

Instruction Manual

SUNJE

SVC-M24

Eng

This product is an ionizer for electrostatic remove. 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

- * Do not fabricate or do maintenance by yourself. Malfunction, Electric shock, and fire danger are considered. Contact us directly if you need the item to be repaired.
<A/S is not possible in case of arbitrary disassembly>
- * 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.
- * The item should be fixed to the target tightly. Electric discharging or breakage might happen.
- * 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.

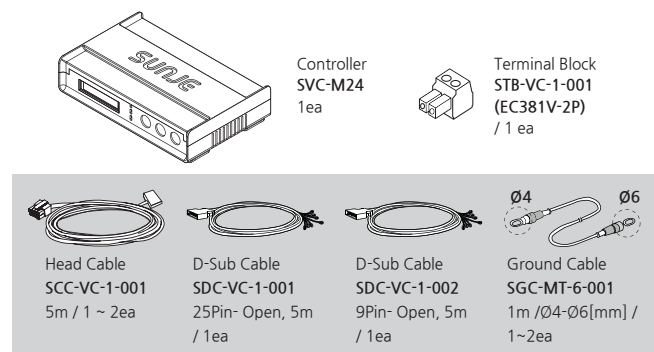
CAUTION

- * Do not disconnect the output cable with power applied.
There is a possibility of electric shock or malfunction.
- * Connect wires referring to the product manual. Wrong connection can cause failures.
- * For your proper cable connection, take a look at the manual 'Installation & Connection' for references. Any disordered connection is detected, the malfunction might arise.
- * All cables should be connected all the time. Please careful of cable disconnections. If power or communication cables got damaged, replace them immediately.
Malfunction and fire danger may happen.
- * 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 item off the range of usage(Electrostatic elimination).
Malfunction or danger of accident may occur.

2 Check the package contents

Product compositions

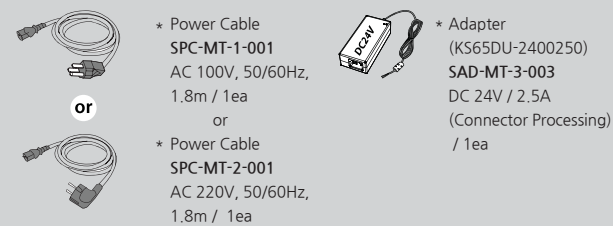
The package includes the following products composition.



Option

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

<Adapter & Power Cable>

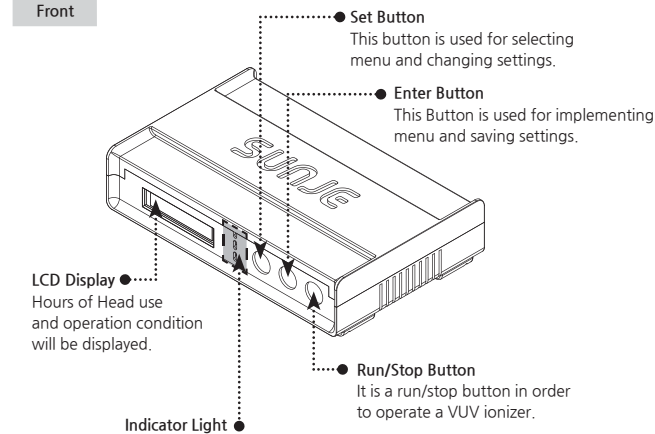


<RMS>



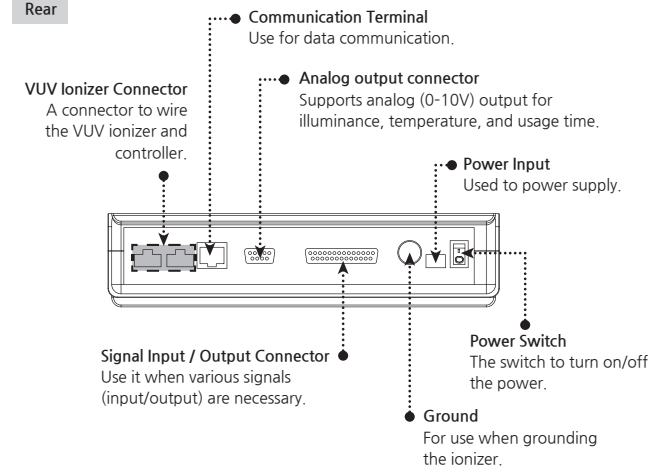
3 Nomenclatures of parts

Front



LAMP 1 - Green LED	Green LED will be turned on when LAMP 1 is operating.
- Orange LED	Orange LED will be turned on when Overtime Warning is occurred. (Over 1,800h)
- Red LED	Red LED will be turned on when Overtime Alarm is occurred. (Over 2,000h)
LAMP 2 - Green LED	Green LED will be turned on when LAMP 2 is operating.
- Orange LED	Orange LED will be turned on when Overtime Warning is occurred. (Over 1,800h)
- Red LED	Red LED will be turned on when Overtime Alarm is occurred. (Over 2,000h)
INTERLOCK - Green LED	Green LED will be turned on if Interlock is ON

Rear

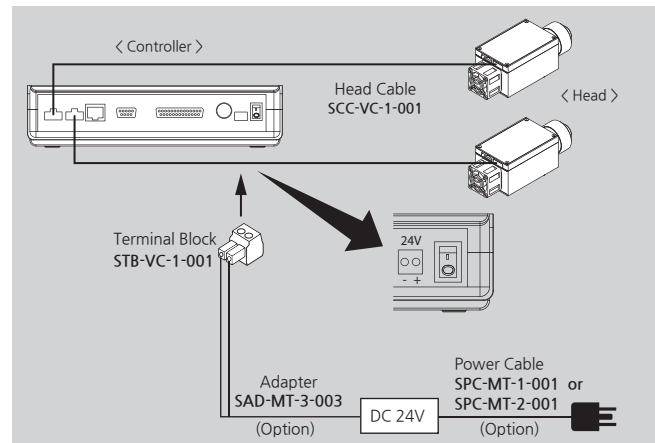


4 Installation and connection

How to connect

Connecting Power with the Head

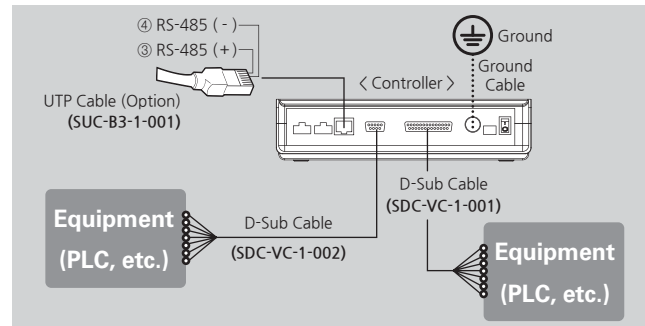
Using the provided Head cable and Adapter (Option), connecting as below.



※ Attaching and detaching the cable while the controller is operating may cause damage to the product, so be sure to connect the cable while the power is off.

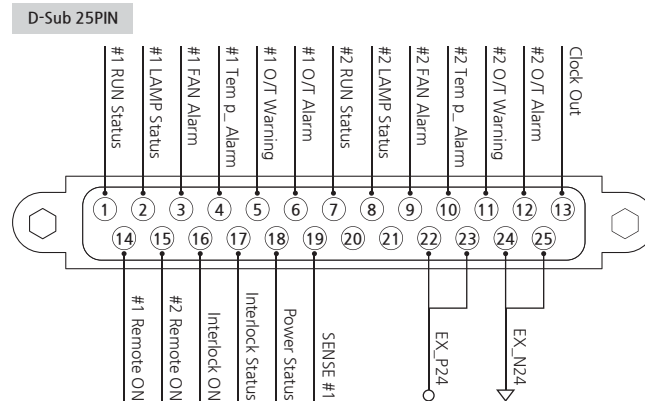
Connecting the Input / Output Signal and Communication

Please connect the controller and external machinery equipment with supported "D-Sub Cable".



Connecting the Interface

Use the Signal Cable as chart below.

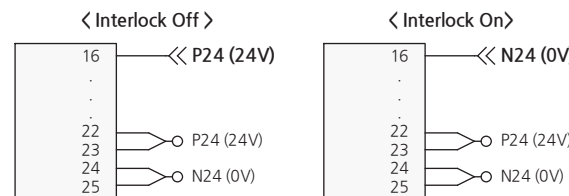


Pin No.	Function	Input/Output	Action
1	#1 RUN Status	Output	When #1 is operating, 0V output(Input "Run" signal)
2	#1 LAMP Status	Output	When #1 is turned on, 0V output(When LAMP On)
3	#1 FAN Alarm	Output	When #1 Fan Alarm occurs, 0V output
4	#1 TEMP Alarm	Output	When #1 Temperature Alarm occurs, 0V output
5	#1 O/T Warning	Output	#1 Over 1,800h using time, 0V output
6	#1 O/T Alarm	Output	#1 Over 2,000h using time, 0V output
7	#2 RUN Status	Output	When #2 is operating, 0V output(Input "Run" signal)
8	#2 LAMP Status	Output	When #2 is turned on, 0V output(When LAMP On)
9	# FAN Alarm	Output	When #2 Fan Alarm occurs, 0V output
10	#2 TEMP Alarm	Output	When #2 Temperature Alarm occurs, 0V output
11	#2 O/T Warning	Output	#2 Over 1,800h using time, 0V output
12	#2 O/T Alarm	Output	#2 Over 2,000h using time, 0V output
13	Clock Out	Output	SVC-K24 Operates properly, Clock on (1Hz)
14	#1 Remote On	Input	#1 Remote On Input (0V)
15	#2 Remote On	Input	#2 Remote On Input (0V)
16	Interlock On	Input	Interlock Input (0V)
17	Interlock Status	Output	When Interlock On 0V output
18	Power Status	Output	When SVC-K24 Power On, 24V output
19	Sense #1	Input	Input 0V, #1, #2 On
20			Reserve
21			Reserve
22	EX_P24	Input	Out power (P24) Input
23	EX_P24	Input	Out power (P24) Input
24	EX_N24	Input	Out power (N24) Input
25	EX_N24	Input	Out power (N24) Input

※ External power connection is required when using the interface

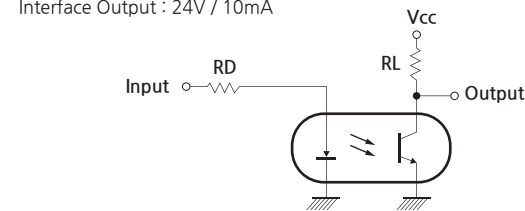
- Required
- No. 22, 23 : P24 input (24V)
 - No. 24, 25 : N24 input (0V)

Configuration Example)

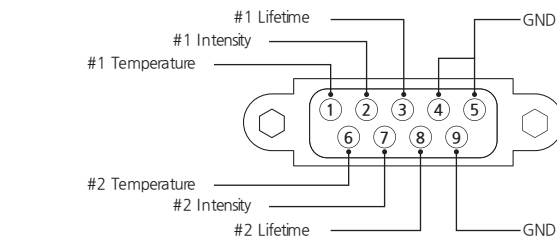


Output circuit diagram

Interface Output : 24V / 10mA



D-Sub 9PIN



Pin No.	Color	Function	Input/Output	Action
1	Black	#1 Temperature	Output	#1 Temperature Analog Output
2	Gray	#1 Intensity	Output	#1 Light Analog Output
3	Yellow	#1 Lifetime	Output	#1 Usage time Analog Output
4	Green	Ground	-	-
5	Orange	Ground	-	-
6	Blue	#2 Temperature	Output	#2 Temperature Analog Output
7	Red	#2 Intensity	Output	#2 Light Analog Output
8	Purple	#2 Lifetime	Output	#2 Usage time Analog Output
9	Brown	Ground	-	-

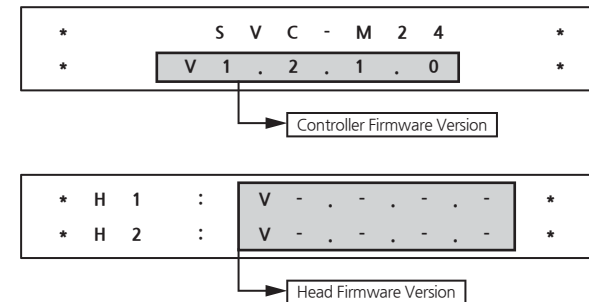
※ Analog Output

Data	Input Range	Output Range	Calculation Formula
Temperature	0 ~ 99	0 ~ 10V	Temp. * 1023 / 100
Intensity	0 ~ 100	0 ~ 10V	Lux * 1023 / 100
Use time	0 ~ 3000+	0 ~ 10V	Use time * 1023 / 3000

5 How to operate SVC-M24

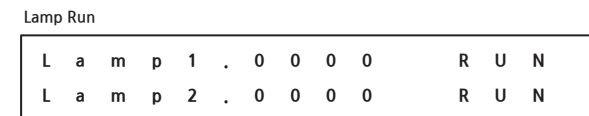
Operates when power is on

It switches to the default screen after displaying about 1 seconds.

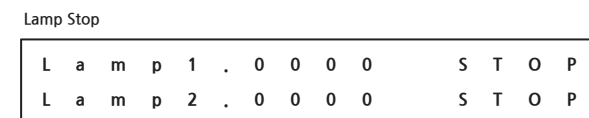


Main Screen

Steady State

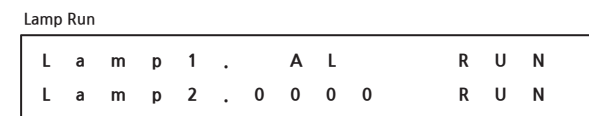


- Display Lamp1, Lamp2 using time and indicates "RUN" if light the lamp.



- Display Lamp1, Lamp2 using time and indicates "STOP" if light no lamp.

Alarm State



Lamp Stop

L	a	m	p	1	.	A	L		S	T	O	P		
L	a	m	p	2	.	0	0	0	0		S	T	O	P

- During operating, indicates the Alarm information if Alarm occur.
 - The Head that Alarm occurred will indicate Alarm information and using time every 5 sec.
- Indicates Alarm information.
 - Time Warning : "WA" → Time Alarm : "AL"
 - Temperature Alarm : "OH" → Fan Alarm "FF"
 - Temperature Warning : "TW"

► Menu

Press Enter Switch for 2 sec, enter the Menu Page.

1	.	S	e	n	s	e	1	S	e	t	:	[	0	]
2	.	C	t	r	i	S	e	t	:	[	0	]		
3	.	A	d	d	r	.	M	o	d	e	:	[	0	]
4	.	A	L	I	g	n	o	r	e	:	[	0	]	
5	.	T	e	m	p	A	l	a	r	m	:	[	0	]

1. Select the Page
- Able to select the Page at Menu Page.
 - Select menu sequentially by pressing the Select button.
 - (The initial menu screen displays two lines within a solid border, and scrolls sequentially when the Select button is pressed.)
2. Change the Page
- Press Enter to enter the selected menu.

Sensor Control Setting

Sensor Control Delay / Run Time Setting

■ How to set

- Blinking will indicate the setting number.
- Setting (0~9) with Select button.
- Change to next digit with Enter button.

■ Setting 0 ~ 99 sec available

■ After the setting is completed, press Enter button over 2 sec.

- If any setting changes, save the setting information and indicate Power Off.
- If no setting changes, change to Menu page.

※ What is sensor mode?

This is a function that investigates VUV during the run time after the delay time set in the controller when a sensor signal is input. When using sensor mode, control commands other than sensors are ignored.

Sensor Mode	Remote	RS-485	Switch
On	X	X	X
Off	1	2	3

Operating mode Setting

Set the Controller operating mode

I	o	n	C	o	n	r	r	o	i	:	O	F	
C	o	m	m	A	d	d	r	e	s	s	:	0	1
M	a	x	R	u	n	T	i	m	e	:	O	F	

- How to set
- Blinking will indicate the possible setting digit.
 - Setting with Select button.
 - Ion Control (OF : Remote Control / ON : Sensor Control)
 - Comm Address : Setting communication address (1 ~ 16)
 - Max Run Time: Set the automatic run stop time (0~99)
 - Change to next digit with Enter button.
- When setting is completed, press the Enter button over 2 sec.
 - If any setting changes, save the setting information and indicate Power Off.
 - If no setting changes, change to Menu page.
- ※ What is Max Run Time?
- When using the front button or communication for the run operation, the lamp will automatically turn off after the set time.
 - Sensor control is unavailable when this function is set.

Address Mode Setting

A	d	d	r	e	s	M	o	d	e	:	O	F
---	---	---	---	---	---	---	---	---	---	---	---	---

- On: Verifies the address and communicates only if it matches.
- Off: Communicates without verifying the address.

Alarm Ignore Mode Setting

A	l	a	r	m	I	g	n	o	r	e	:	O	F
---	---	---	---	---	---	---	---	---	---	---	---	---	---

- On: Ignores the alarm state and outputs HV.
- Off: Checks the alarm state and stops operation.

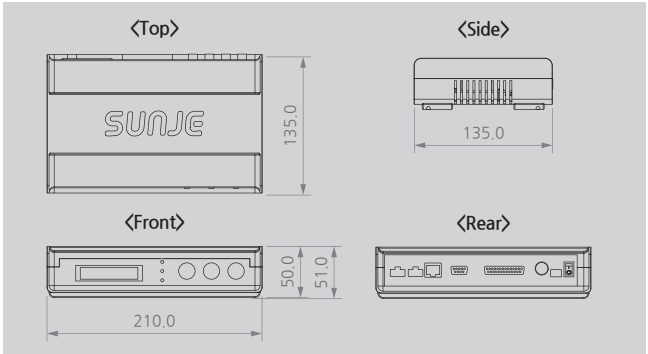
Temp Alarm Threshold Setting

T	e	m	p	A	l	a	r	m	:	O	F			
T	e	m	p	W	a	r	n	i	n	g	:	5	0	
T	e	m	I	n	t	e	r	l	o	c	k	:	6	0

- Temp Alarm: Selects whether to enable the temperature alarm function.
- Temp Warning: Sets the temperature warning threshold (50 ~ 94°C).
- Temp Interlock: Sets the temperature alarm threshold (55 ~ 99°C).

※ The temperature warning and alarm thresholds are automatically adjusted to maintain a minimum difference of 5°C.

6 Dimensions



7 Specification

Parameter		Description / Value
Input Power		24Vdc / 2.5A
Consumption Current		Max. 1.5A(36W) _When 2 Lamps are connected
Display Specification	LCD	16 X 2 CLCD
	LED	3ea (Lamp1, Lamp2, Interlock)
Local Control	Push Switch	3ea (Set, Enter, Run)
Interface	Input	5ea Lamp1/ Lamp2 Remote, Interlock, Sensor Control, Power Input
		11ea
	Output	Lamp1 : Run Status, Lamp Status, Overtime Warning, Overtime Alarm Lamp2 : Run Status, Lamp Status, Overtime Warning, Overtime Alarm, Interlock, Power, Clock Out
		6ea
	Analog Output	Lamp1 : Temperature, Intensity, Lifetime Lamp2 : Temperature, Intensity, Lifetime
Communication		Modbus_RTU Support (Address Map will be provided separately)
Indoor or Outdoor use		Indoor use only
Altitude		Less than 2,000 m
Weight		0.62 Kg
Warranty		1 year

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

► Explanation of symbols used

⚠

• Warning / Caution

⚡

• Certainly needed grounding.

⚡

• Caution to electric shock through the High Voltage.

⊗

• Do not make arbitrary corrections the product.

CE

• CE Marking

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8 Modbus Mapping Table (V1.0.2.2)

Baud rate : 9600 / Parity : None / Data Bit : 8 / Stop Bit : 1

Memory Address	Distinction	Data Address		Start Address		Comment	Range	Default		Function Code (Hex)	Read / Write
		Dec	Hex	Dec	Hex			DEC	HEX		
Coil (1 bit)	Run Control	1	1	0	0	Lamp1, Lamp2 Unified Operation Control With broadcast ID set, control works regardless of address. 1) During command transmission, set the Slave Address to the 'Z' (HEX: 0x5A, DEC: 90) 2) Controls VUV controller Run/Stop via RS-485 regardless of product ID 3) No reply data	0 : Stop 1 : Run	0	0	Read Coils (0x01) Write Single Coil (0x05)	Read-write
	Lamp1 Run Control	129	81	128	80	Lamp1 Individual Control	0 : Stop 1 : Run	0	0		
	Lamp2 Run Control	130	82	129	81	Lamp2 Individual Control	0 : Stop 1 : Run	0	0		
	Lamp Sensor Control 1	131	83	130	82	Operates for the time set in the sequence(Lamp1,2 control)	0 : Stop 1 : Run	0	0		
Discrete input (1 bit)	Lamp1 Run Control Status	10129	2791	128	80	Lamp1 Run/Stop Control Status	0 : Stop Control 1 : Run Control	0	0	Read Discrete Input (0x02)	Read-only
	Lamp1 Run Status	10130	2792	129	81	Lamp1 Light on Status	0 : Stop 1 : Run	0	0		
	Lamp1 Time Warning	10131	2793	130	82	Warning alarm before Lamp1 Lifetime Exceeded	0 : Normal 1 : Time Waring	0	0		
	Lamp1 Time Over	10132	2794	131	83	Lamp1 Lifetime Exceeded	0 : Normal 1 : Time Over	0	0		
	Lamp1 Temperature Interlock	10133	2795	132	84	Lamp1 Temperature Interlock	0 : Off 1 : On	0	0		
	Lamp1 Fan Alarm	10134	2796	133	85	Lamp1 Fan Alarm	0 : Normal 1 : Fan Alarm	0	0		
	Lamp2 Run Control Status	10145	27A1	144	90	Lamp2 Run/Stop Control Status	0 : Stop Control 1 : Run Control	0	0		
	Lamp2 Run Status	10146	27A2	145	91	Lamp2 Light on Status	0 : Stop 1 : Run	0	0		
	Lamp2 Time Warning	10147	27A3	146	92	Warning alarm before Lamp2 Lifetime Exceeded	0 : Normal 1 : Time Waring	0	0		
	Lamp2 Time Over	10148	27A4	147	93	Lamp2 Lifetime Exceeded	0 : Normal 1 : Time Over	0	0		
	Lamp2 Temperature Interlock	10149	27A5	148	94	Lamp2 Temperature Interlock	0 : Off 1 : On	0	0		
	Lamp2 Fan Alarm	10150	27A6	149	95	Lamp2 Fan Alarm	0 : Normal 1 : Fan Alarm	0	0		
	Interlock Status	10161	27B1	160	A0	Interlock Status	0 : Off 1 : On	0	0		
Input register (16 bits)	Products	30001	7531	0	0	Products	G	71	47	Read Input Registers (0x04)	Read-only
	Model	30002	7532	1	1	Model	1	49	31		
	Firmware Version_HIGH	30003	7533	2	2	Firmware Version	0 ~ 99	10	A		
	Firmware Version_LOW	30004	7534	3	3		0 ~ 99	0	0		
	Slave Address	30005	7535	4	4	Slave Address	1 ~ 16	1	1		
	Lamp1 Use Time	30129	75B1	128	80	Lamp1 Use Time	0 ~ 9,999 hour	0	0		
	Lamp1 Run Control Status	30130	75B2	129	81	Lamp1 Run/Stop Control Status	0 : Stop Control 1 : Run Control	0	0		
	Lamp1 Run Status	30131	75B3	130	82	Lamp1 Light on Status	0 : Stop 1 : Run	0	0		
	Lamp1 Time Warning	30132	75B4	131	83	Warning alarm before Lamp1 Lifetime Exceeded	0 : Normal 1 : Time Waring	0	0		
	Lamp1 Time Over	30133	75B5	132	84	Lamp1 Lifetime Exceeded	0 : Normal 1 : Time Over	0	0		
	Lamp1 Temperature	30134	75B6	133	85	Lamp1 Temperature	0 ~ 99 ℃	0	0		
	Lamp1 Temperature Interlock	30135	75B7	134	86	Lamp1 Temperature Interlock	0 : Off 1 : On	0	0		
	Lamp1 Fan Alarm	30136	75B8	135	87	Lamp1 Fan Alarm	0 : Normal 1 : Fan Alarm	0	0		
	Lamp1 Lux Percentage	30137	75B9	136	88	Lamp1 Lux Percent value	0 ~ 100%	0	0		
	Lamp1 Lux Feedback Voltage	30138	75BA	137	89	Lamp1 Lux Feedback Voltage value	0 ~ 5V	0	0		
	Lamp2 Use Time	30145	75C1	144	90	Lamp2 Use Time	0 ~ 9,999 hour	0	0		
	Lamp2 Run Control Status	30146	75C2	145	91	Lamp2 Run/Stop Control Status	0 : Stop Control 1 : Run Control	0	0		
	Lamp2 Run Status	30147	75C3	146	92	Lamp2 Light on Status	0 : Stop 1 : Run	0	0		
	Lamp2 Time Warning	30148	75C4	147	93	Warning alarm before Lamp2 Lifetime Exceeded	0 : Normal 1 : Time Waring	0	0		
	Lamp2 Time Over	30149	75C5	148	94	Lamp2 Lifetime Exceeded	0 : Normal 1 : Time Over	0	0		
	Lamp2 Temperature	30150	75C6	149	95	Lamp2 Temperature	0 ~ 99 ℃	0	0		
	Lamp2 Temperature Interlock	30151	75C7	150	96	Lamp2 Temperature Interlock	0 : Off 1 : On	0	0		
	Lamp2 Fan Alarm	30152	75C8	151	97	Lamp2 Fan Alarm	0 : Normal 1 : Fan Alarm	0	0		
	Lamp2 Lux Percentage	30153	75C9	152	98	Lamp2 Lux Percent value	0 ~ 100%	0	0		
	Lamp2 Lux Feedback Voltage	30154	75CA	153	99	Lamp2 Lux Feedback Voltage value	0 ~ 5V	0	0		
Holding register (16 bits)	Sonsor Control 1 Delay Time	40129	9CC1	128	80	Sequence1 Dleay Time setting	Min. : 1 (1 Sec) Max. : 99 (99 Sec)	1	1	Read Holding Register (0x03) Write Single Register (0x06) Write Multiple registers (0x10)	Read-write
	Sonsor Control 1 Run Time	40130	9CC2	129	81	Sequence1 Run Time setting	Min. : 1 (1 Sec) Max. : 99 (99 Sec)	1	1		

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