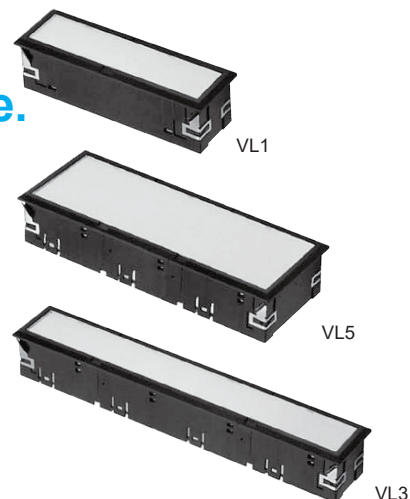


## VL Indicator

Available 6 sizes according to number of characters desired to indicate.

- Display surface : VL1 = 17×72 mm (External dimension : 25×80 mm) and other 5 sizes.
- Depth behind panel : 20 mm
- Terminal : Connector (Original connector)
- Mounting : Snap-in mounting
- Illumination type : Full-Face, Dual-Color, 2-Split-Face, 2-Split-Dual-Color, Negative
- Accessories : Wire harness

Negative illumination : The engraved letters are clearly visible only when the light is on, and when the light is off, the engraved characters are hidden by the semitransparent black cover.



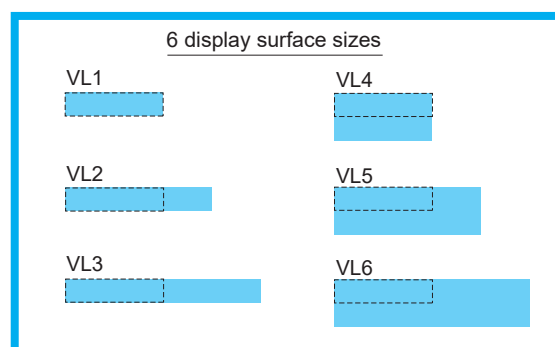
### CHARACTERISTICS

Display Surface Size	VL1 : 17×72, VL2 : 17×108, VL3 : 17×144, VL4 : 35×72, VL5 : 35×108, VL6 : 35×144
Illumination Color	Red, Green, Yellow, Super Blue, Super White, Super Green
Illumination Type	Full-Face, Dual-Color, 2-Split-Face, 2-Split-Dual-Color
Supply Voltage	DC5V, 12V, 24V ± 5%
Consumption Current	220mA max. (VL6)
Terminal Shape	Original connector (6 pins)
Insulation Resistance	More than 100 MΩ at DC 500 V
Dielectric Strength	AC 1500 V RMS between terminals and ground 50/60 Hz for 60 sec. at normal ambient temperature and humidity
Peak Reverse Voltage	150V ※ Except DC5V (10V)
Ambient Operating Temperature	-10°C to 40°C (No Freeze, No Condensation)
Ambient Operating Humidity	45 to 85%RH max.(No Condensation)
Ambient Storage Temperature	-25°C to 65°C (No Freeze, No Condensation)
Ambient Storage Humidity	85%RH max. (No Condensation)
RoHS (10 Substances)	Conform to standards

### SPECIFICATIONS

		DC5V	DC12V	DC24V
Illumination type	Full-Face	A	A	A
	3-Color	A	A	A
	2-Split-Face (Vertical)	A	A	A
	2-Split-Face (Horizontal)	A	A	A
	2-Split-Dual-Color	A	A	A
	Multi-Split-Face	A	A	A
Illumination Color	Red (70)	A	A	A
	Green (80)	A	A	A
	Yellow (90)	A	A	A
	Super Blue (14)	N/A	A	A
	Super White (16)	N/A	A	A
	Super Green (18)	N/A	A	A

A : Applicable N/A : Not applicable

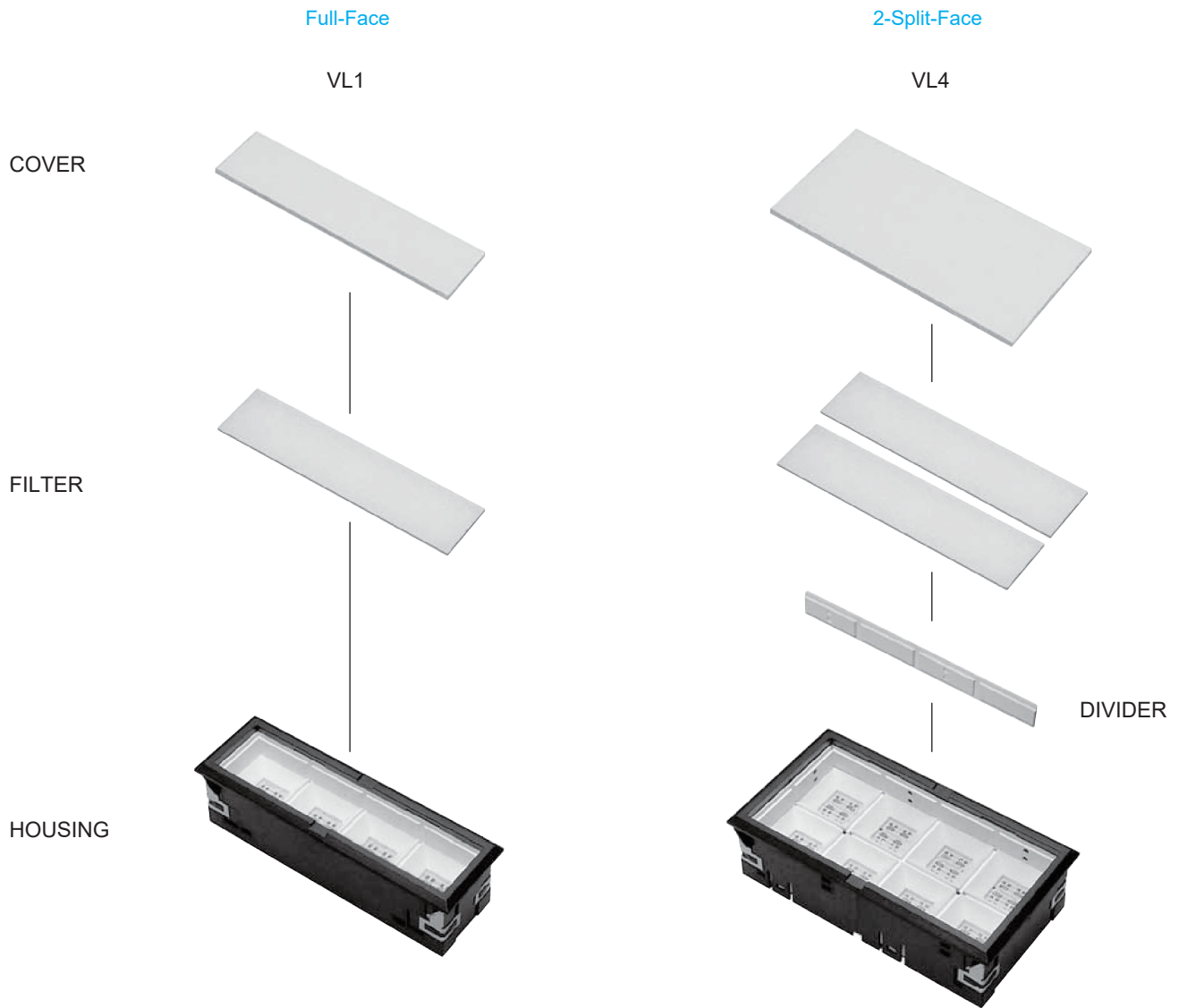


[https://www.sunmulon.co.jp/english/products/led\\_e/vl.html](https://www.sunmulon.co.jp/english/products/led_e/vl.html)


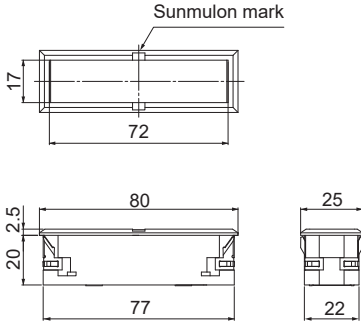

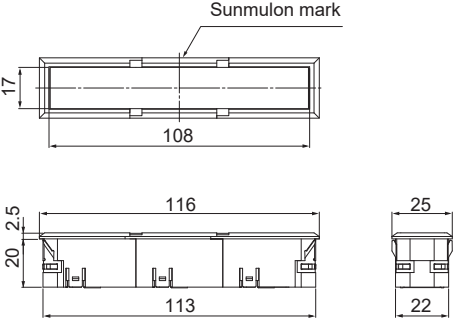
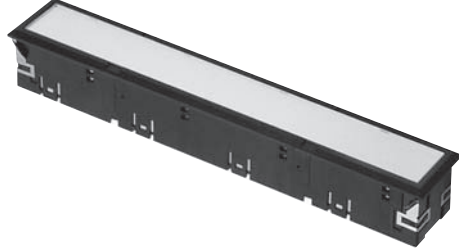
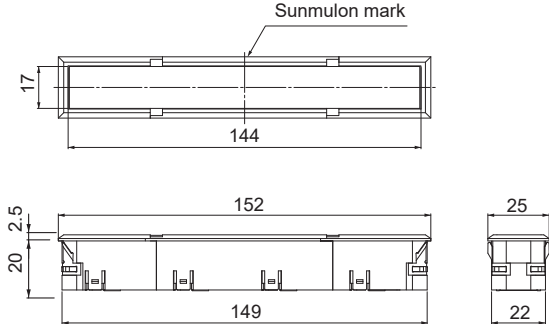


- ◇Dimensions : page VL-3~4
- ◇Accessories : page VL-5
- ◇Ordering code : page VL-6~9
- ◇Internal connection arrangements : page VL-11~36
- ◇LED specifications : page VL-37~38
- ◇Terminals : page VL-39
- ◇Mounting design / Panel cutout : page VL-40~41

# STRUCTURE



## DIMENSIONS

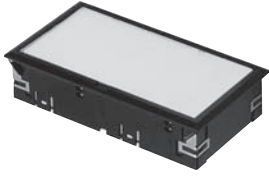
<p>VL1</p>  <p>3D DXF</p>	
<p>VL2</p>  <p>3D DXF</p>	
<p>VL3</p>  <p>3D DXF</p>	

3D • DXF data download site : <https://www.sunmulon.co.jp/download/>

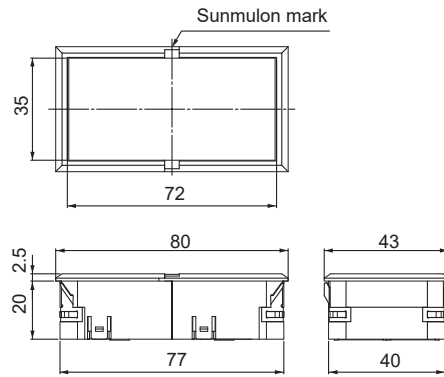
Tolerance : ± 0.4 mm

## DIMENSIONS

VL4



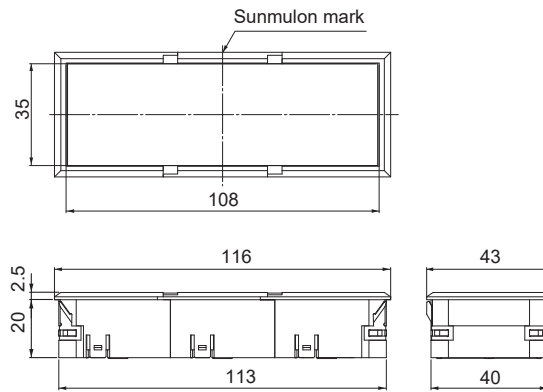
3D  
DXF



VL5



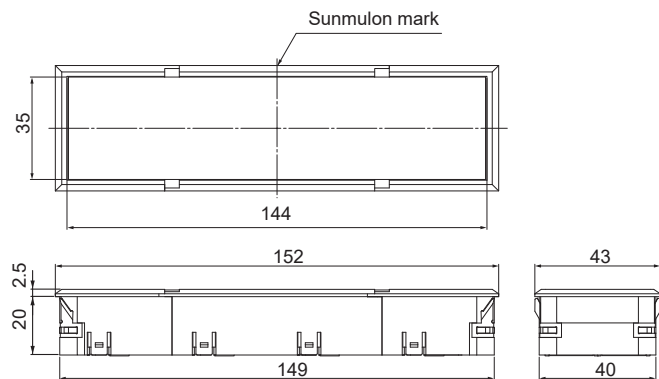
3D  
DXF



VL6



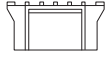

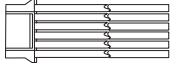


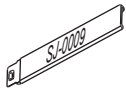
3D  
DXF



3D • DXF data download site : <https://www.sunmulon.co.jp/download/>

Tolerance :  $\pm 0.4$  mm

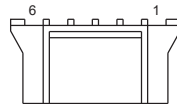
## ACCESSORIES

Name	Appearance	Classification	Part no.		Precautions for use
Connector		Housing	EH-3251		- 1 Housing and 6 contacts set. ※ Please specify whether or not to attach it by ordering code.  ※ Please contact JST for more information about contact crimping tools.
		Contact			
Wire harness		Wire harness	100cm	EH-3250-1	- For other dimensions, please contact us.
			200cm	EH-3250-2	
		For cross wiring	VL-1058-1		- Attached to VL4, VL5, VL6.
Removing tool		For removal cover	SJ-0009		- Be used to remove cover from housing.

### Connector

Part no. EH-3251

1 Housing & 6 contact pins to be appended.



Housing  
(JST made PHR-6)

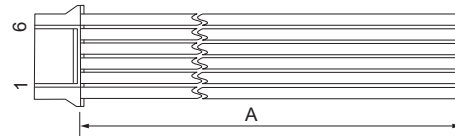


Contact pin  
(JST made SPH-002T-P0.5S)

### Wire harness

Part no.	EH-3250-1	EH-3250-2
A length	100cm	200cm

Wire : UL1061 AWG26



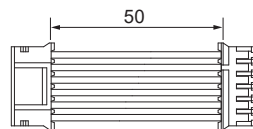
Pin No.	1	2	3	4	5	6
Wire Color	Brown	Red	Orange	Yellow	Green	Blue

### Connector for Cross wiring

(Attached to VL4, VL5, VL6)

Part no. VL-1058-1

Wire : UL1061 AWG26



# ORDERING CODE [Full-Face]

Assembled Part

## VL   – W0

● **SHAPE**

1	17×72
2	17×108
3	17×144
4	35×72
5	35×108
6	35×144

● **ILLUMINATION TYPE**

W0	Full-Face
----	-----------

● **LED COLOR**

70	Red
80	Green
90	Yellow
14	Super-Blue ※1)
16	Super-White ※1)
18	Super-Green ※1)
X	Without LED

Yellow (90) is actually "ORANGE Yellow" not Lemon Yellow.

● **COVER COLOR**

C	Transparent
SK	Semitransparent (For Negative) ※2)

● **HOUSING COLOR**

K	Black
H	Gray

● **FILTER COLOR**

1	Red
2	Green
3	Orange Yellow
4	Milk-white ※2)
6	Blue
X	Without filter

● **MOUNTING** ※4)

1	For Horizontal Mtg.
2	For Vertical Mtg.
X	Without Snap spring

● **Supply Voltage to LED**

1	DC5V ※1)
2	DC12V
3	DC24V
X	Without LED

● **LED CIRCUIT**

A	Anode common
K	Cathode common
X	Without LED

● **TERMINAL**

K	Connector with Accessories ※3)
N	Connector without Accessories

● **NOTES**

- ※1) The color of LED Super-Blue, Super-White, Super-White cannot be specified DC 5V, specify DC12V or DC24V.
- ※2) For Negative illumination, specify filter Milk-white (4). The filter for negative illumination has black silk printing on one side.
- ※3) Attached to EH-3251. For the connector, refer to Accessories page.
- ※4) Snap spring metal plates come out Left / Right direction for Vertical mounting, and Top / Bottom direction for Horizontal mounting to avoid interfering mutually. Therefore, in case of independent use, it does not matter. (select 1 Horizontal ordinary)

◇Dimensions : page VL-3~4

◇Accessories : page VL-5

◇Internal connection arrangements : page VL-11~15

◇LED specifications : page VL-37

◇Terminals : page VL-39

◇Mounting design / Panel cutout : page VL-40~41

## ORDERING CODE [Dual-Color]

Assembled Part

VL    – W3 1 2                     

● **SHAPE**

1	17×72
2	17×108
3	17×144
4	35×72
5	35×108
6	35×144

● **ILLUMINATION TYPE**

W3	Dual-Color
----	------------

● **LED COLOR** ※1)

7	Red	Put the color numbers into frame 1, 2. (Dual-Color combination) 78 · 79 · 714 · 716 · 718 914 · 916 · 918 · 1416 · 1418 1616 · 1618
8	Green	
9	Yellow	
14	Super-Blue	
16	Super-White	
18	Super-Green	

Yellow (90) is actually "ORANGE Yellow" not Lemon Yellow.

● **COVER COLOR**

C	Transparent
SK	Semitransparent (For Negative) ※2)

● **HOUSING COLOR**

K	Black
H	Gray

● **FILTER COLOR**

4	Milk-white
X	Without filter

● **MOUNTING** ※4)

1	For Horizontal Mtg.
2	For Vertical Mtg.
X	Without Snap spring

● **Supply Voltage to LED**

1	DC5V	※1)
2	DC12V	
3	DC24V	

● **LED CIRCUIT**

A	Anode common
K	Cathode common

● **TERMINAL**

K	Connector with Accessories	※3)
N	Connector without Accessories	

● **NOTES**

- ※1) The color of LED Super-Blue, Super-White, Super-White cannot be specified DC 5V, specify DC12V or DC24V.
- ※2) For Negative illumination, specify filter Milk-white (4). The filter for negative illumination has black silk printing on one side.
- ※3) Attached to EH-3251. For the connector, refer to Accessories page.
- ※4) Snap spring metal plates come out Left / Right direction for Vertical mounting, and Top / Bottom direction for Horizontal mounting to avoid interfering mutually. Therefore, in case of independent use, it does not matter. (select 1 Horizontal ordinary)

◇Dimensions : page VL-3~4

◇Accessories : page VL-5

◇Internal connection arrangements : page VL-16~20

◇LED specifications : page VL-37

◇Terminals : page VL-39

◇Mounting design / Panel cutout : page VL-40~41

# ORDERING CODE [2-Split-Face]

Assembled Part

VL   —   1 2     1 2        

● **SHAPE**

1	17×72
2	17×108
3	17×144
4	35×72
5	35×108
6	35×144

● **ILLUMINATION TYPE**

W1	2-Split-Face (Vertical)
W2	2-Split-Face (Horizontal) ※1)

● **MOUNTING** ※6)

1	For Horizontal Mtg.
2	For Vertical Mtg.
X	Without Snap spring

● **Supply Voltage to LED**

1	DC5V ※3)
2	DC12V
3	DC24V
X	Without LED

● **LED COLOR** ※2) ※3)

7	Red	Put the color numbers into frame 1, 2.
8	Green	
9	Yellow	
14	Super-Blue	
16	Super-White	
18	Super-Green	For Non-illuminated Put XX into frame 1, 2.
X	Without LED	

The combination of With LED and Without LED cannot be specified.  
Yellow (90) is actually "ORANGE Yellow" not Lemon Yellow.

● **LED CIRCUIT**

A	Anode common
K	Cathode common
X	Without LED

● **COVER COLOR**

C	Transparent
SK	Semitransparent (For Negative) ※4)

● **HOUSING COLOR**

K	Black
H	Gray

● **TERMINAL**

K	Connector with Accessories ※5)
N	Connector without Accessories

● **FILTER COLOR** ※2) ※4)

1	Red	Put the color numbers into frame 1, 2.
2	Green	
3	Orange Yellow	
4	Milk-white	For Without filter Put XX into frame 1, 2.
6	Blue	
X	Without filter	

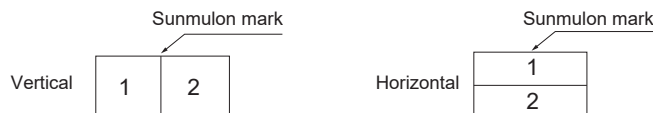
The combination of With filter and Without filter cannot be specified.

● **NOTES**

※1) Only VL4, VL5, VL6 can be specified for 2-Split-Face (Horizontal).

※2) How to specify the color of LED and filter

Select the color symbols listed in the ordering code, and put them into the frame 1 and 2 referring to the figure below.  
The numbers in the figure match the location specified in the ordering code.



※3) The color of LED Super-Blue, Super-White, Super-White cannot be specified DC 5V, specify DC12V or DC24V.

※4) For Negative illumination, specify filter Milk-white (4). The filter for negative illumination has black silk printing on one side.

※5) Attached to EH-3251. For the connector, refer to Accessories page.

※6) Snap spring metal plates come out Left / Right direction for Vertical mounting, and Top / Bottom direction for Horizontal mounting to avoid interfering mutually. Therefore, in case of independent use, it does not matter. (select 1 Horizontal ordinary)

◇Dimensions : page VL-3~4

◇Accessories : page VL-5

◇Internal connection arrangements : page VL-21~28

◇LED specifications : page VL-38

◇Terminals : page VL-39

◇Mounting design / Panel cutout : page VL-40~41



# ORDERING CODE [2-Split-Dual-Color]

Assembled Part

VL   —   1 2 3 4     1 2        

● **SHAPE**

1	17×72
2	17×108
3	17×144
4	35×72
5	35×108
6	35×144

● **ILLUMINATION TYPE**

W4	2-Split-Face (Vertical)
W5	2-Split-Face (Horizontal) ※1)

● **LED COLOR** ※2) ※3)

7	Red	Put the two color numbers into frame 1, 2 and 3, 4. (Dual-Color combination)	
8	Green		
9	Yellow		
14	Super-Blue		78 · 79 · 714 · 716 · 718
16	Super-White		914 · 916 · 918 · 1416 · 1418
18	Super-Green		1616 · 1618

Yellow (90) is actually "ORANGE Yellow" not Lemon Yellow.

● **COVER COLOR**

C	Transparent
SK	Semitransparent (For Negative) ※4)

● **HOUSING COLOR**

K	Black
H	Gray

● **MOUNTING** ※4)

1	For Horizontal Mtg.
2	For Vertical Mtg.
X	Without Snap spring

● **Supply Voltage to LED**

1	DC5V ※3)
2	DC12V
3	DC24V

● **LED CIRCUIT**

A	Anode common
K	Cathode common

● **TERMINAL**

K	Connector with Accessories ※5)
N	Connector without Accessories

● **FILTER COLOR**

4	Milk-white	For with filter Put 44 into frame 1, 2.
X	Without filter	For Without filter Put XX into frame 1, 2.

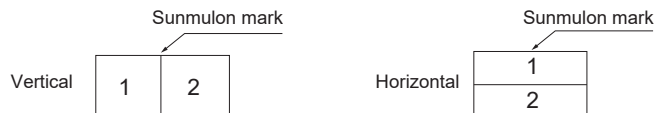
The combination of With filter and Without filter cannot be specified.

● **NOTES**

※1) Only VL4, VL5, VL6 can be specified for 2-Split-Face (Horizontal).

※2) How to specify the color of LED and filter

Select the color symbols listed in the ordering code, and put them into the frame 1 and 2 referring to the figure below. The numbers in the figure match the location specified in the ordering code.



※3) The color of LED Super-Blue, Super-White, Super-White cannot be specified DC 5V, specify DC12V or DC24V.

※4) For Negative illumination, specify filter Milk-white (4). The filter for negative illumination has black silk printing on one side.

※5) Attached to EH-3251. For the connector, refer to Accessories page.

※6) Snap spring metal plates come out Left / Right direction for Vertical mounting, and Top / Bottom direction for Horizontal mounting to avoid interfering mutually. Therefore, in case of independent use, it does not matter. (select 1 Horizontal ordinary)

◇Dimensions : page VL-3~4

◇Accessories : page VL-5

◇Internal connection arrangements : page VL-29~36

◇LED specifications : page VL-38

◇Terminals : page VL-39

◇Mounting design / Panel cutout : page VL-40~41

## REPLACEMENT PARTS

### ● COVER

	VL1	VL2	VL3	VL4	VL5	VL6
Transparent	VL-1047-1CC	VL-1047-2CC	VL-1047-3CC	VL-1048-1CC	VL-1048-2CC	VL-1048-3CC
Semitransparent (Negative)	VL-1047-1SK	VL-1047-2SK	VL-1047-3SK	VL-1048-1SK	VL-1048-2SK	VL-1048-3SK

### ● Full-Face FILTER

	VL1	VL2	VL3	VL4	VL5	VL6
Red	VL-1049-4LR	VL-1049-6LR	VL-1049-8LR	VL-1050-4LR	VL-1050-6LR	VL-1050-8LR
Green	VL-1049-4LG	VL-1049-6LG	VL-1049-8LG	VL-1050-4LG	VL-1050-6LG	VL-1050-8LG
Orange Yellow	VL-1049-4LO	VL-1049-6LO	VL-1049-8LO	VL-1050-4LO	VL-1050-6LO	VL-1050-8LO
Milk-white	VL-1049-4LM	VL-1049-6LM	VL-1049-8LM	VL-1050-4LM	VL-1050-6LM	VL-1050-8LM
Blue	VL-1049-4LB	VL-1049-6LB	VL-1049-8LB	VL-1050-4LB	VL-1050-6LB	VL-1050-8LB
Negative	VL-1059-4LM	VL-1059-6LM	VL-1059-8LM	VL-1060-4LM	VL-1060-6LM	VL-1060-8LM
Shape ※1	(4)	(6)	(8)	(12)	(14)	(16)

※ The filter for negative illumination has black silk printing on one side.

### ● Dual-Color FILTER

	VL1	VL2	VL3	VL4	VL5	VL6
Milk-white	VL-1049-4LM	VL-1049-6LM	VL-1049-8LM	VL-1050-4LM	VL-1050-6LM	VL-1050-8LM
Negative	VL-1059-4LM	VL-1059-6LM	VL-1059-8LM	VL-1060-4LM	VL-1060-6LM	VL-1060-8LM
Shape ※1	(4)	(6)	(8)	(12)	(14)	(16)

※ The filter for negative illumination has black silk printing on one side.

### ● 2-Split-Face FILTER

	VL1~VL3					VL4~VL6				
Red	VL-1049-1LR	VL-1049-2LR	VL-1049-3LR	VL-1049-5LR	VL-1049-7LR	VL-1049-2LR	VL-1050-2LR	VL-1050-3LR	VL-1050-5LR	VL-1050-7LR
Green	VL-1049-1LG	VL-1049-2LG	VL-1049-3LG	VL-1049-5LG	VL-1049-7LG	VL-1049-2LG	VL-1050-2LG	VL-1050-3LG	VL-1050-5LG	VL-1050-7LG
Orange Yellow	VL-1049-1LO	VL-1049-2LO	VL-1049-3LO	VL-1049-5LO	VL-1049-7LO	VL-1049-2LO	VL-1050-2LO	VL-1050-3LO	VL-1050-5LO	VL-1050-7LO
Milk-white	VL-1049-1LM	VL-1049-2LM	VL-1049-3LM	VL-1049-5LM	VL-1049-7LM	VL-1049-2LM	VL-1050-2LM	VL-1050-3LM	VL-1050-5LM	VL-1050-7LM
Blue	VL-1049-1LB	VL-1049-2LB	VL-1049-3LB	VL-1049-5LB	VL-1049-7LB	VL-1049-2LB	VL-1050-2LB	VL-1050-3LB	VL-1050-5LB	VL-1050-7LB
Negative	VL-1059-1LM	VL-1059-2LM	VL-1059-3LM	VL-1059-5LM	VL-1059-7LM	VL-1059-2LM	VL-1060-2LM	VL-1060-3LM	VL-1060-5LM	VL-1060-7LM
Shape ※1	(1)	(2)	(3)	(5)	(7)	(9)	(10)	(11)	(13)	(15)

※ The filter for negative illumination has black silk printing on one side.

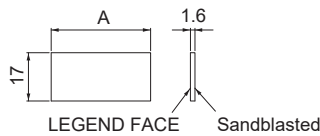
### ● 2-Split-Dual-Color FILTER

	VL1~VL3					VL4~VL6				
Milk-white	VL-1049-1LM	VL-1049-2LM	VL-1049-3LM	VL-1049-5LM	VL-1049-7LM	VL-1049-2LM	VL-1050-2LM	VL-1050-3LM	VL-1050-5LM	VL-1050-7LM
Negative	VL-1059-1LM	VL-1059-2LM	VL-1059-3LM	VL-1059-5LM	VL-1059-7LM	VL-1059-2LM	VL-1060-2LM	VL-1060-3LM	VL-1060-5LM	VL-1060-7LM
Shape ※1	(1)	(2)	(3)	(5)	(7)	(9)	(10)	(11)	(13)	(15)

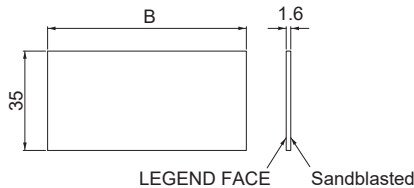
※ The filter for negative illumination has black silk printing on one side.

※ 1 : Refer to Filter dimensions shape number as below.

### ● FILTER DIMENSIONS

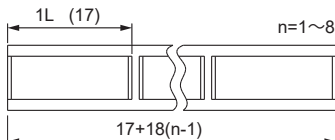


Shape	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A Length	17	35	53	71	89	107	125	143



Shape	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
B Length	17 Same as (2)	35	53	71	89	107	125	143

### ● DIVIDER



	1L	2L	3L	4L	5L	6L	7L	8L
Length	17	35	53	71	89	107	125	143
Part no.	VL-1057-1	VL-1057-2	VL-1057-3	VL-1057-4	VL-1057-5	VL-1057-6	VL-1057-7	VL-1057-8

Tolerance : ± 0.4 mm

# INTERNAL CONNECTION ARRANGEMENTS

● Full-Face

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).

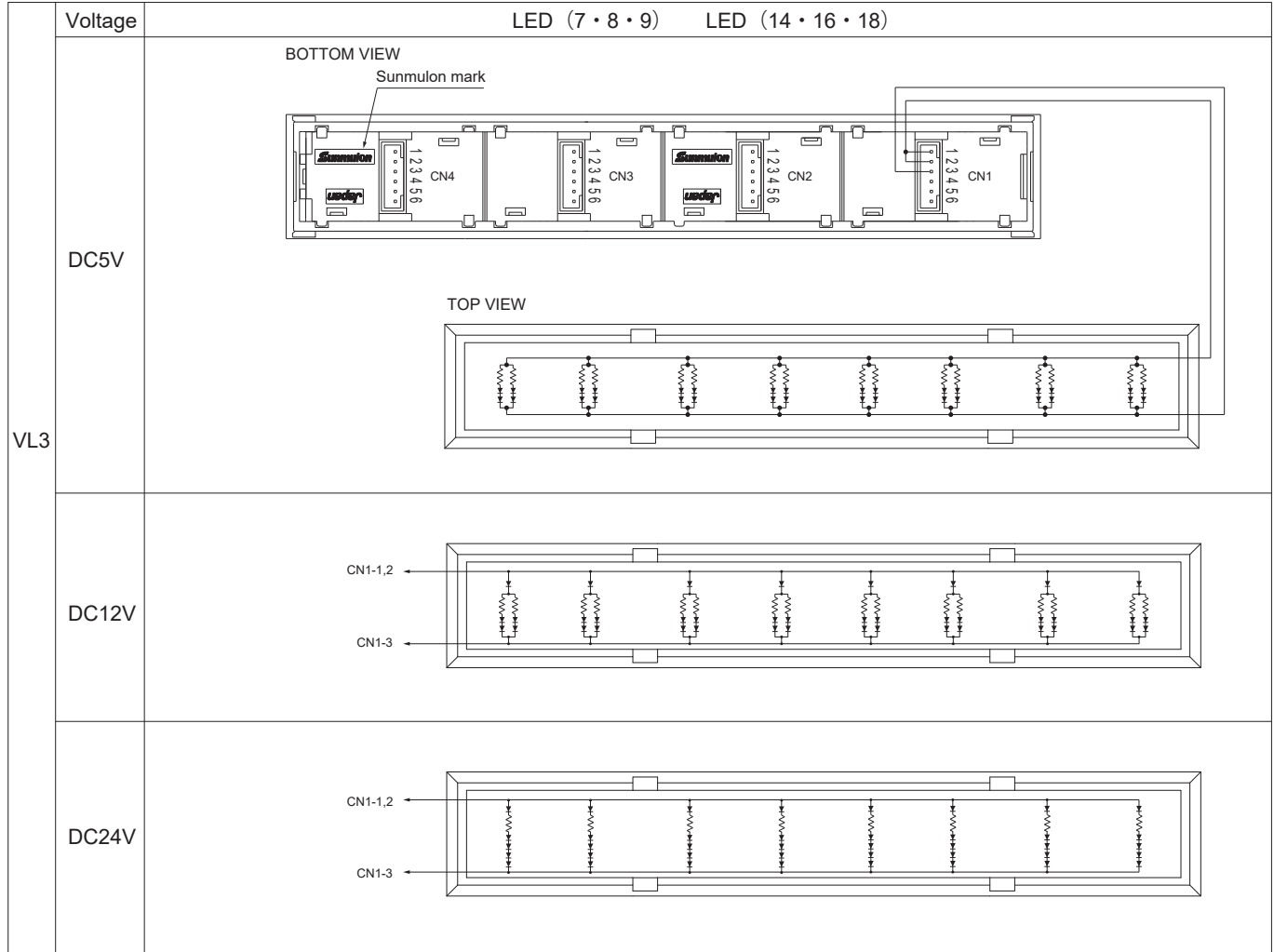
Voltage		LED (7 · 8 · 9)	LED (14 · 16 · 18)
VL1	DC5V	<p>BOTTOM VIEW</p>	<p>TOP VIEW</p>
	DC12V		
	DC24V		
VL2	DC5V	<p>BOTTOM VIEW</p>	<p>TOP VIEW</p>
	DC12V		
	DC24V		

LED color : 70 (Red), 80 (Green), 90 (Yellow), 14 (Super-Blue), 16 (Super-White), 18 (Super-Green)

## INTERNAL CONNECTION ARRANGEMENTS

● Full-Face

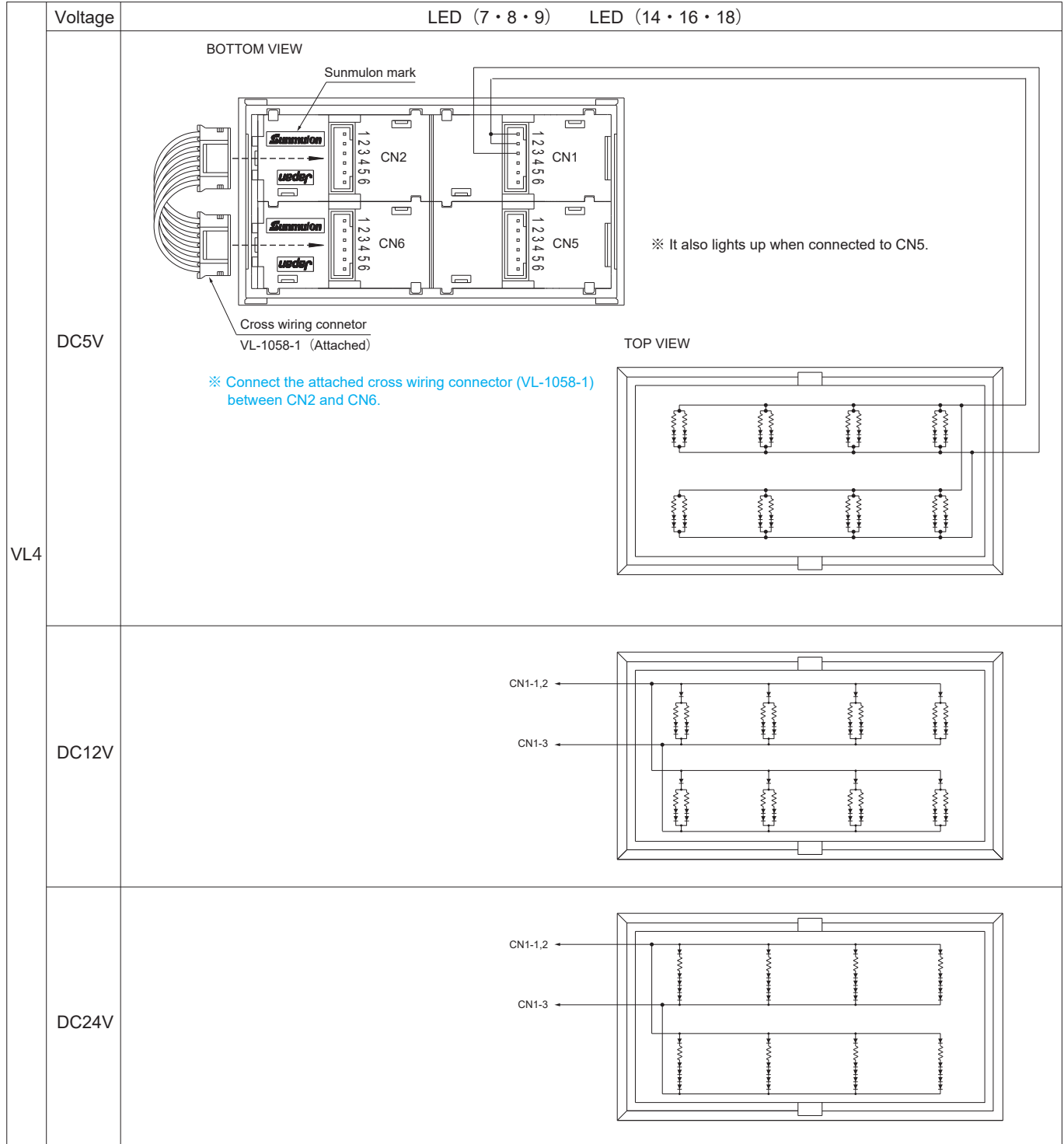
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

● Full-Face

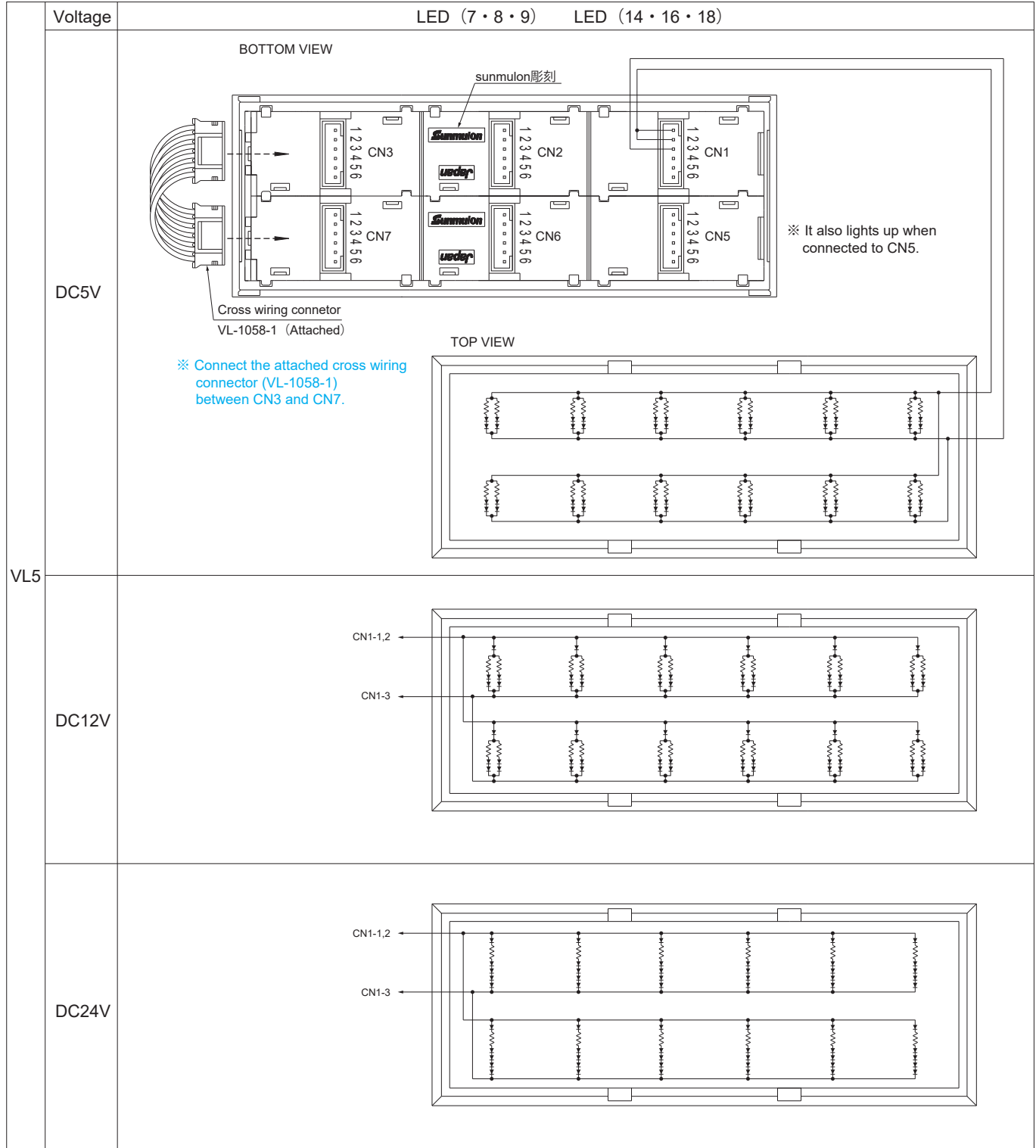
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

● Full-Face

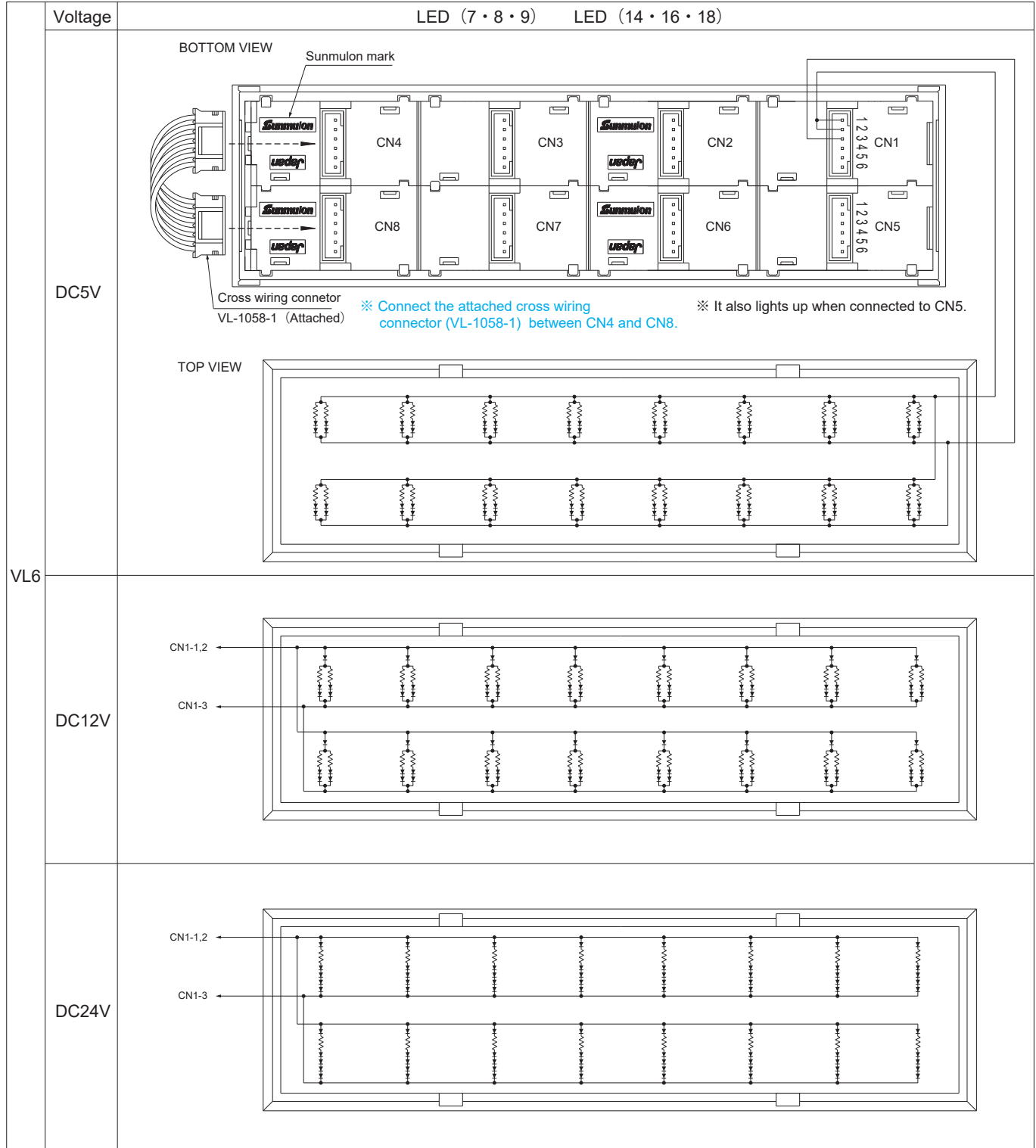
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

● Full-Face

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

● Dual-Color

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).

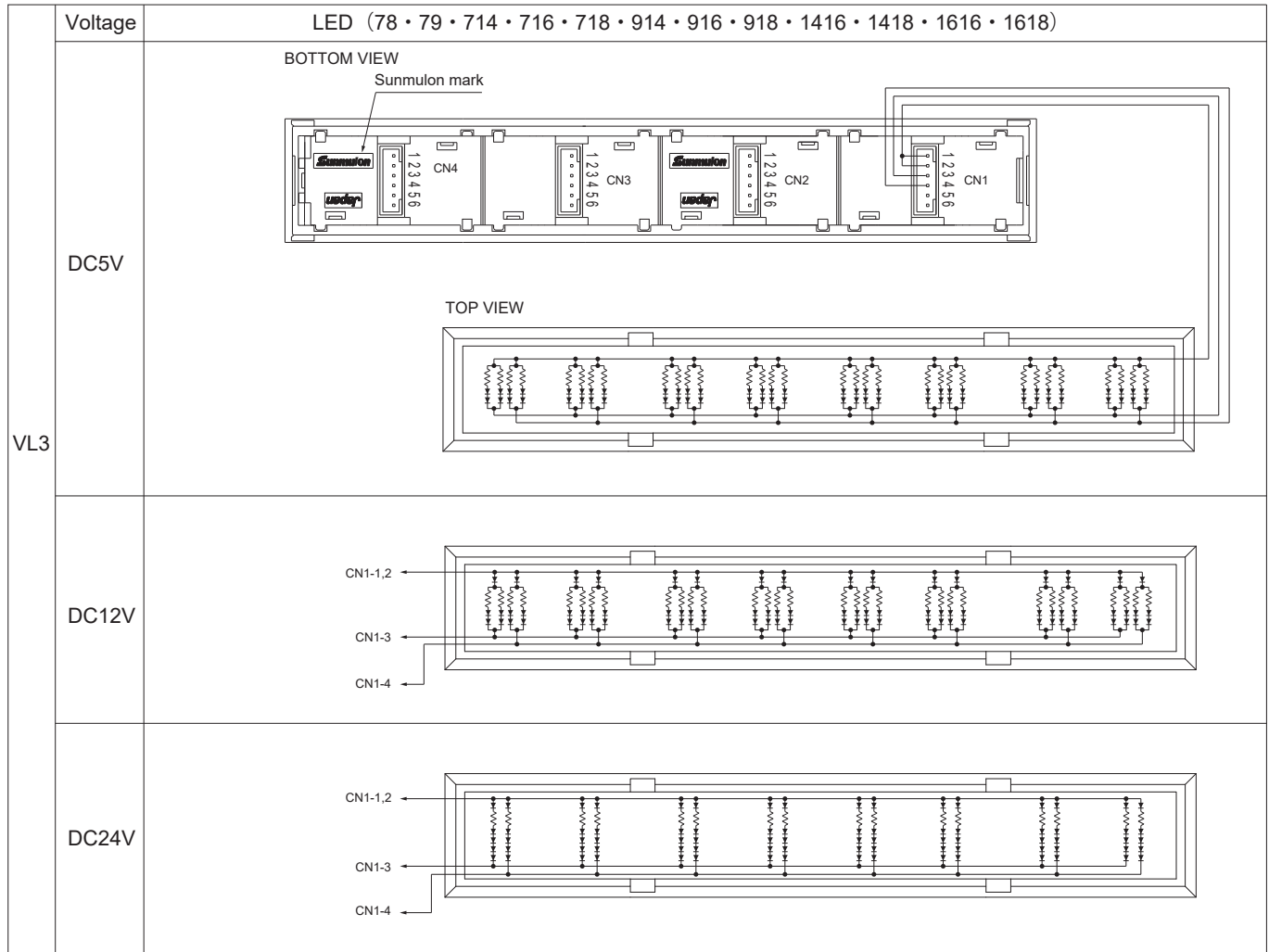
Voltage		LED (78 · 79 · 714 · 716 · 718 · 914 · 916 · 918 · 1416 · 1418 · 1616 · 1618)	
VL1	DC5V	<p>BOTTOM VIEW</p> <p>Sunmulon mark</p> <p>CN2</p> <p>CN1</p>	<p>TOP VIEW</p>
	DC12V		<p>CN1-1,2</p> <p>CN1-3</p> <p>CN1-4</p>
	DC24V		<p>CN1-1,2</p> <p>CN1-3</p> <p>CN1-4</p>
VL2	DC5V	<p>BOTTOM VIEW</p> <p>Sunmulon mark</p> <p>CN3</p> <p>CN2</p> <p>CN1</p>	<p>TOP VIEW</p>
	DC12V		<p>CN1-1,2</p> <p>CN1-3</p> <p>CN1-4</p>
	DC24V		<p>CN1-1,2</p> <p>CN1-3</p> <p>CN1-4</p>



## INTERNAL CONNECTION ARRANGEMENTS

● Dual-Color

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



● VL1~VL3 Dual-Color combination (DC5V)

Terminals		LED Color	
CN1	1, 2-3	Red	Red
	1, 2-4	Green	Yellow
	1, 2-3 • 4	Simultaneous lighting	

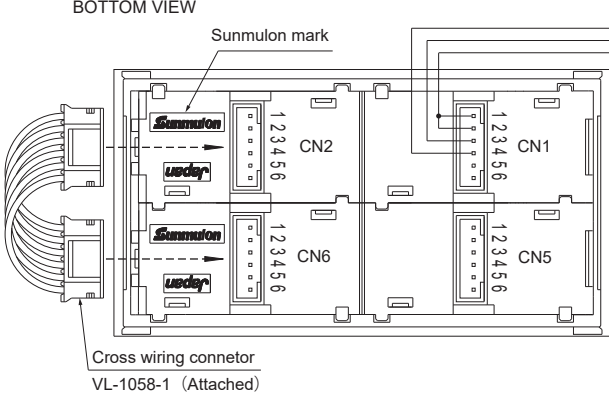
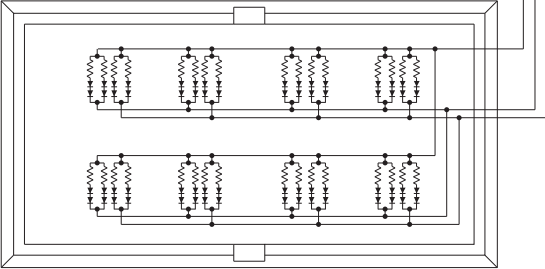
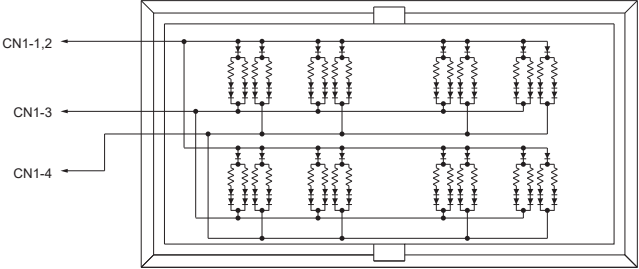
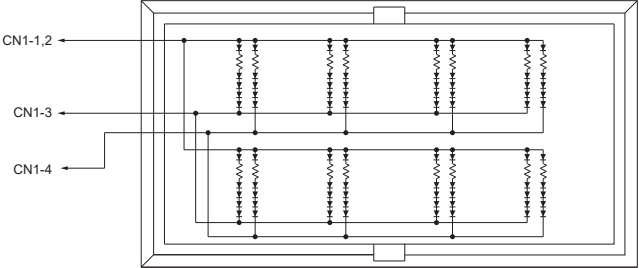
● VL1~VL3 Dual-Color combination (DC12V • DC24V)

Terminals		LED Color											
CN1	1, 2-3	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Super Blue	Super Blue	Super White	Super White
	1, 2-4	Green	Yellow	Super Blue	Super White	Super Green	Super Blue	Super White	Super Green	Super White	Super Green	Super White	Super Green
	1, 2-3 • 4	Simultaneous lighting											

# INTERNAL CONNECTION ARRANGEMENTS

● Dual-Color

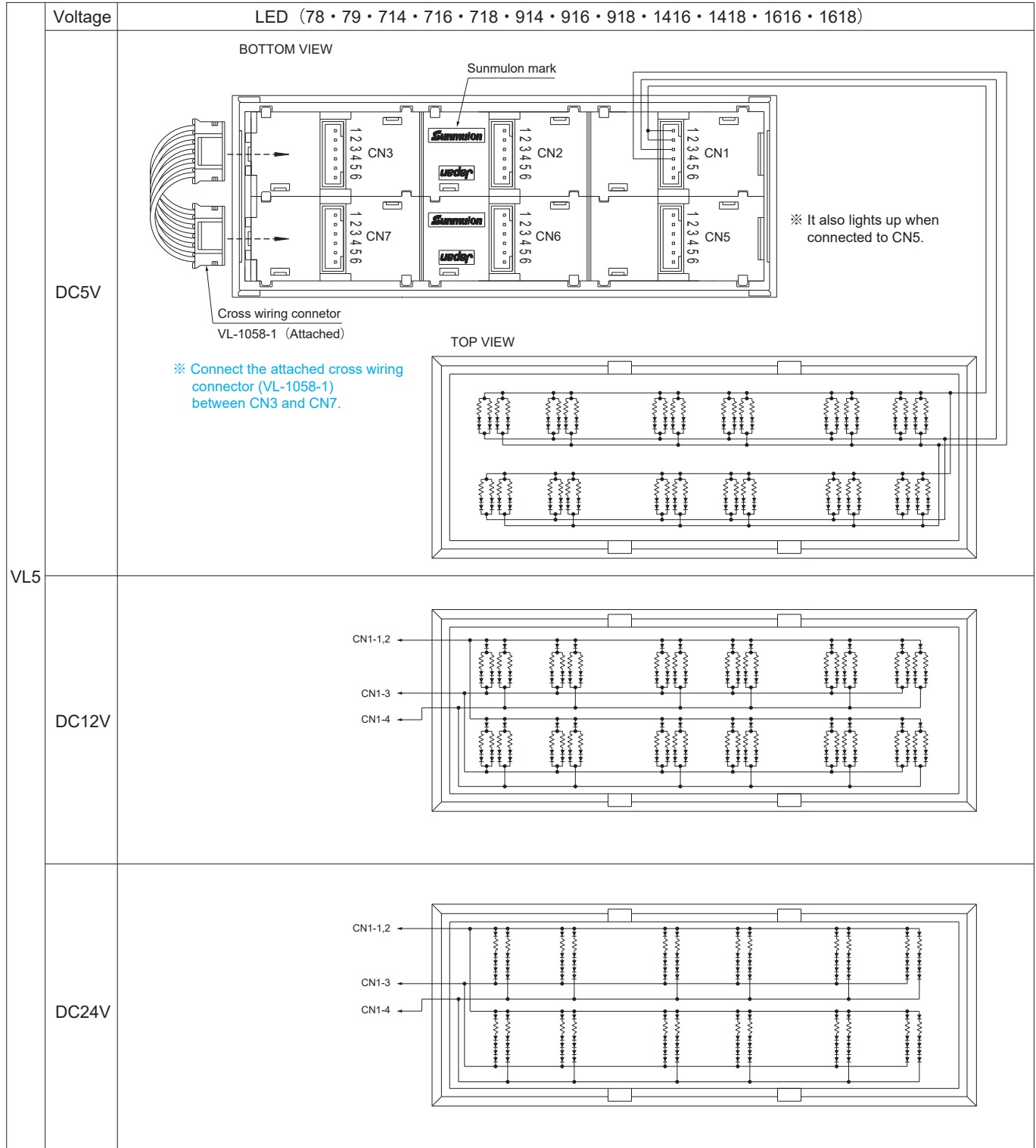
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).

Voltage	LED (78 • 79 • 714 • 716 • 718 • 914 • 916 • 918 • 1416 • 1418 • 1616 • 1618)
DC5V	<p><b>BOTTOM VIEW</b></p>  <p>※ It also lights up when connected to CN5.</p> <p>※ Connect the attached cross wiring connector (VL-1058-1) between CN2 and CN6.</p> <p><b>TOP VIEW</b></p> 
VL4	
DC12V	
DC24V	

# INTERNAL CONNECTION ARRANGEMENTS

● Dual-Color

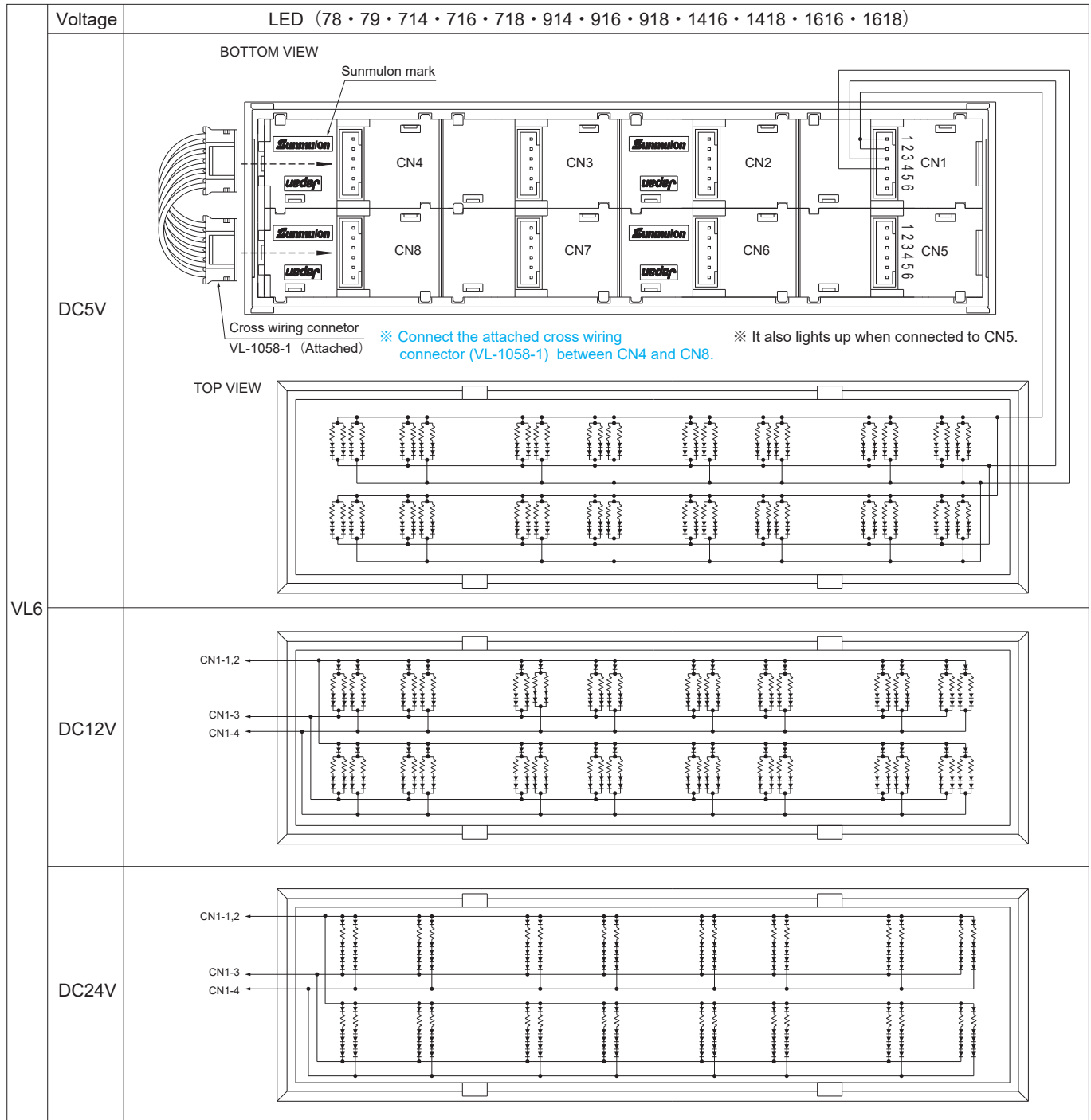
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

● Dual-Color

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



● VL4~VL6 Dual-Color combination (DC5V)

Terminals		LED Color	
CN1	1, 2-3	Red	Red
	1, 2-4	Green	Yellow
	1, 2-3 • 4	Simultaneous lighting	

● VL4~VL6 Dual-Color combination (DC12V • DC24V)

Terminals		LED Color											
CN1	1, 2-3	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Super Blue	Super Blue	Super White	Super White
	1, 2-4	Green	Yellow	Super Blue	Super White	Super Green	Super Blue	Super White	Super Green	Super White	Super Green	Super White	Super Green
	1, 2-3 • 4	Simultaneous lighting											

# INTERNAL CONNECTION ARRANGEMENTS

● 2-Split-Face

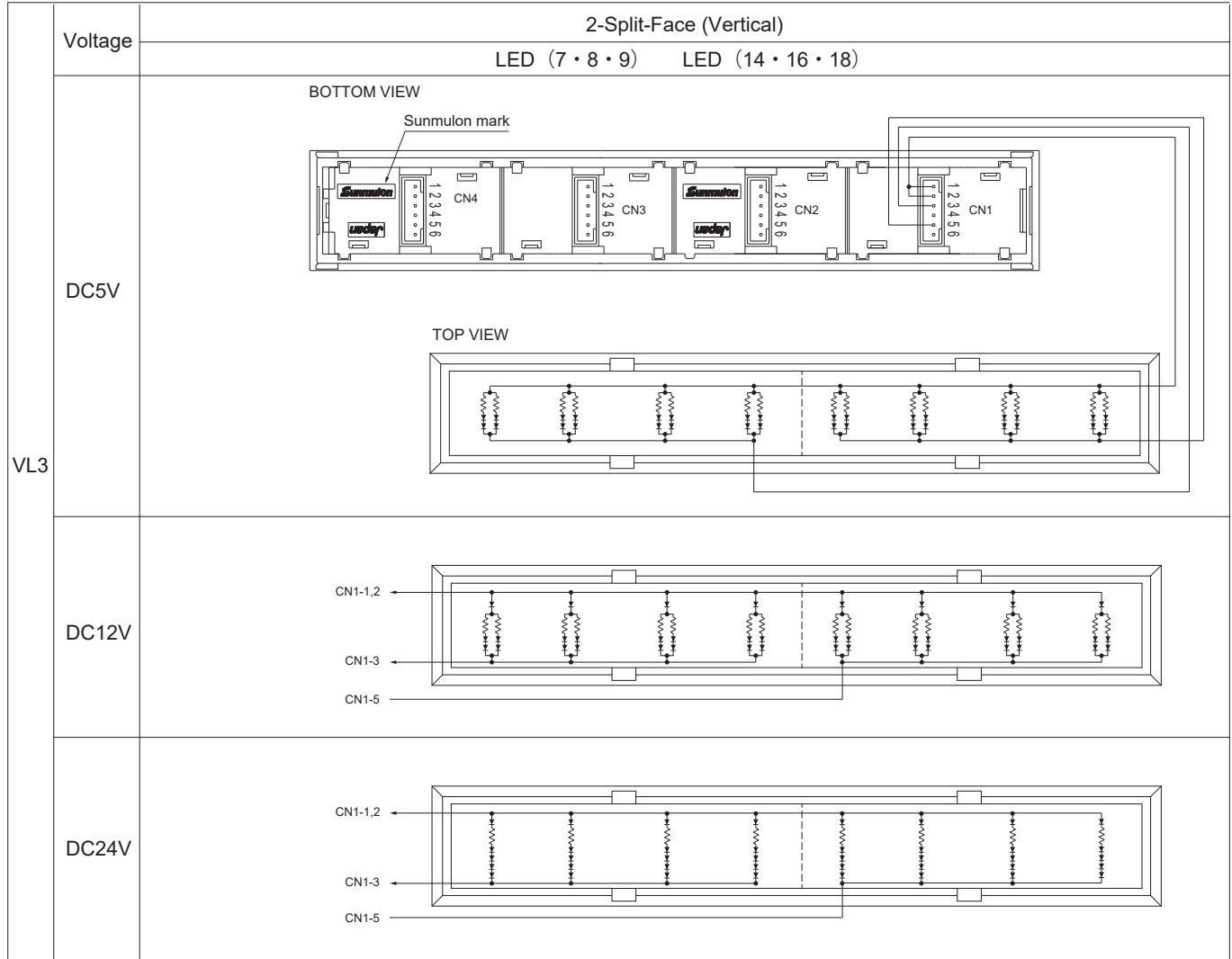
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).

		2-Split-Face (Vertical)	
Voltage		LED (7 · 8 · 9)	LED (14 · 16 · 18)
VL1	DC5V	<p style="text-align: center;">BOTTOM VIEW</p>	<p style="text-align: center;">TOP VIEW</p>
	DC12V		
	DC24V		
VL2	DC5V	<p style="text-align: center;">BOTTOM VIEW</p>	<p style="text-align: center;">TOP VIEW</p>
	DC12V		
	DC24V		

# INTERNAL CONNECTION ARRANGEMENTS

## ● 2-Split-Face

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

## ● 2-Split-Face

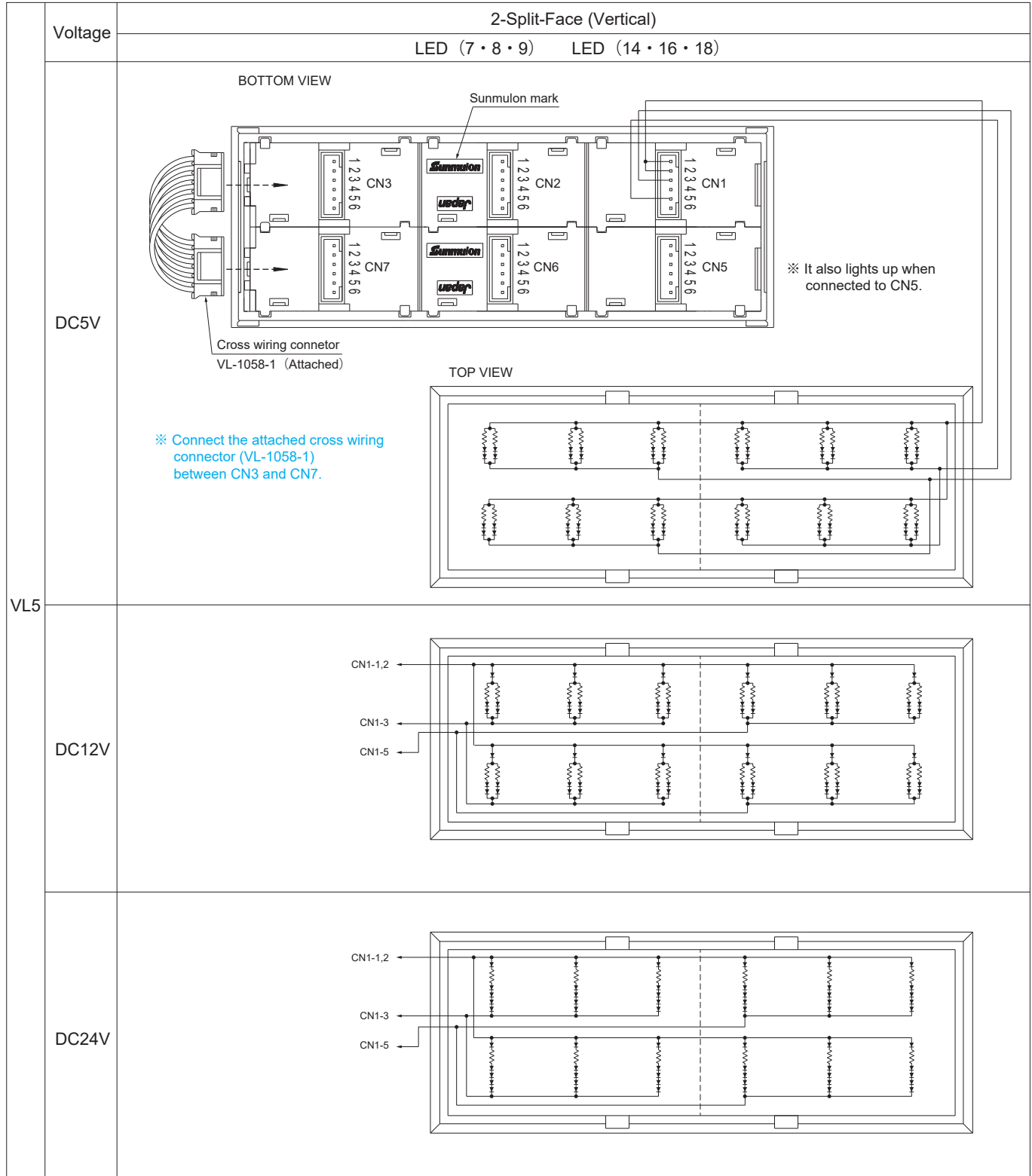
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).

Voltage	2-Split-Face (Vertical)	
	LED (7 · 8 · 9)	LED (14 · 16 · 18)
DC5V	<p><b>BOTTOM VIEW</b></p> <p>※ Connect the attached cross wiring connector (VL-1058-1) between CN2 and CN6.</p> <p><b>TOP VIEW</b></p>	
DC12V		
DC24V		

# INTERNAL CONNECTION ARRANGEMENTS

## ● 2-Split-Face

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).

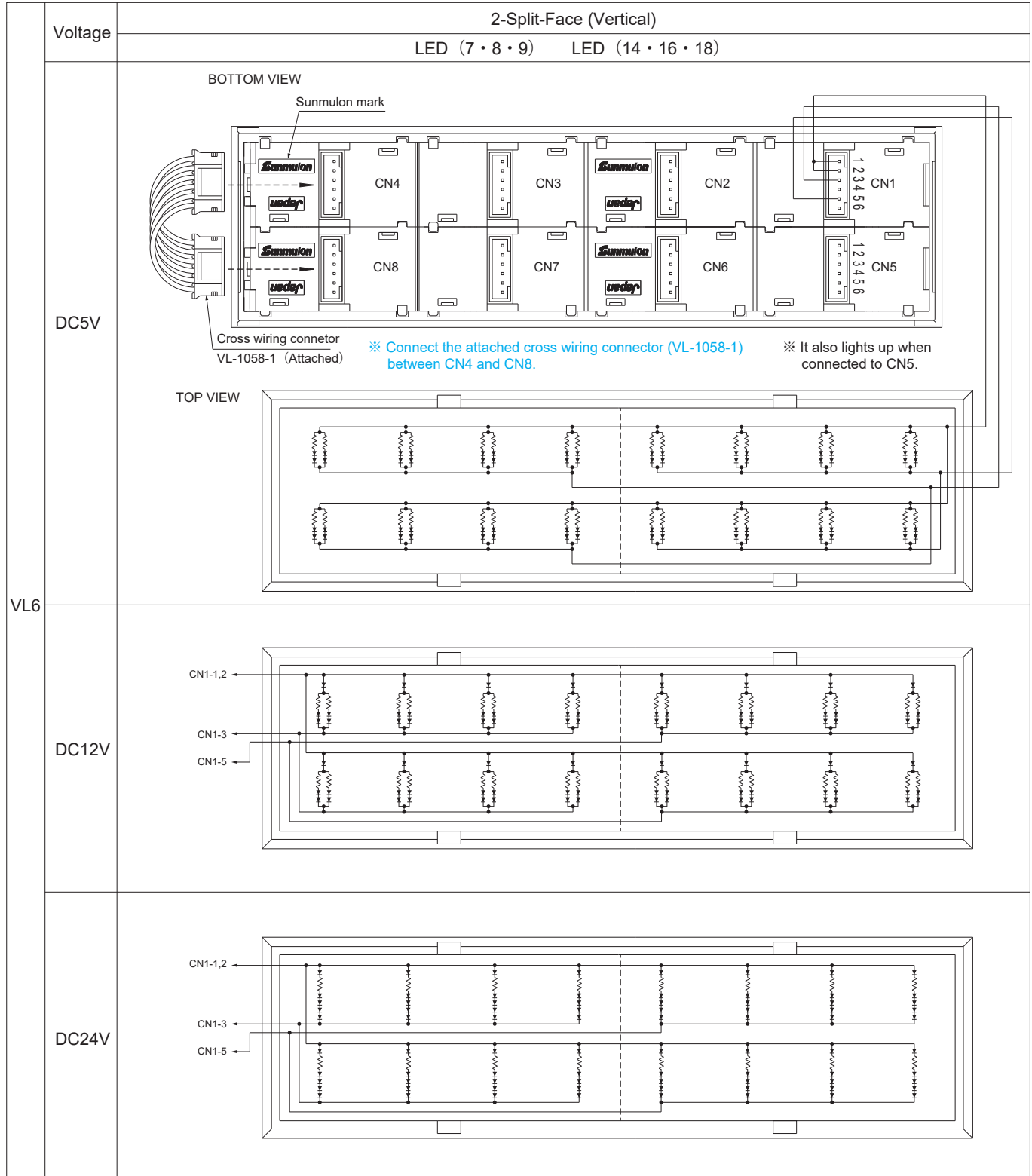




# INTERNAL CONNECTION ARRANGEMENTS

## ● 2-Split-Face

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

## ● 2-Split-Face

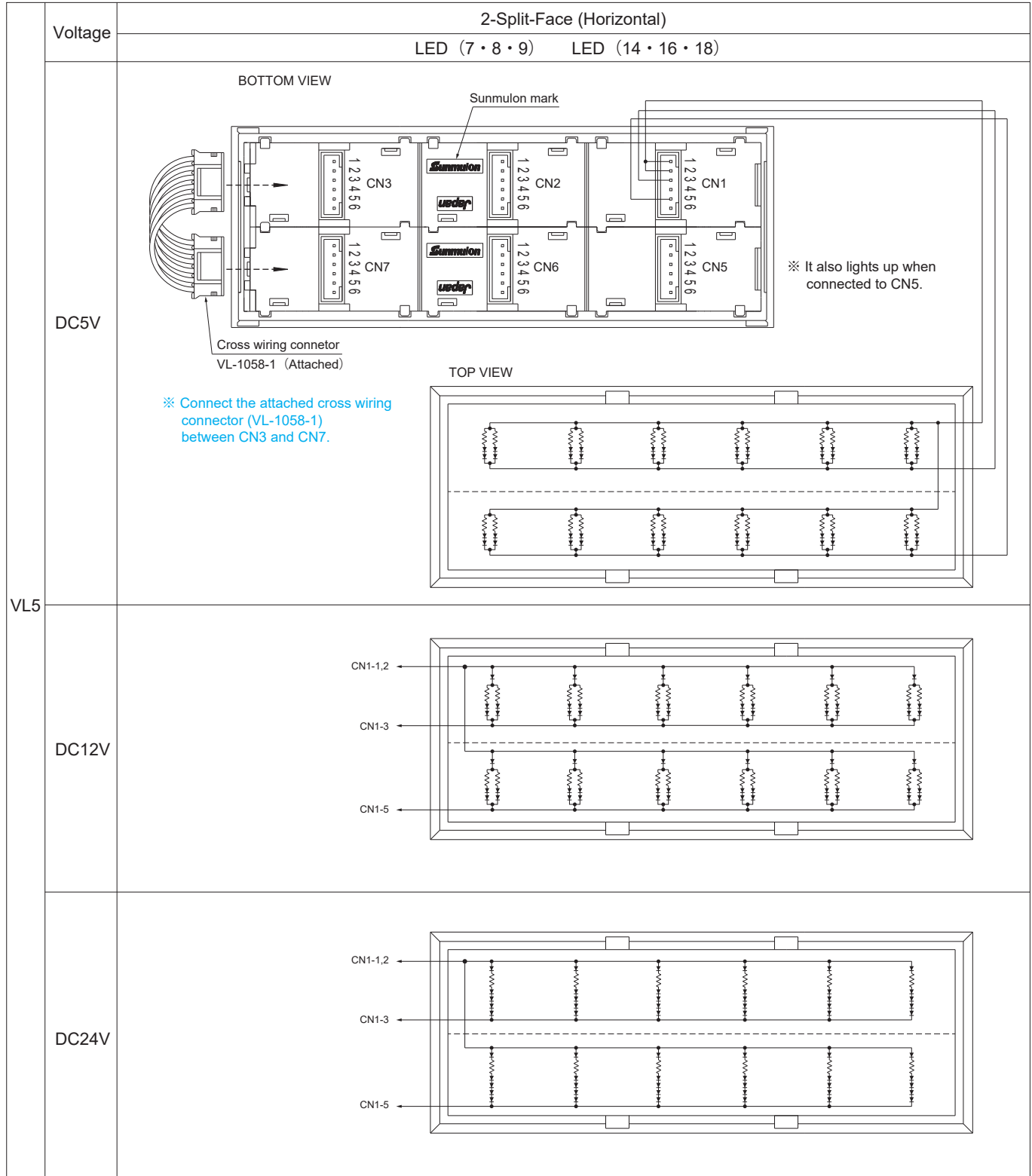
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).

Voltage	2-Split-Face (Horizontal)	
	LED (7 · 8 · 9)	LED (14 · 16 · 18)
DC5V	<p><b>BOTTOM VIEW</b></p> <p>※ Connect the attached cross wiring connector (VL-1058-1) between CN2 and CN6.</p>	<p><b>TOP VIEW</b></p>
DC12V		
DC24V		

# INTERNAL CONNECTION ARRANGEMENTS

## ● 2-Split-Face

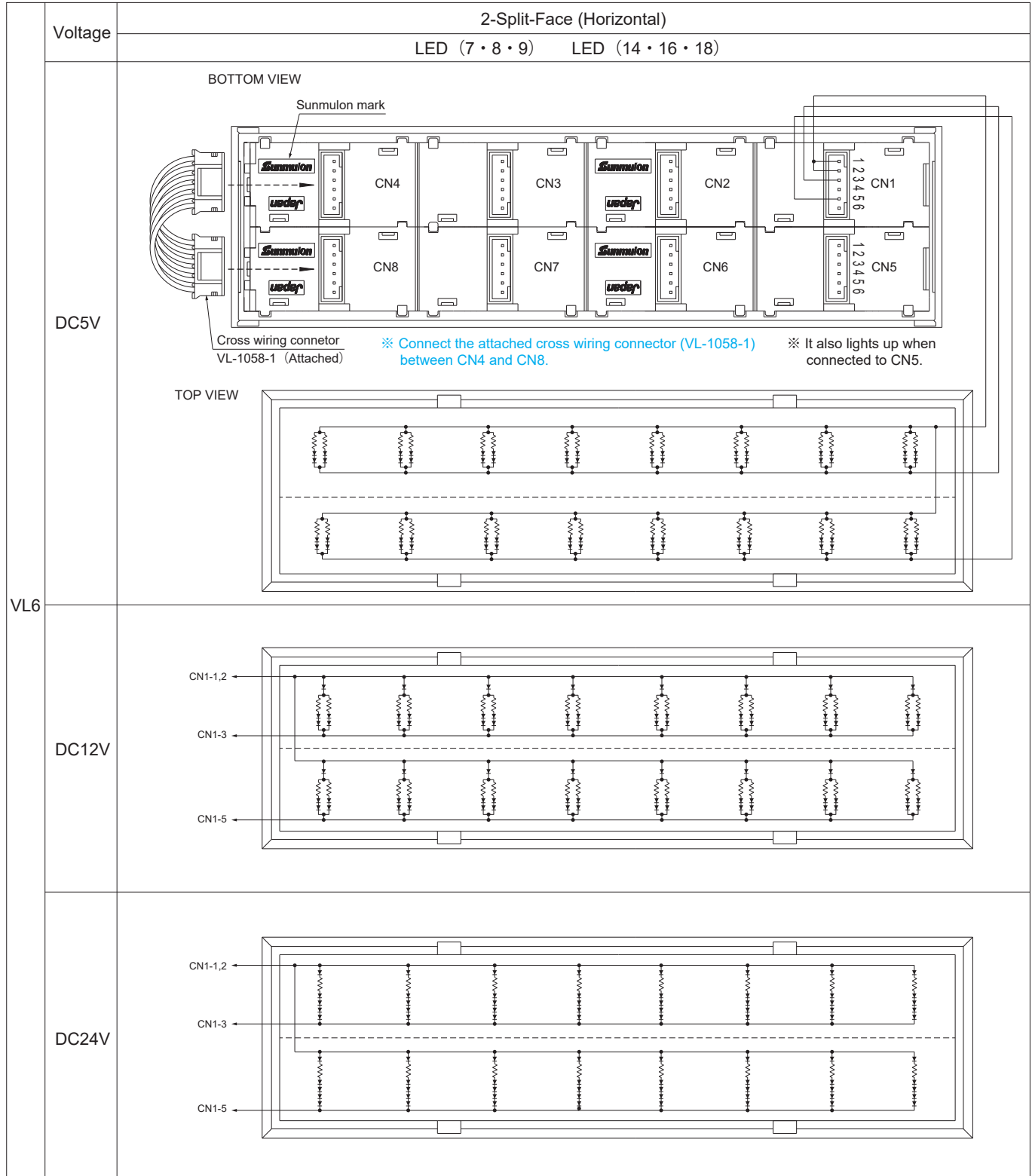
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

## ● 2-Split-Face

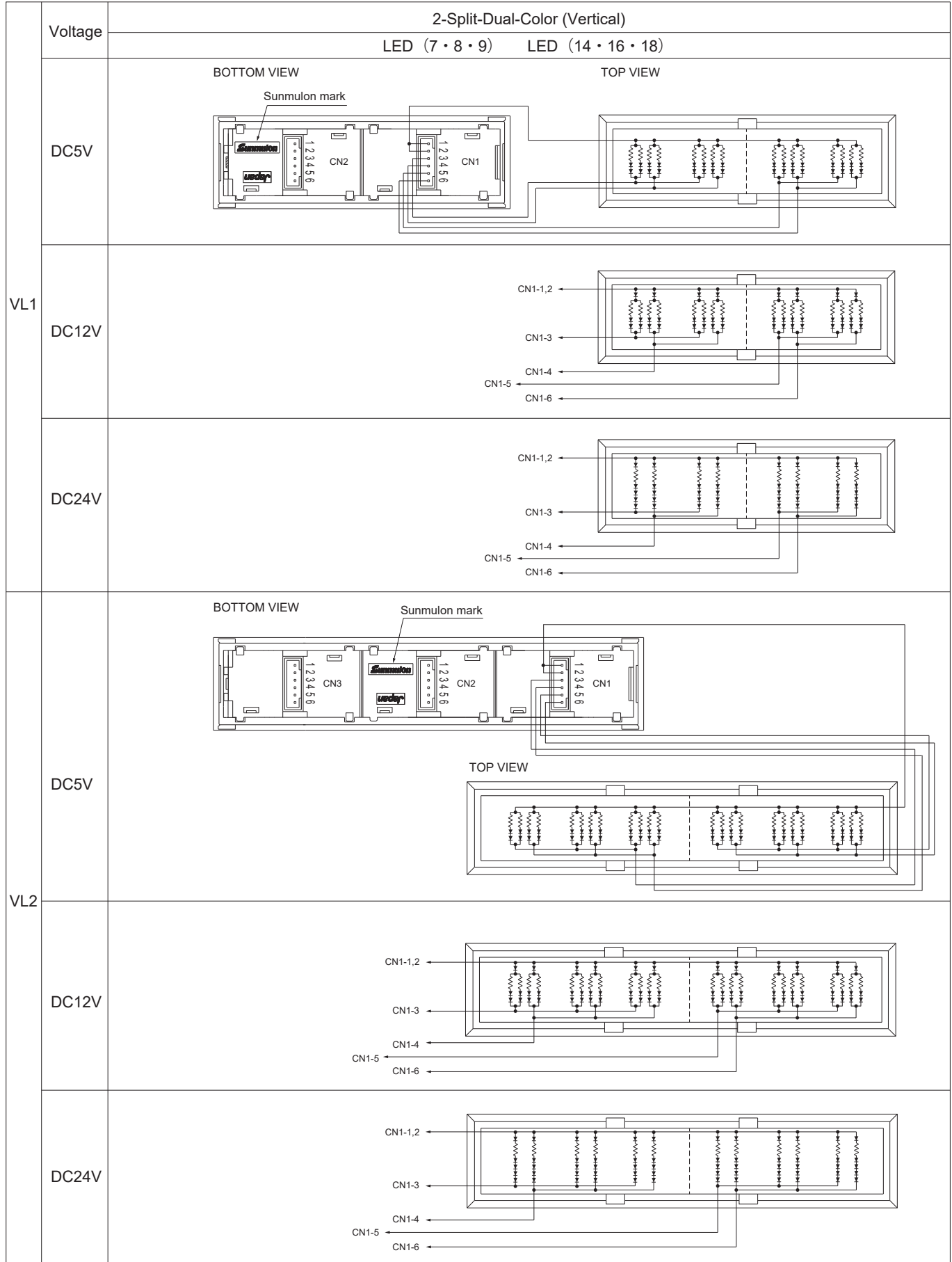
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

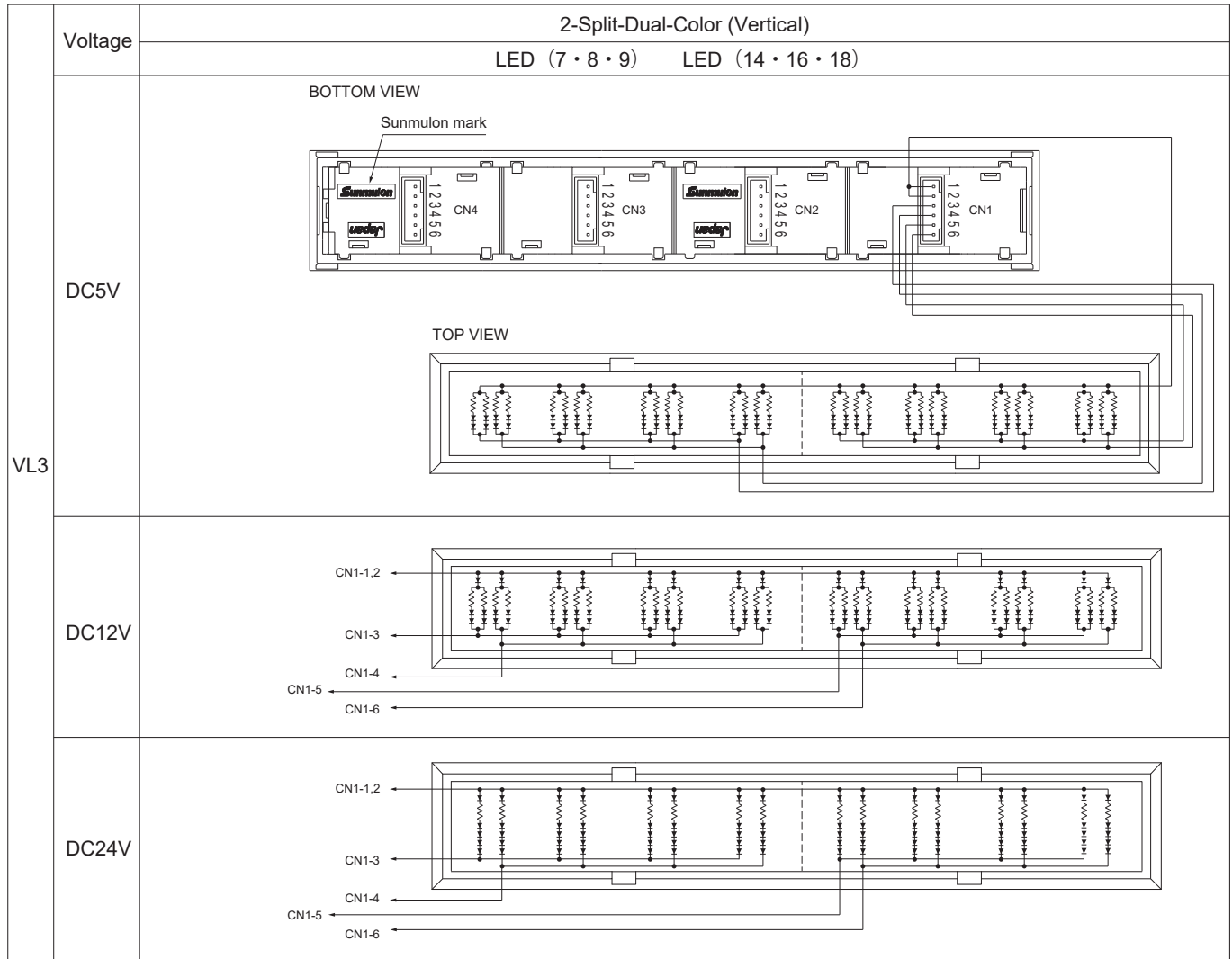
## ● 2-Split-Dual-Color

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



## INTERNAL CONNECTION ARRANGEMENTS

● 2-Split-Dual-Color      DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).

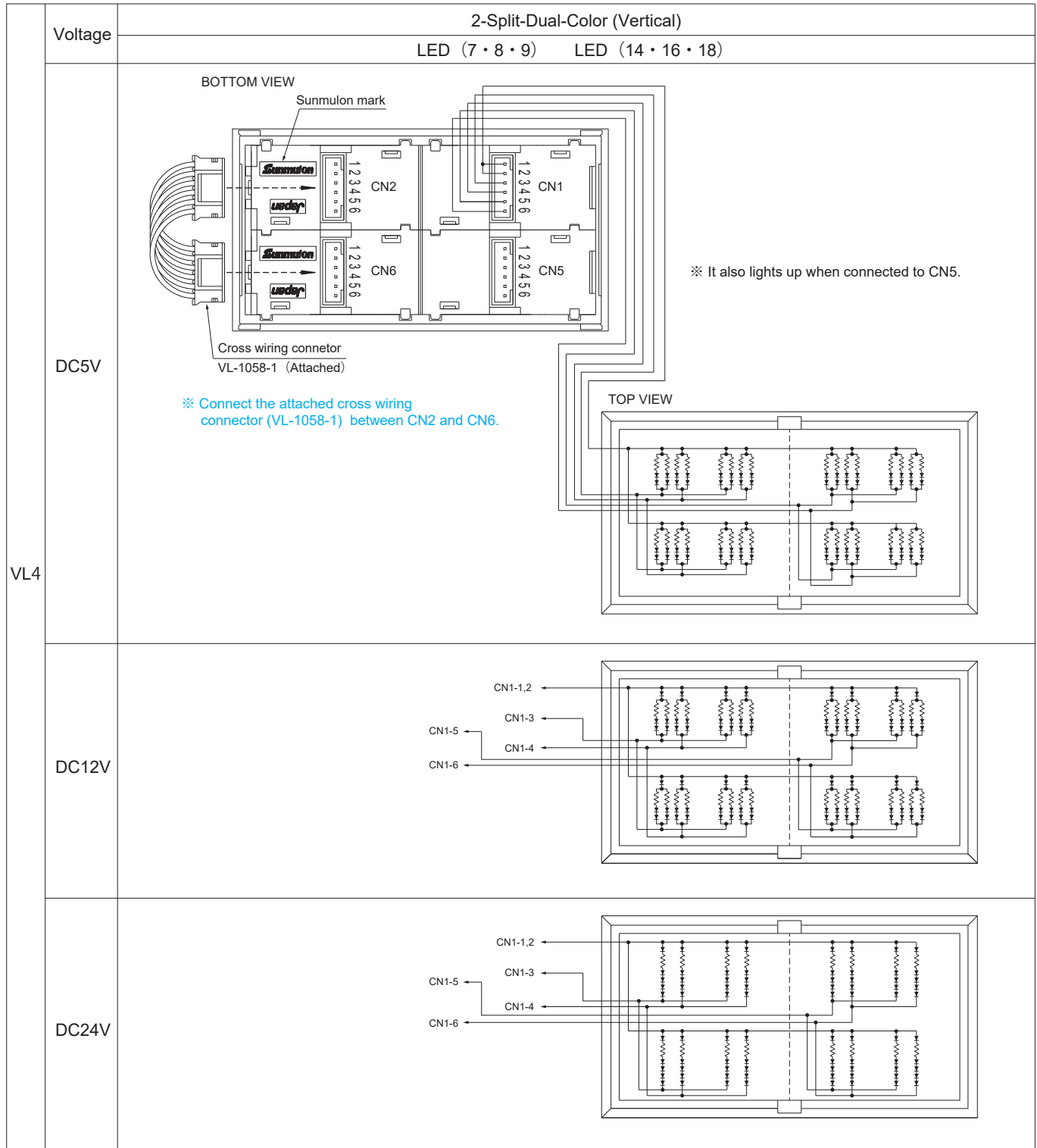


● VL1~VL3 Dual-Color combination (Common for each voltage)

	Terminals	Ordering code LED color	LED Color
CN1	1, 2-3	Ordering code LED color	1
	1, 2-4	Ordering code LED color	2
	1, 2-5	Ordering code LED color	3
	1, 2-6	Ordering code LED color	4
	1, 2-3 · 4	Ordering code LED color	1 2 Simultaneous lighting color
	1, 2-5 · 6	Ordering code LED color	1 3 Simultaneous lighting color
	1, 2-3 · 4 · 5 · 6	Ordering code LED color	1 2 3 4 Simultaneous lighting color

# INTERNAL CONNECTION ARRANGEMENTS

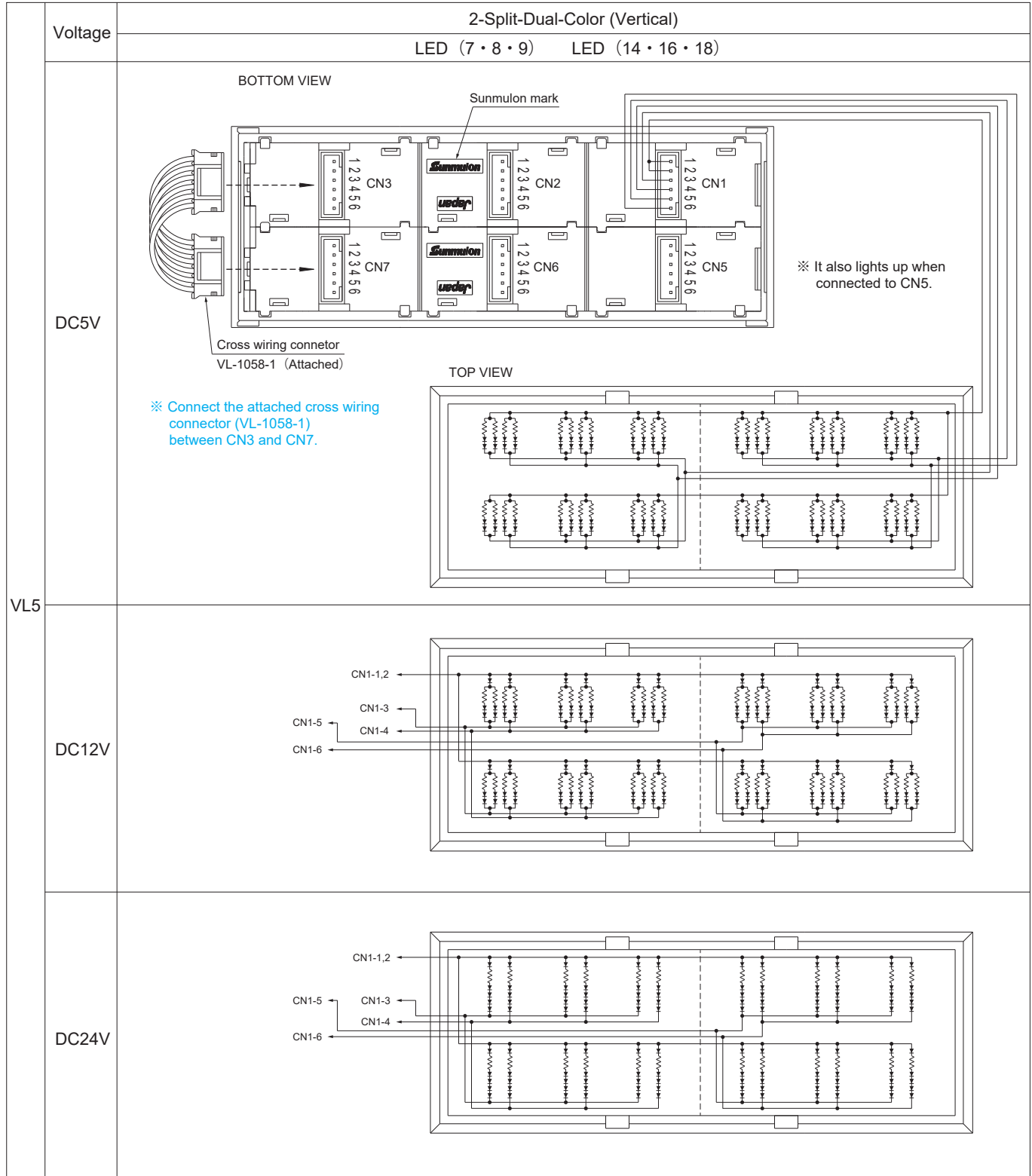
● 2-Split-Dual-Color      DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

## ● 2-Split-Dual-Color

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).





# INTERNAL CONNECTION ARRANGEMENTS

## ● 2-Split-Dual-Color

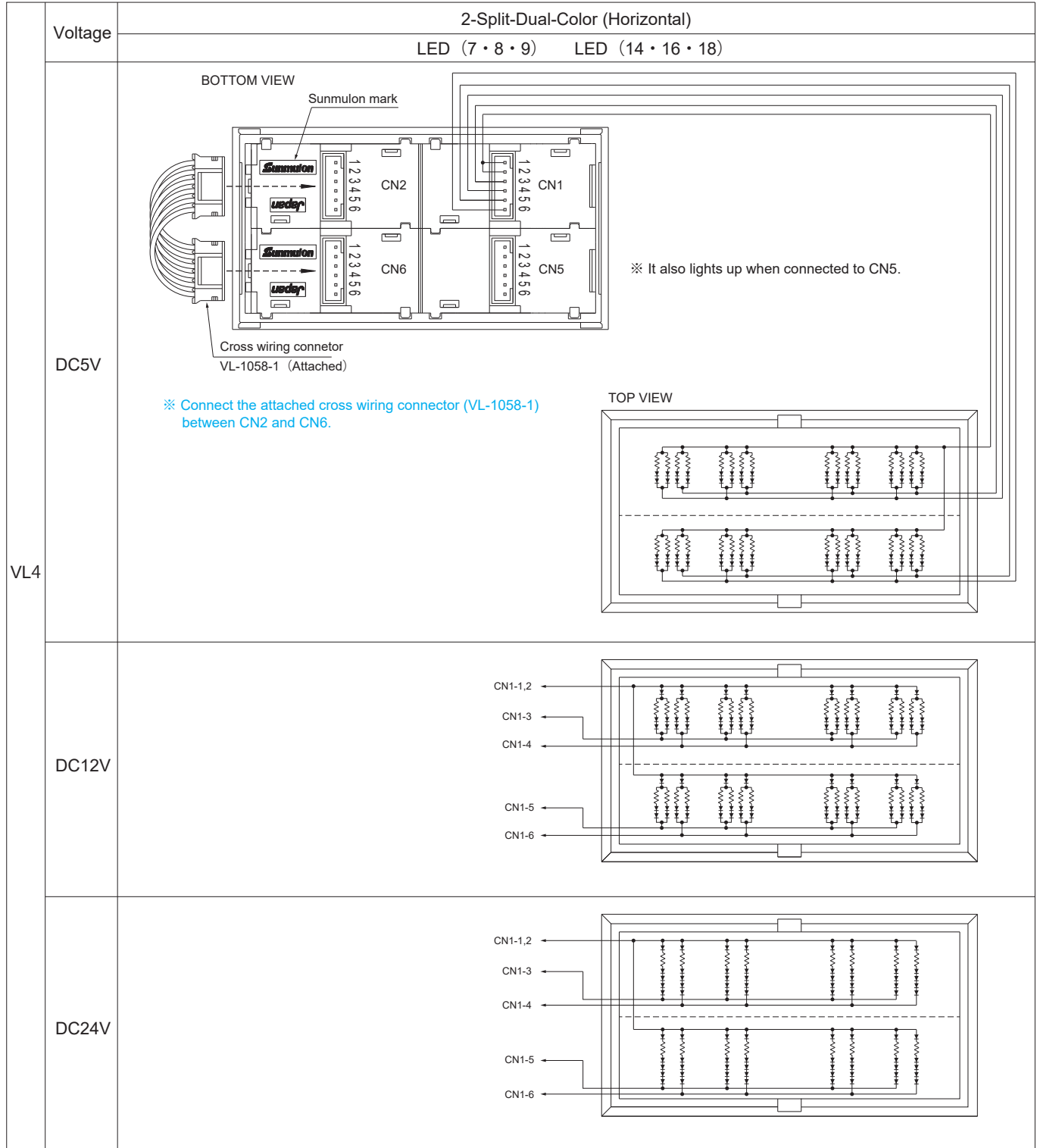
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

## ● 2-Split-Dual-Color

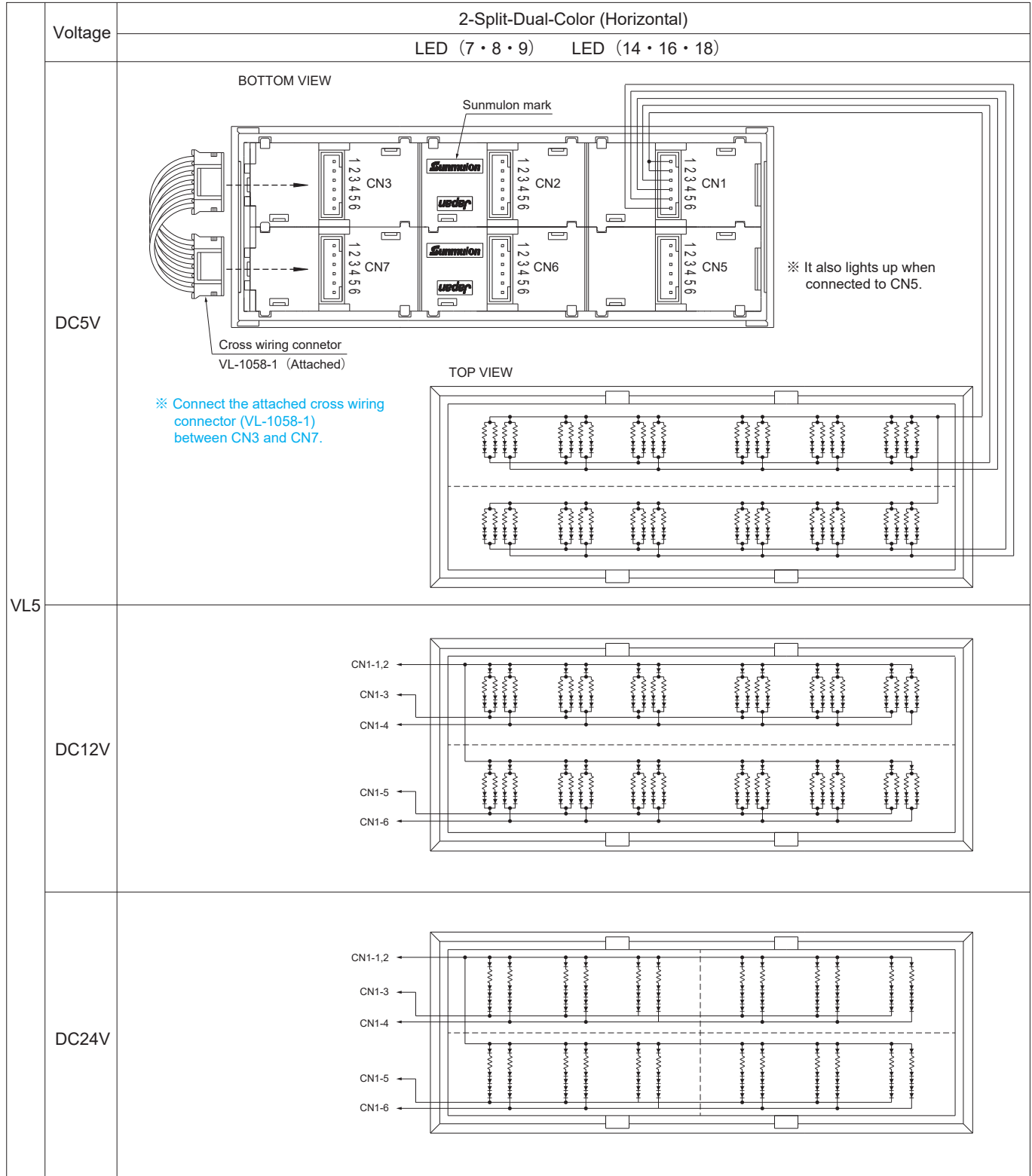
DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

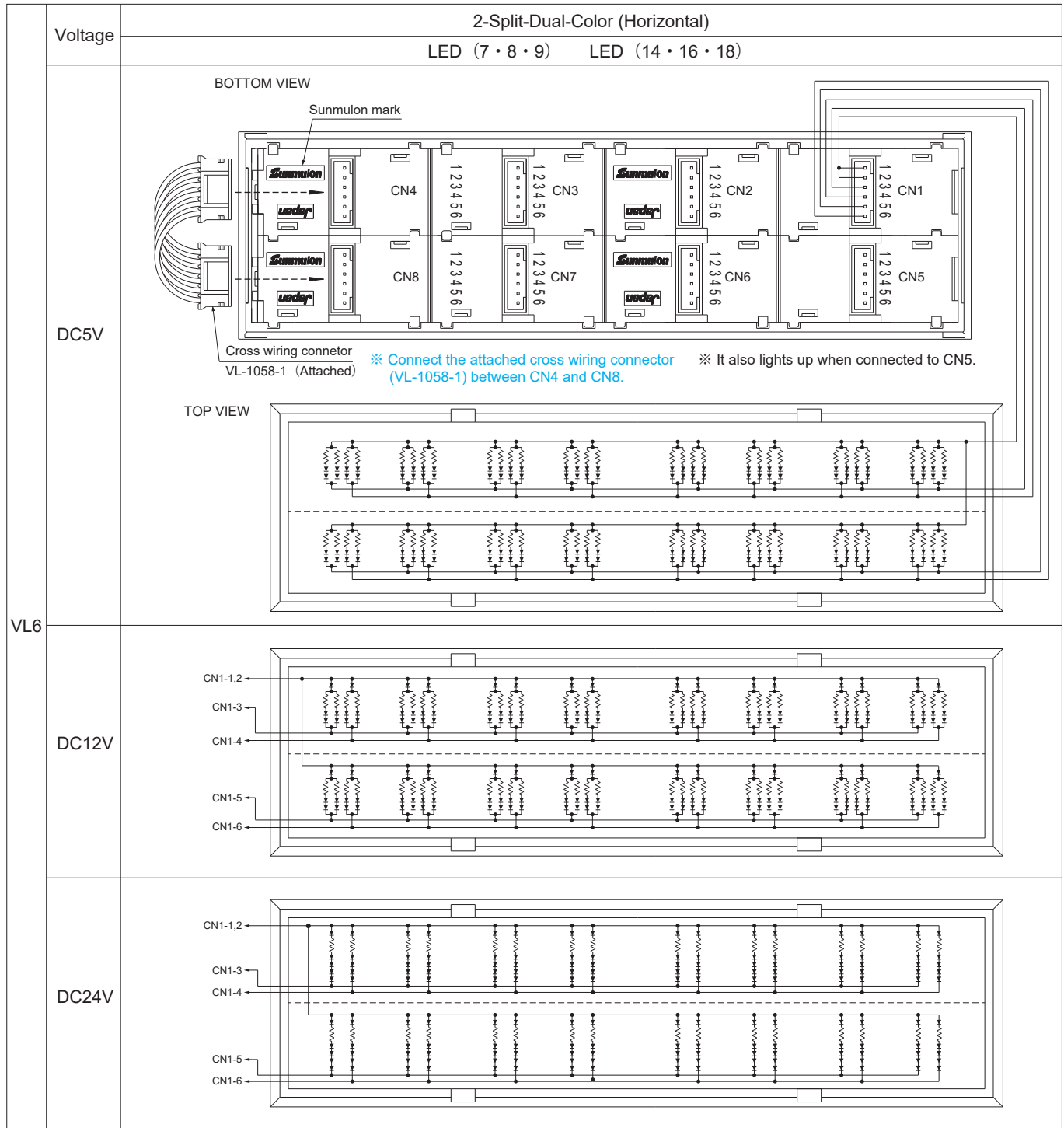
## ● 2-Split-Dual-Color

DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



# INTERNAL CONNECTION ARRANGEMENTS

● 2-Split-Dual-Color      DC5V cannot be specified the color of LED Super-Blue (14), Super-White (16), Super-Green (18).



● VL4~VL6 Dual-Color combination (Common for each voltage)

Terminals		LED Color				
CN1, CN5	1, 2-3	Ordering code LED color	1			
	1, 2-4	Ordering code LED color	2			
	1, 2-5	Ordering code LED color	3			
	1, 2-6	Ordering code LED color	4			
	1, 2-3 · 4	Ordering code LED color	1	2	Simultaneous lighting color	
	1, 2-5 · 6	Ordering code LED color	1	3	Simultaneous lighting color	
	1, 2-3 · 4 · 5 · 6	Ordering code LED color	1	2	3	4

## LED SPECIFICATIONS [Full-Face • Dual-Color]

● Full-Face • Dual-Color

t = 25°C

	Voltage	Rated Current (mA)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL1	DC5V ±5%	22	45	52	/	/	/
	DC12V ±5%	23	46	52	35	17	17
	DC24V ±5%	12	23	27	18	9	9

	Voltage	Rated Current (mA)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL2	DC5V ±5%	33	68	78	/	/	/
	DC12V ±5%	35	69	78	53	26	26
	DC24V ±5%	18	35	41	27	14	14

	Voltage	Rated Current (mA)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL3	DC5V ±5%	44	90	104	/	/	/
	DC12V ±5%	46	92	104	70	34	34
	DC24V ±5%	24	46	54	36	18	18

	Voltage	Rated Current (mA)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL4	DC5V ±5%	44	90	104	/	/	/
	DC12V ±5%	46	92	104	70	34	34
	DC24V ±5%	24	46	54	36	18	18

	Voltage	Rated Current (mA)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL5	DC5V ±5%	66	135	156	/	/	/
	DC12V ±5%	69	138	156	105	51	51
	DC24V ±5%	36	69	81	54	27	27

	Voltage	Rated Current (mA)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL6	DC5V ±5%	88	180	208	/	/	/
	DC12V ±5%	92	184	208	140	68	68
	DC24V ±5%	48	92	108	72	36	36

## LED SPECIFICATIONS [2-Split-Face • 2-Split-Dual-Color]

### ● 2-Split-Face • 2-Split-Dual-Color

t = 25°C

	Voltage	Rated Current (mA) (per 1-Screen)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL1	DC5V ±5%	12	24	26	/	/	/
	DC12V ±5%	12	24	26	18	10	10
	DC24V ±5%	6	12	14	10	6	6

	Voltage	Rated Current (mA) (per 1-Screen)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL2	DC5V ±5%	18	36	39	/	/	/
	DC12V ±5%	18	36	39	27	15	15
	DC24V ±5%	9	18	21	15	9	9

	Voltage	Rated Current (mA) (per 1-Screen)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL3	DC5V ±5%	44	90	104	/	/	/
	DC12V ±5%	46	92	104	70	34	34
	DC24V ±5%	24	46	54	36	18	18

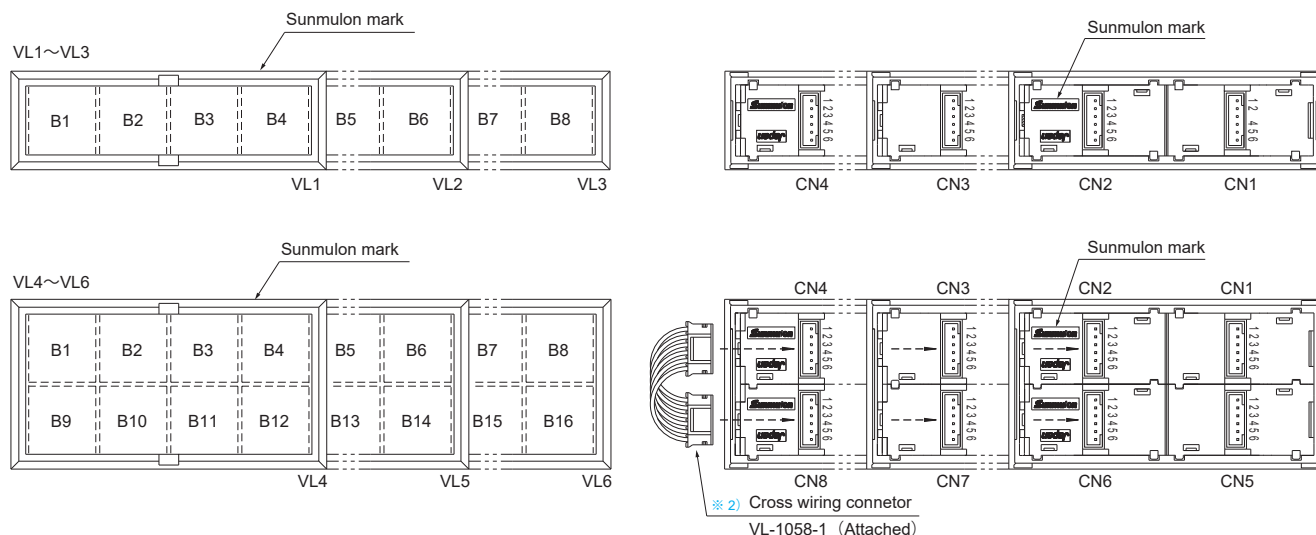
	Voltage	Rated Current (mA) (per 1-Screen)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL4	DC5V ±5%	24	48	52	/	/	/
	DC12V ±5%	24	48	52	36	20	20
	DC24V ±5%	12	24	28	20	12	12

	Voltage	Rated Current (mA) (per 1-Screen)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL5	DC5V ±5%	36	72	78	/	/	/
	DC12V ±5%	36	72	78	54	30	30
	DC24V ±5%	18	36	42	30	18	18

	Voltage	Rated Current (mA) (per 1-Screen)					
		Red	Yellow	Green	Super-Blue	Super-White	Super-Green
VL6	DC5V ±5%	48	96	104	/	/	/
	DC12V ±5%	48	96	104	72	40	40
	DC24V ±5%	24	48	56	40	24	24

# TERMINALS

## ● TERMINALS LAYOUT (BOTTOM VIEW)



## ● Full-Face • 2-Split-Face (Monocolor • Dual-Color)

※1) Pin No.	VL1~VL6 Full-Face		VL1~VL6 2-Split-Face (Vertical)		VL4~VL6 2-Split-Face (Horizontal)		※2) Attached (VL4~6) Cross wiring connector (VL-1058-1)	
	Monocolor	Dual-Color (LED 1,2)	Monocolor	Dual-Color (LED 1,2,3,4)	Monocolor	Dual-Color (LED 1,2,3,4)		
1	Anode (+)	Anode (+)	Anode (+)	Anode (+)	Anode (+)	Anode (+)	Connection point between connectors  VL4   CN2-CN6 VL5   CN3-CN7 VL6   CN4-CN8	
2	—	—	—	—	—	—		
3	Cathode (-)	1 Cathode (-)	Cathode (-) L	1 Cathode (-) L	Cathode (-) Up	1 Cathode (-) Up		
4	—	2 Cathode (-)	—	2 Cathode (-) L	—	2 Cathode (-) Up		
5	—	—	Cathode (-) R	3 Cathode (-) R	Cathode (-) Down	3 Cathode (-) Down		
6	—	—	—	4 Cathode (-) R	—	4 Cathode (-) Down		
Screen positions (TOP VIEW)	Sunmulon mark VL1~VL3	Sunmulon mark VL4~VL6	Sunmulon mark L R VL1~VL3	Sunmulon mark L R VL4~VL6	Sunmulon mark Up Down VL4~VL6			

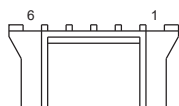
※1) Connectors to be wired to VL1~VL3 connect to CN1, VL4~VL6 are connected to either CN1 or CN5 to light up.

※2) For VL-4 connect the attached cross wiring connector (VL-1058-1) between CN2 and CN6, for VL-5 connect between CN3 and CN7, for VL-6 connect between CN4 and CN8.

※ The table above shows the Anode common arrangement. In case of Cathode common, the polarity is opposite for all anodes and cathodes.

※ (LED 1, 2, 3, 4) in the table are ordering code symbols for LED colors, respectively, and the specified color is emitted.

## ● Connector



## ● Applicable wire

Wire size	Coating outer diameter
AWG # 24-30	0.9—1.5 mm

## MOUNTING DESIGN / PANEL CUTOUT

### ● VL1

Recommended panel thickness : 1 to 4 mm

Mounting design	Panel cutout
<p>Vertical</p>	
<p>Horizontal</p>	

n : Number of Units

### ● VL2

Mounting design	Panel cutout
<p>Vertical</p>	
<p>Horizontal</p>	

n : Number of Units

### ● VL3

Mounting design	Panel cutout
<p>Vertical</p>	
<p>Horizontal</p>	

n : Number of Units

- ※ If the panel is to be finished (e.g. coated), make sure that the panel meets the specified dimensions after the coating.
- ※ After the panel-cutting process, make sure to remove burrs on the surface.

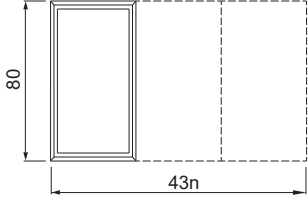
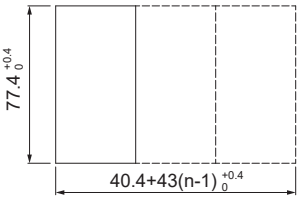
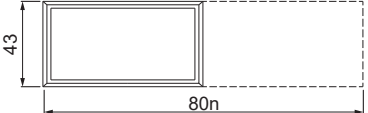
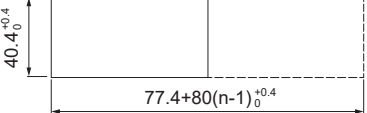
Tolerance : ± 0.4 mm



## MOUNTING DESIGN / PANEL CUTOUT

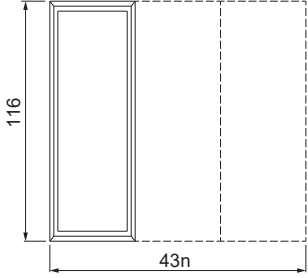
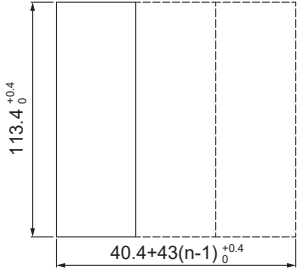
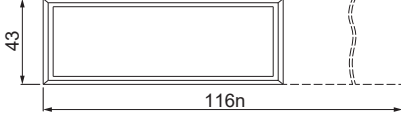
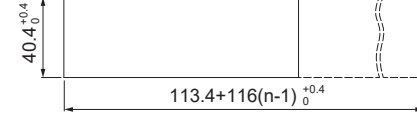
### ● VL4

Recommended panel thickness : 1 to 4 mm

Mounting design	Panel cutout
<p>Vertical</p> 	
<p>Horizontal</p> 	

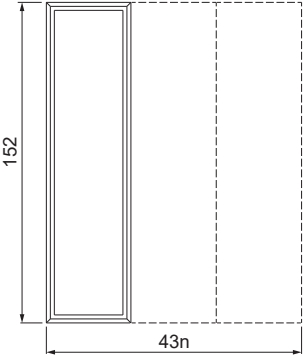
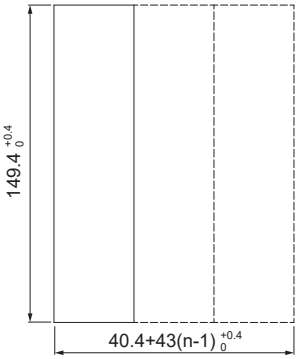
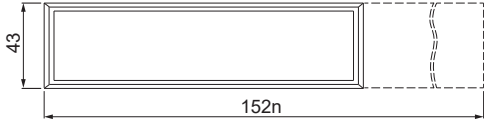
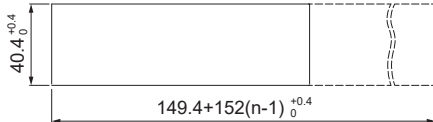
n : Number of Units

### ● VL5

Mounting design	Panel cutout
<p>Vertical</p> 	
<p>Horizontal</p> 	

n : Number of Units

### ● VL6

Mounting design	Panel cutout
<p>Vertical</p> 	
<p>Horizontal</p> 	

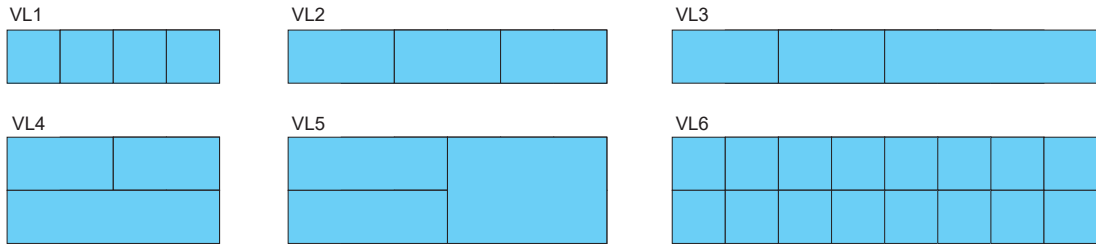
n : Number of Units

- ※ If the panel is to be finished (e.g. coated), make sure that the panel meets the specified dimensions after the coating.
- ※ After the panel-cutting process, make sure to remove burrs on the surface.

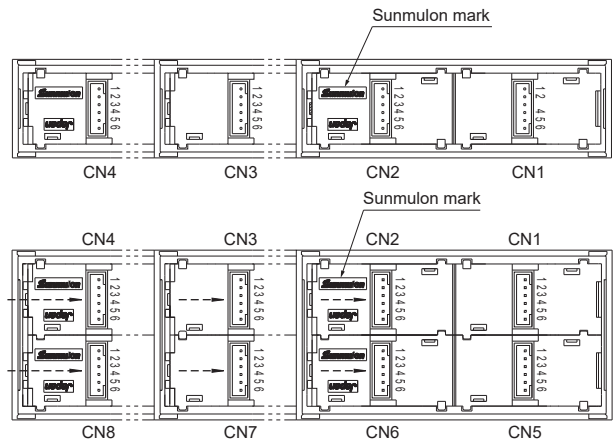
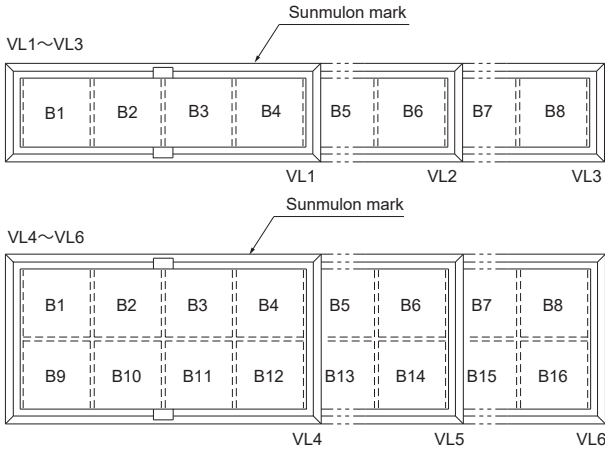
Tolerance : ± 0.4 mm

## Division combinations other than 2-Split-Face

Division combinations other than 2-Split-Face as shown below are also available. (Up to 16 divisions in VL6)  
However, it cannot be divided as convex and concave. Please contact us for details.



### ● TERMINALS LAYOUT (BOTTOM VIEW)



### ● Full-Face • 2-Split-Face (Monocolor • Dual-Color)

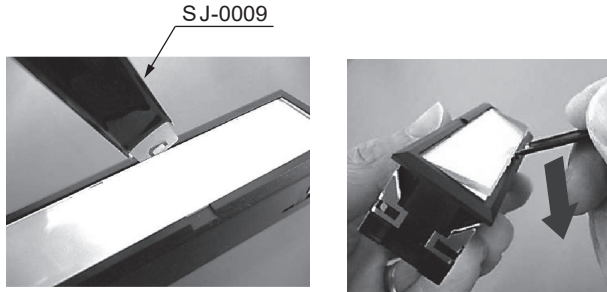
Pin No.		VL1		VL2		VL3		Pin No.		VL4		VL5		VL6		
		Monocolor	Dual-Color (LED 1,2)	Monocolor	Dual-Color (LED 1,2)	Monocolor	Dual-Color (LED 1,2)			Monocolor	Dual-Color (LED 1,2)	Monocolor	Dual-Color (LED 1,2)	Monocolor	Dual-Color (LED 1,2)	
CN1	1	(Common)		Anode (+)		Anode (+)		CN1 (B1, B2)	1	(Common)		Anode (+)		Anode (+)		
	2								2							
	3	B1		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	4			—	2 Cathode (-)	—	2 Cathode (-)		—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)
	5	B2		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	6			—	2 Cathode (-)	—	2 Cathode (-)		—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)
CN2	1	(Common)		Anode (+)		Anode (+)		CN2 (B3, B4)	1	(Common)		Anode (+)		Anode (+)		
	2								2							
	3	B3		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	4			—	2 Cathode (-)	—	2 Cathode (-)		—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)
	5	B4		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	6			—	2 Cathode (-)	—	2 Cathode (-)		—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)
CN3	1	(Common)		Anode (+)		Anode (+)		CN3 (B5, B6)	1	(Common)		Anode (+)		Anode (+)		
	2								2							
	3	B5		—	—	Cathode (-)	1 Cathode (-)		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	4			—	—	—	2 Cathode (-)		—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)
	5	B6		—	—	Cathode (-)	1 Cathode (-)		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	6			—	—	—	2 Cathode (-)		—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)	—	2 Cathode (-)
CN4	1	(Common)		Anode (+)		Anode (+)		CN4 (B7, B8)	1	(Common)		Anode (+)		Anode (+)		
	2								2							
	3	B7		—	—	—	—		Cathode (-)	1 Cathode (-)	—	—	Cathode (-)	1 Cathode (-)	—	—
	4			—	—	—	—		—	2 Cathode (-)	—	—	—	2 Cathode (-)	—	—
	5	B8		—	—	—	—		Cathode (-)	1 Cathode (-)	—	—	Cathode (-)	1 Cathode (-)	—	—
	6			—	—	—	—		—	2 Cathode (-)	—	—	—	2 Cathode (-)	—	—
CN5	1	(Common)		Anode (+)		Anode (+)		CN5 (B9, B10)	1	(Common)		Anode (+)		Anode (+)		
	2								2							
	3	B9		—	—	—	—		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	4			—	—	—	—		—	2 Cathode (-)	—	—	—	2 Cathode (-)	—	—
	5	B10		—	—	—	—		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	6			—	—	—	—		—	2 Cathode (-)	—	—	—	2 Cathode (-)	—	—
CN6	1	(Common)		Anode (+)		Anode (+)		CN6 (B11, B12)	1	(Common)		Anode (+)		Anode (+)		
	2								2							
	3	B11		—	—	—	—		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	4			—	—	—	—		—	2 Cathode (-)	—	—	—	2 Cathode (-)	—	—
	5	B12		—	—	—	—		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	6			—	—	—	—		—	2 Cathode (-)	—	—	—	2 Cathode (-)	—	—
CN7	1	(Common)		Anode (+)		Anode (+)		CN7 (B13, B14)	1	(Common)		Anode (+)		Anode (+)		
	2								2							
	3	B13		—	—	—	—		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	4			—	—	—	—		—	2 Cathode (-)	—	—	—	2 Cathode (-)	—	—
	5	B14		—	—	—	—		Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)	Cathode (-)	1 Cathode (-)
	6			—	—	—	—		—	2 Cathode (-)	—	—	—	2 Cathode (-)	—	—
CN8	1	(Common)		Anode (+)		Anode (+)		CN8 (B15, B16)	1	(Common)		Anode (+)		Anode (+)		
	2								2							
	3	B15		—	—	—	—		Cathode (-)	1 Cathode (-)	—	—	Cathode (-)	1 Cathode (-)	—	—
	4			—	—	—	—		—	2 Cathode (-)	—	—	—	2 Cathode (-)	—	—
	5	B16		—	—	—	—		Cathode (-)	1 Cathode (-)	—	—	Cathode (-)	1 Cathode (-)	—	—
	6			—	—	—	—		—	2 Cathode (-)	—	—	—	2 Cathode (-)	—	—

※ Connect the blocks with illuminated positions that match the size of the division so that they light up simultaneously.  
※ B1 to B16 are the smallest division units. However, it cannot be divided as convex and concave.

## ASSEMBLY & DISASSEMBLY

### 1. Removing cover

Insert the removing tool (SJ-0009) into the gap near the recess between cover and housing, and tilt it outward while pressing the removing tool against the cover.



### 2. Fitting cover and filter

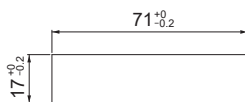
Insert the filterm glossy side up, into the stepped portions of the divider on the four sides.

Push the cover into the housing with the tabs on both sides facing the filter.

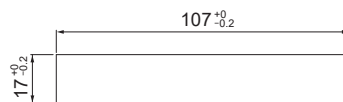


## PRECAUTIONS FOR CORRECT USE

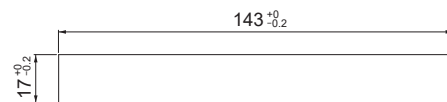
If preparing the character film separately, use a heat-resistant film with a thickness of 0.1 mm. For dimensions, please refer to the figure below.



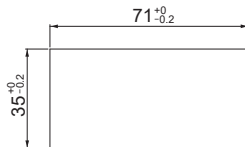
VL1



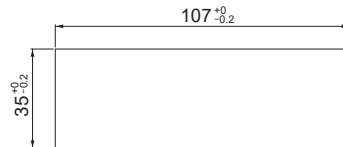
VL2



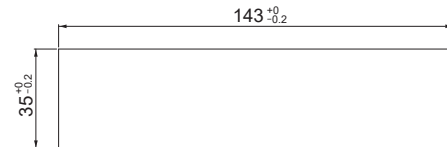
VL3



VL4



VL5



VL6

※ For handling instructions and precautions other than the above, please refer to "Safety Precautions for All Indicators".

Tolerance : ± 0.4 mm

As of February 2024

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## Safety Precautions for All Indicators

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### 1. Notes on contents of Catalogs

- (1) Rated values, performance values, and specification values of Sunmulon products listed in this catalog are values acquired under respective conditions in independent testing, and do not guarantee values gained in combined conditions.
- (2) The ambient operating temperature(humidity) is guaranteed by evaluation based on characteristics, and does not guarantee continuous use for a long period of time near the upper or lower limit of the ambient operating temperature(humidity) or permanent use at that temperature(humidity).
- (3) Reference data and reference values listed in catalogs are for reference purposes only, and do not guarantee that the product will always operate appropriately in that range.
- (4) The specifications / appearance and accessories of Sunmulon products listed in catalogs are subject to change or termination of sales without notice, for improvement or other reasons.
- (5) The content of catalogs is subject to change without notice.

### 2. Note on applications

- (1) If using Sunmulon products in combination with other products, confirm the following suitability by yourself. Sunmulon shall provide no guarantees regarding the combination suitability.
  - (a) Regulations, standards, or laws to which your machinery, equipment, etc. must conform
  - (b) Functionality and safety of your machinery and equipment
- (2) Wiring and installation that ensures the Sunmulon product used in your system, machine, device, or the like can perform and function according to its specifications.
- (3) When using Sunmulon products, be cautious when implementing the following.
  - (a) Use of Sunmulon products with sufficient allowance for rating and performance.
  - (b) Safety design, including redundant design and malfunction prevention design that prevents other danger and damage even in the event that Sunmulon product fails.
- (4) Sunmulon products are designed and manufactured as general-purpose products for general industrial products. They are not intended for use in the following applications, and in the event that you use Sunmulon product for these applications, unless otherwise agreed upon between you and Sunmulon, Sunmulon shall provide no guarantees whatsoever regarding Sunmulon products.
  - (a) Safety devices intended for human body protection
  - (b) Direct control of transport equipment (railroads / airplanes / ships / vehicles / vehicle instruments, etc.)
  - (c) Space equipment, submarine equipment
  - (d) Nuclear power control equipment, radiation related equipment
  - (e) Combustion equipment, electric heat equipment
  - (f) Disaster prevention and security equipment
  - (g) Elevating equipment
  - (h) Amusement facilities
  - (i) Facilities subject to government or industry regulations
  - (j) Use in applications that require a high degree of safety, any other equipment, instruments, or the like that could endanger life or human health

### 3. Warranty

- (1) The warranty period for Sunmulon products shall be 1 year after purchase or delivery to the specified location.
- (2) Warranty scope should a failure occur in Sunmulon product during the above warranty period for reasons attributable to Sunmulon, then Sunmulon shall provide that product, free of charge, the same quantity. Further, in no event shall liability of Sunmulon exceed the individual price of the product on which liability is asserted.
- (3) Failures caused by the following reasons shall be deemed outside the scope of this warranty.
  - (a) The product was handled or used deviating from conditions / environment listed in the catalogs
  - (b) The failure was caused by reasons other than Sunmulon product
  - (c) Modification or repair was performed by a party other than Sunmulon
  - (d) Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and catalogs
  - (e) The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from Sunmulon
  - (f) The failure was due to other causes not attributable to Sunmulon (including cases of force majeure such as natural disasters and other disasters)
- (4) The warranty listed in this Safety Precautions is the full and complete warranty for Sunmulon products, and Sunmulon shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to Sunmulon product.

### 4. Handling precautions for indicator

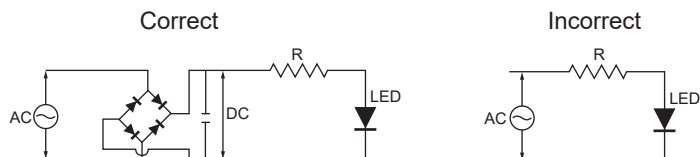
- (1) Wire the terminals with correct polarity. Connecting connectors backwards may cause a power short, resulting in burnout.
- (2) Turn off the power to the product before starting installation, removal, wiring, maintenance, or inspection. Failure to turn power off may cause electrical shock or fire.
- (3) Be careful of electrostatic breakdown when handling.
- (4) Do not drop or otherwise apply strong force to the indicator.
- (5) Do not place heavy objects on the indicator.
- (6) Do not operate or use the housing by itself. Use the indicator with assembled the cover.
- (7) When removing the cover and filter, using a sharp object (screwdrivers, tweezers, etc.), hard object (metal, etc.), or with a large or sudden force, may cause deform or damage the indicator.
- (8) Do not use the indicator under loads that exceed the rated capacity or other ratings. Doing so may result in burnout accidents.

## Safety Precautions for All Indicators

- (9) Assemble correctly according to the handling instructions. Do not assemble or disassemble the product other than as described in the catalog, as this may cause defects or accidents.

(10) Illumination

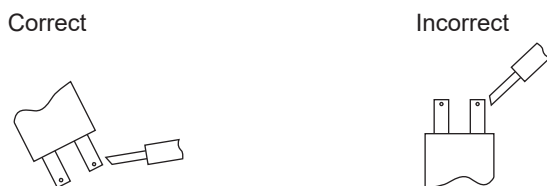
- (a) Do not apply a voltage between the LED terminal that is greater than the rated voltage. Doing so may damage the LED, cause lighting failure.  
(b) LEDs cannot be lit directly by AC circuit should be provided rectifier smoothing circuit for products other than AC input type.



- (c) When wiring, pay attention to the polarity of the terminals.  
(d) Simultaneous lighting may not be possible with Dual-Color, 3-Color illumination or Split-Face illumination, check the catalog.  
(e) Apply voltage directly to LEDs of Non-built-in resistor type will damage the LEDs, so connect an appropriate external resistor.

(11) Wiring

- (a) When tightening terminals or connecting connectors, do not apply more force than necessary from the back side. Support the indicator with one hand as it may slip out of the front of the panel.  
(b) Use the applicable connectors listed in the catalog for each model.  
(c) Do not apply a soldering iron to the indicator housing. Doing so may deform the terminals and cause defects.  
(d) Hand solder with the terminals facing down to prevent flux from penetrating into the indicator.



- (e) Use the appropriate wire size for the applied voltage and current, and solder properly. Use of the product with incomplete soldering may cause abnormal heat generation, resulting in a fire hazard.

(12) Usage environment

- (a) Do not use in the presence of flammable or explosive gases such as gasoline, thinner, LPG, etc.  
(b) Avoid using the product in places where corrosive or silicon gas is generated, high temperature, high humidity, sea breeze or direct sunlight.  
(c) Provide appropriate protection when using the product in places where it is exposed to water, oil, metal powder, or dust.  
(d) Do not use the product in a place subject to vibration or shock. It may cause malfunction or damage.  
(e) When installed in a close grouping or continuously lit, the ambient temperature may exceed the specified value due to heat generation. Take measures such as ventilation and lowering the operating voltage.  
(f) When checking the actual equipment, load conditions and operating environment should be the same as the actual operating conditions.  
(g) The ambient temperature for storage is  $-25^{\circ}\text{C}$  to  $65^{\circ}\text{C}$  (No freeze, no condensation).

- (13) When wiping off dirt on the indicator, wipe lightly with a soft, dry cloth. Organic solvents such as thinner, benzene, alcohol, or other acidic chemicals may cause deformation, discoloration, or malfunction.

- (14) Store the product away from malignant gases, dust, high temperature and high humidity, and keep it in our packing condition.

(15) Periodic inspection and replacement

- (a) Although mechanical and electrical durability are listed in the specifications column, deterioration of various parts (deterioration of resins and corrosion of metal parts) is possible due to the operating environment and method of use. We ask that you implement inspections for Sunmulon products to prevent accidents from occurring by conducting periodic inspections and replacements.

(16) Service scope

- The price of Sunmulon products do not include the cost of services, such as dispatching technicians.