)
Warranty		1 year

※ Product model number will be differ as the discharge needle specifications.
ex. Tungsten : SIB4-****H / Silicon : SIB4-****H-SI / Titanium : SIB4-****H-TI
※ The appearance and specification of the product may be changed without prior notice for the improvement of the product.

! CAUTION	* Handle with care. Warranty doesn't cover mishandling damage.
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► SBP-RD (Option)

Parameter	Description / Value
Input Power	AC 100~240V, 50/60Hz
Power Consumption	Max. 80W
Weight	1.85kg
Main Body Material	EGI
Operation Circumstance	0°C ~ +50°C(32 F ~ 122 F), 35% ~ 85% RH
Output Voltage	DC 24V Max. 3A
Output Port	4 Ports
Warranty	1 Year

※ The appearance and specification of the product may be changed without prior notice for the improvement of the product.

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