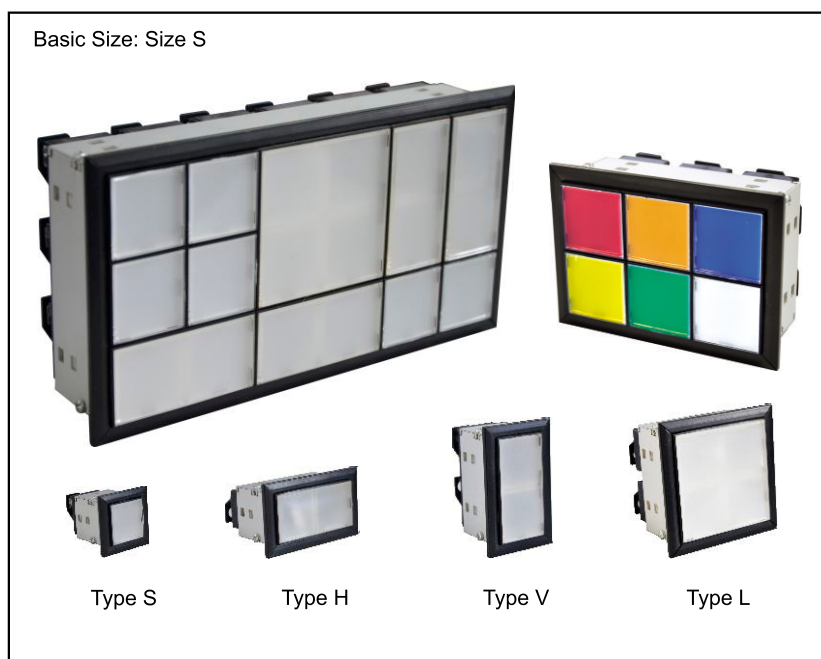


■ **Super Bright LED unit improves visibility and safety**

- Four types of illumination faces to choose from. Compact combination display lights.
- Super bright LED unit
- The insulated jumper reduces wiring. The integrated terminal cover and the jumper prevent the loss of screws.
- Insulated jumpers eliminates the need to wear electrical protective gloves.
- Legends can be engraved on the attached marking plate. (Type S only).



- Illumination Panel Type

Type S (30H * 30Wmm) (Basic size)

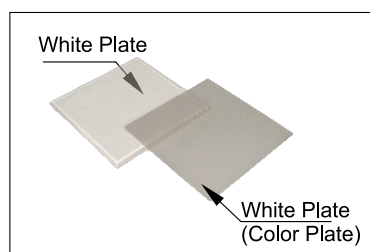
Type H (30H * 60Wmm)

Type V (60H * 30Wmm)

Type L (60H * 60Wmm)

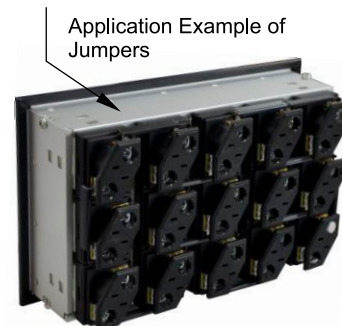
Combined construction is available.

- Type S Window Spot Illumination Kit



Frame (Aluminium Alloy)

The fingersafe terminals reduce wiring time, enhance safety, and improves structure, operability and safety
The integrated terminal cover and, insulated jumpers prevent electric shocks.



Application Example of Jumpers

- Marking Films (Type S Only)

Available up to 260 windows
10 rows * 26columns(TypeS)

Super Bright LED

Columns

LED Unit

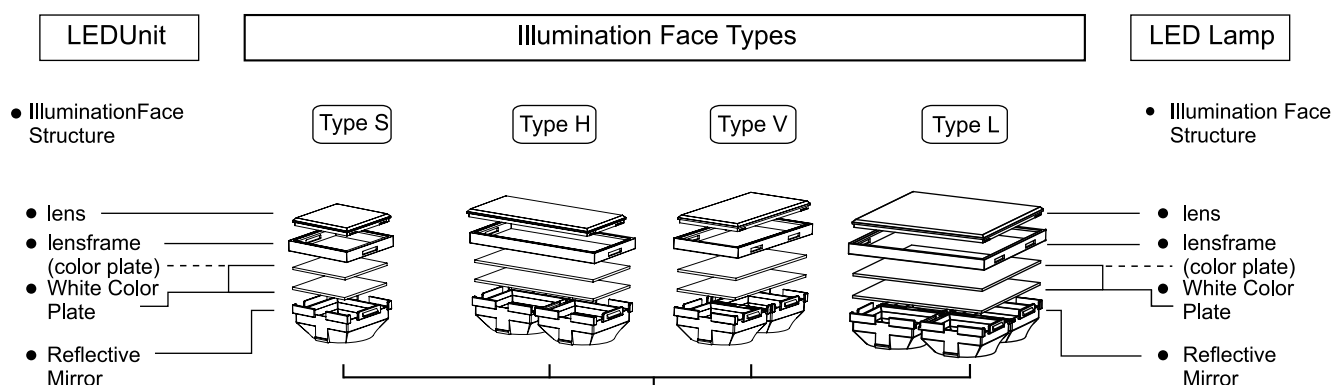
LED Lamp



Rows

[illegible]

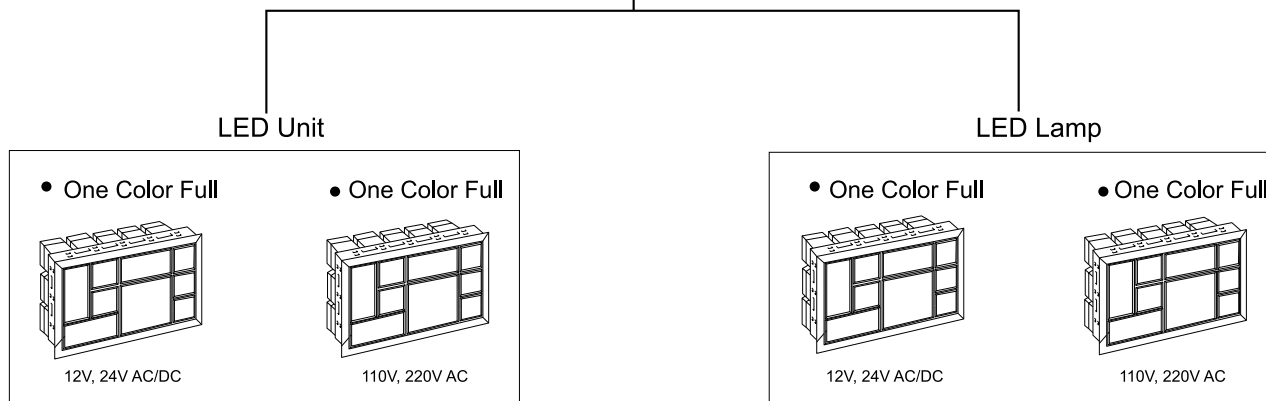
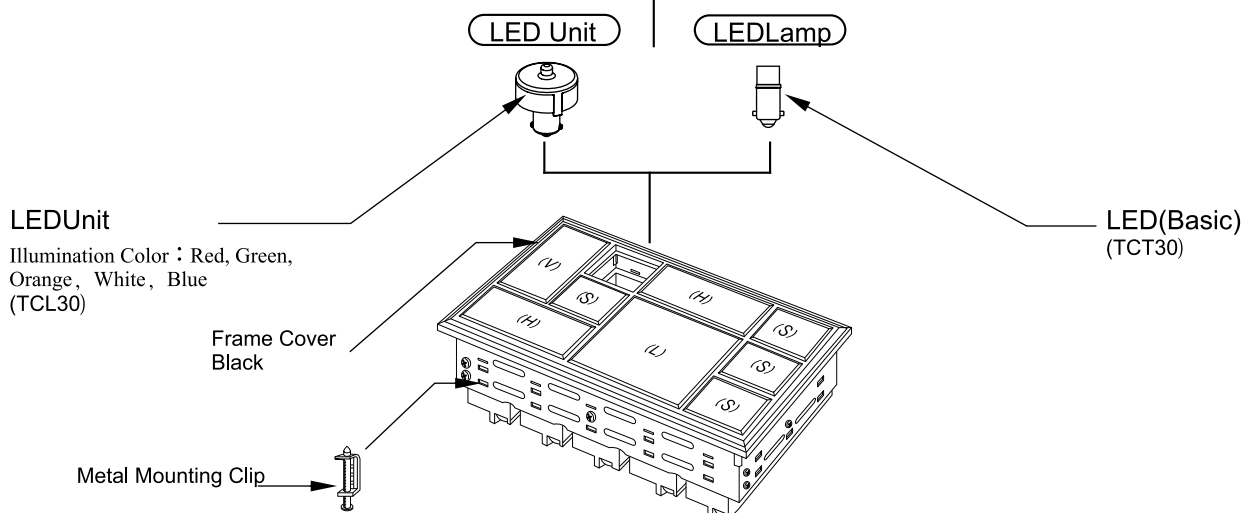
Configuration



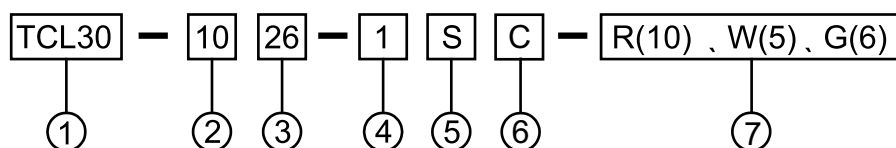
LED Illumination

Designation		Lens	White (Color) Plates (2)		DisplayColor	
					OFF	ON
Clear Lens	Basic	Clear	White	White	White	Specified Color
	Color Plate		Color Plate	White	Specified Color	Specified Color

- Markings can be engraved on white plate or color plate.
Engrave markings on the flat surface of the plate next to the lens.



Model Designation

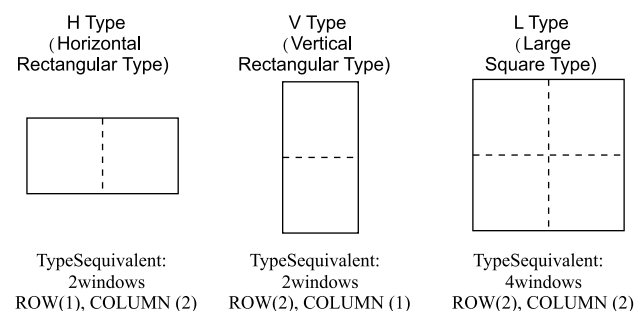


Designation	Type	Description
1. LED Type	TCL 30 TCT 30	LED Unit LED Lamp (Basic)
2. Vertical Basic Size S Type Windows	01 02 03 04 05 06 07 08 09 10	Max. 10 Basic Size S Type Windows per Column
3. Horizontal Basic Size S Type Windows	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	Max. 26 Basic Size S Type Windows per Row
4. Operating Voltage	1 2 7 9	110VAC 220V AC 24V 12V
5. LED Combination Type	S H V L M	30H*30W Basic Square Type <input type="checkbox"/> 30H*60W Horizontal Rectangular Type <input type="checkbox"/> 60H*30W Vertical Rectangular Type <input type="checkbox"/> 60H*60W Large Square Type <input type="checkbox"/> S,H,V,L Combination Type

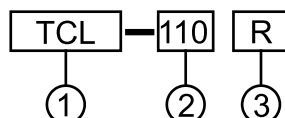
Designation	Code	Description
6. Plate Color	blank C	White Plate Color Plate (red, green, yellow, orange, white, blue)
7. LED Color	R G Y O W BL	Red Green Yellow Orange White Blue

Basic LED Lamp type is not available in Yellow.

Illumination Panel Face Size



LED Designation



Designation	Code	Description
1. LED Type	TCL L	LED Unit LED Lamp (Basic)
2. Voltage	220 110 24 12	220V AC 110V AC 24V AC/DC 12V AC/DC
3. Color	R G Y O W BL	Red Green Yellow Orange White Blue

LED Specifications

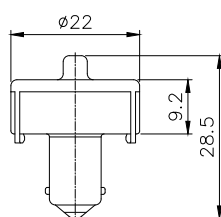
LED Type	Rated Voltage	Rated Current
LED Unit	12V AC/DC	20mA
	24V AC/DC	20mA
	110V AC	20mA
	220V AC	15mA
LED Lamp (Basic)	12V AC/DC	9~13mA
	24V AC/DC	8~13mA
	110V AC	3~5mA
	220V AC	3~5mA

Lamp Specifications

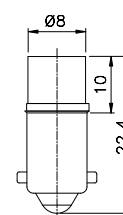
Illumination	LED Unit	LED Lamp (Basic)
Insulation Resistance	100MΩ	
Breakdown Voltage	2500V AC	2000V AC
Ambient Temperature	-20~+85 C°	-20~+40 C°
Ambient Humidity	45~85%RH	

Lamp Appearance

LED Unit



LED Lamp (Basic)



Ordering Information

Use the specific order sheet. (see page T9)

Counting of Windows

Count the number of windows in the equivalent of Type S basic size (30mm x 30mm)

Conversion Rate

Type H Horizontal Rectangular Type



TypeSequivalent:2windows
ROW(1), COLUMN (2)

Type V Vertical Rectangular Type



TypeSequivalent:2windows
ROW(2), COLUMN (1)

Type L Large Square Type



TypeSequivalent:4windows
ROW(2), COLUMN (2)

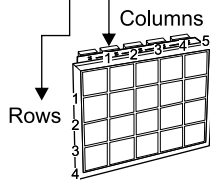
Designation Examples

Example 1

TCL/TCT series
Type S, 20 windows

Part Number

TCL30-0405-□S-R(5)・G(5)・Y(5)・S(5)



{ Color screen: Type S, 20 windows
 $R(5) + G(5) + Y(5) + S(5) = 20$ }

{ Color screen: Type S, 20 windows
 $R(20) = 20$ }

LED illuminated units
inonecolor

R(20)

When more than
one color is
required for LED

(Specify each color code on the specific order sheet.)

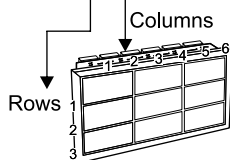
Columns	1	2	3	4	5	6	
Rows	1	R	R	R	R	R	+
2	G	G	G	G	G	G	+
3	Y	Y	Y	Y	Y	Y	+
4	O	O	O	O	O	O	+
5	+	+	+	+	+	+	+
~							

Example 2

TCL/TCT series
Type H, 9 windows

Part Number

TCL30-0306-□H-R(3)・G(3)・Y(3)



{ Color screen: Type H, 9 windows
 $R(3) + G(3) + Y(3) = 9$ }

{ Color screen: Type H, 9 windows
 $R(9) = 9$ }

LED illuminated units
inonecolor

R(9)

When more than
one color is
required for LED

(Specify each color code on the specific order sheet.)

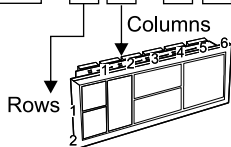
Columns	1	2	3	4	5	6	7	
Rows	1	R		O		O		+
2	R		Y		Y			+
3	R		G		G			+
4	+	+	+	+	+	+	+	+
~								

Example 3

TCL/TCTseries
Type M, 6 windows (2S+1V+2H+1L)

Part Number

TCL30-0206-□M



(Specify each color code on the specific order sheet.)

Columns	1	2	3	4	5	6	7	
Rows	1	G	W	Y		G		+
2	G		Y					+
3	+	+	+	+	+	+	+	+
~								

Example 4

TC series (Type S, 12 windows)

When ordering a combination of units with different operating voltages, specify Type No. as follows.

Part Number TCL30-0304-7 S(8) + 1 S(4)-W(12)

24V AC/DC 8windows 110V AC 4windows

Specify the position of the units and each voltage on the specification sheet.

Columns	1	2	3	4	5	~	
Rows	1						7
2							+
3							+
~							

Exterior Dimension . Window Dimension

Type S Dimensions & No. of Windows (Type H, V, L can be converted into Type S)

	Columns	b	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Rows	Dimension	B	44	74	104	134	164	194	224	254	284	314	344	374	404	434	464	494	524	554	584	614	642	672	702	732	762	792
		Window Size (D)	(35)	(65)	(95)	(125)	(155)	(185)	(215)	(245)	(275)	(305)	(335)	(365)	(395)	(425)	(455)	(485)	(515)	(545)	(575)	(605)	(635)	(665)	(695)	(725)	(755)	(785)
a	A	(C)																										
01	44	(35)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
02	74	(65)	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
03	104	(95)	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75	78
04	134	(125)	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	100	104
05	164	(155)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130
06	194	(185)	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120	126	132	138	144	150	156
07	224	(215)	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140	147	154	161	168	175	182
08	254	(245)	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160	168	176	184	192	200	—
09	284	(275)	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	162	171	180	189	198	—	—	—	—
10	314	(305)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	—	—	—	—	—	—

Exterior Dimension Diagram

Front View A: No of Rows B: No of Columns

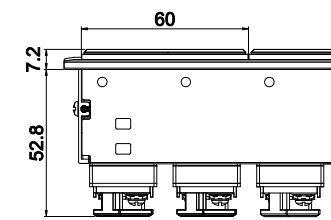
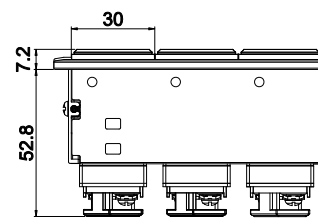
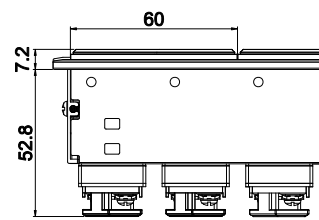
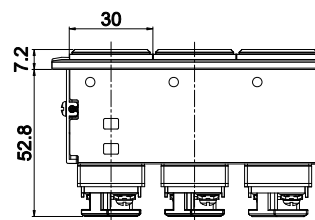
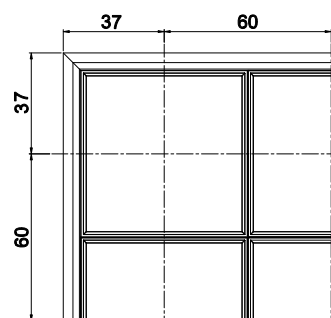
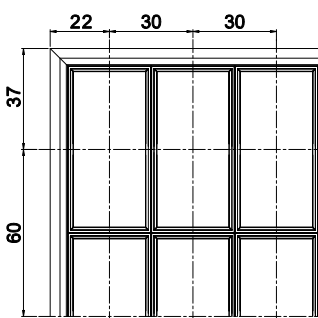
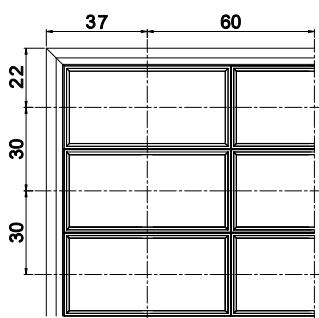
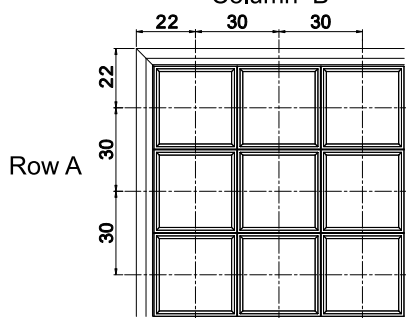
TypeS

TypeH

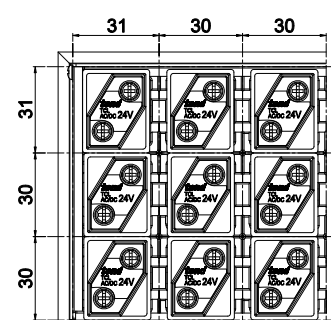
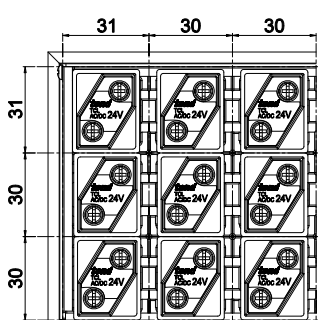
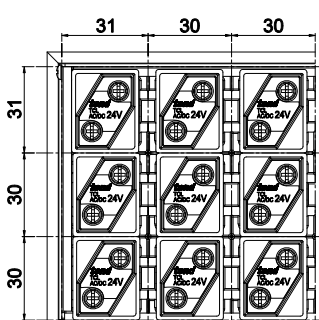
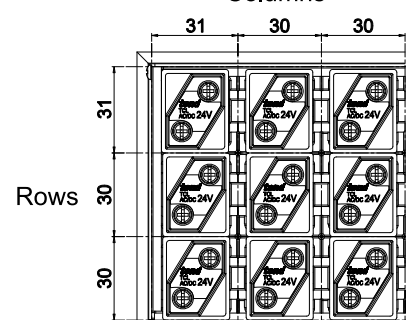
Type V

TypeL

Column B

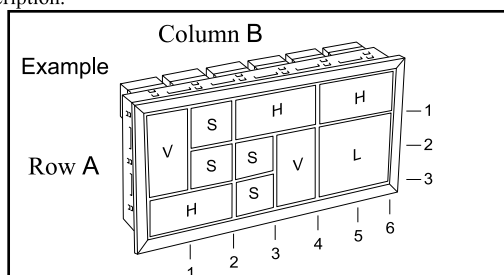


Columns



Instructions

1. The number of windows equals rows multiplied by columns. For example, for 5 rows by 7 columns, the number of windows is 35, external dimensions are 164mm high by 224mm wide, and panel cut-out is 155mm high by 215mm wide.
2. External dimensions are represented by A for rows and B for columns.
3. Panel cut-out dimensions are shown in (), for height (C) and width (D). Panel cut-out tolerance is +1.0 to -0 mm (for one window: +0.6 to -0.4mm).
4. Total number of windows, dimensions, panel cut-out, see below description.




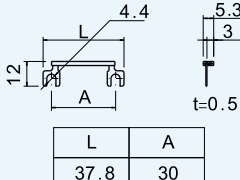
The combination example at left consists of 3 rows by 6 columns.

The above table shows: No. of windows: $3 \times 6 = 18$


Dimensions: 104mm × 194mm

Accessories

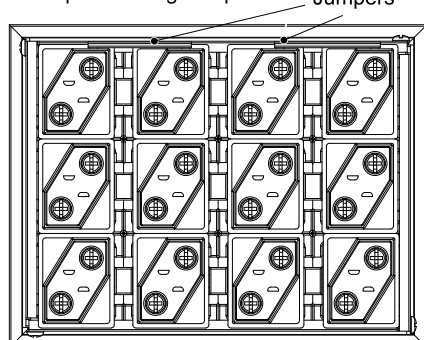
Jumper

	Description, Appearance	Part Number	Dimensions (mm)	Package Size
Jumper	Y-Shaped Jumper (connect 2 windows) Rated Input Current: 3A 	TCL-H	 L 37.8 A 30	1 Box (10 pieces)

Mounting Fixture

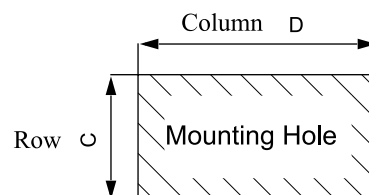
	Description, Appearance	Part Number	Dimensions (mm)	Package Size
	Metal Installation Accessory (Maintenance Part) 	TCL-F	From the back of Panel to Mount the metal part of the body of TC switch	1 Box (10 pieces)

Example of Using Jumpers



Panel Cut-Out

Determine the panel thickness in consideration of the weight of display lights and wires (ref page T5).



- ☐ Type H — Type S equivalent: 2 windows
Height: 1 row Width: 2 columns
- ☐ Type V — Type S equivalent: 2 windows
Height: 2 rows Width: 1 column
- ☐ Type L — Type S equivalent: 4 windows
Height: 2 rows Width: 2 columns

Window Installation and Removal

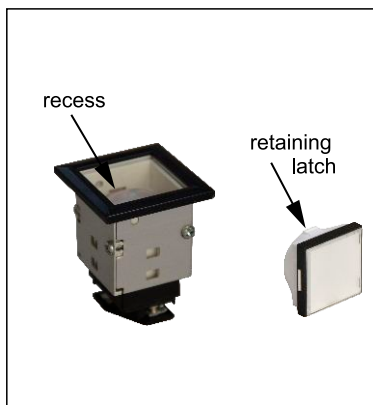
• Installation

When installation the panel, place the latch on the reflective mirror on the same side as the rectangular recess, then push the panel window down.

• Removal

To remove the display window, insert the tip of a flat screwdriver into the slot on the bottom of the lens frame, and press down lightly on the screwdriver.

Do not put excessive force to remove one latch while pressing the other latch on the opposite side.

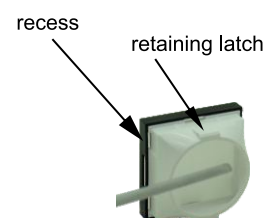
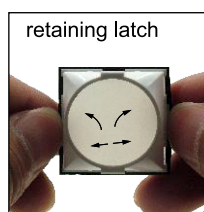


Replacing Lens, White Plate, and Lens Frame

• Removal

The lens cover has retaining projections. To remove the lens, white plate, and color plate from the lens frame, push open the lens frame.

The lens can also be removed by inserting a screwdriver into one of the sides with recesses. Since the lens has an orientation due to projections, be sure to insert the screwdriver in the directions as shown.

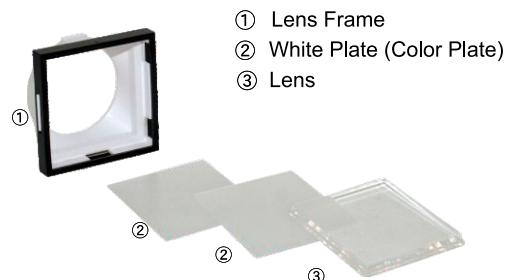
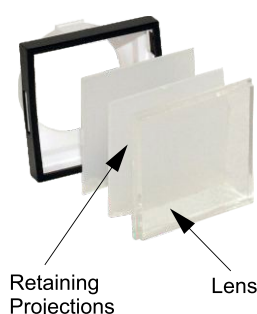


• Retaining Projections Location

Series	Type	Same Side as Recess
		Type S
TCL Series		

• Installation Instructions

Install the color screen and marking plate into the lens frame. To install the lens, insert its retaining projection into the recesses inside the lens frame, and press the lens on the other side into slide



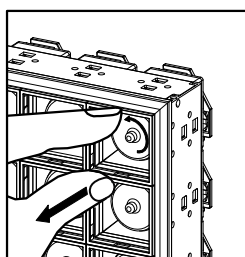
• Replacing the LED unit

Ensure that power to the display lights has been turned off before removing the LED unit.

Removal

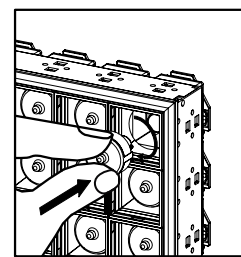
Pinch the LED tip and rotate left till the LED comes off the latch

When removing the LED unit from the housing, pull it straight out without pressing on the LED unit terminals.



Installation

To install the LED unit, place the metal pins on the LED unit to fit into the receptacles in the housing, and insert the LED unit.



Installation on Panel

Insert the units into a panel cut-out from the front, and install the mounting clips supplied with the units from the back as shown below. Tighten the screw to prevent loosening. The number of mounting screws varies with the number of windows. Tighten the screws to a torque of 0.39 N.m to 0.49 N.m.

Example of Mounting Clip Positions

Columns Rows	1	2	3 ~ 8	9 ~ 15	16 ~ 22	23 ~ 26
1 ~ 2						
3						
4 ~ 6						
7 ~ 10						



No. of Mounting Clips

Numbers in () show the number of mounting clips required for transformer, resistor, flicker, and DC-DC converter.

Columns Rows	1 ~ 2	3 ~ 8	9 ~ 15	16 ~ 22	23 ~ 26
1 ~ 2	2	4 (6)	6 (8)	8	10
3 ~ 6	4 (6)	6 (8)	8 (10)	10 (12)	12 (14)
7 ~ 10	6 (8)	8 (10)	10 (12)	12	14

Safety Precautions

- Turn off the power to the LED units before installation, removal, wiring, maintenance, or inspection. Before removing the LED units, make sure that power is turned off. Failure to turn off the power may cause an electrical shock, create fire hazards, or damage of LED units. Do not use the LED units without the lens, otherwise ingress of foreign objects may cause short circuit, and LED units may be damaged resulting in the deterioration of the LED brightness or no illumination.
- When lighting the LED units continuously, observe the conditions described below. If the limits are exceeded, the LED units may heat up and create fire hazards or damage the LED units
- For wiring, use wires of a proper size to meet the voltage and current requirements and tighten the terminal screws to e tightening torque. Loose terminals screws may cause excessive heating, resulting in fire hazards.
- Do not install or operate the LED units where the LED units are subjected to direct sunlight. Excessive heating may create fire hazards or damage the LED units.
- When replacing LED units or LED lamps, use TEND products.

Operating Instructions

Notes for Continuous Lighting

Up to 10 LED units (Type S equivalent) can be lit continuously. When more units are mounted, consider the following restrictions.

LED illuminated 24V AC/DC(6, 12V AC/DC)

- Do not light more than 40% of the LED unit continuously, and light the units in a checker pattern.
- When more than 40% of the units are lit continuously, limit the lighting duration to 40 minutes. Before lighting the units again, ensure that all units have cooled down.
- For dual color LED units, do not light both Red and Green on at the same time.
- When continuously lighting the LEDs, limit the percentage lit to within 40%. (Use flashing or checker pattern).

Notes for Panel Mounting

When mounting the LED units on a panel, determine the panel thickness taking the weights of the S type, H type, V type and L type units and wires into consideration.

Tightening Torque for Terminal Screws

For wiring, use wires of a proper size to meet the voltage and current requirements and tighten the terminal screws to the tightening torque shown below.

TerminalScrew	Tightening Torque
M3	0.6 ~ 1.0 N.m
M3.5	1.0 ~ 1.3 N.m
M4	1.4 ~ 2.0 N.m

To satisfy its original features, please note the following points on storage and handling. Especially avoid long exposure under direct sunlight.

Storage and Handling

- Do not use in an environment with rapid changes in temperature or frost.
- Do not use chemicals such as alcohol that degrade the property of acrylic.

Operating Instructions

- The blue illumination color may change depending on the decreasing brightness of LED, along with period of use.
- Do not use outdoors.

Specification Sheet

Part Number	TC <input type="text"/> <input type="text"/> 30 - <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> -										Designation Note W()、R()、G()、Y()、A()、S()、 TW()、TR()、TG()、TY()、TA()、 TS()、SW()、SR()、SG()、SY()、 SA()、SS()、PW()										Quantity							
	Expected Ship Date	Note																										
Order No																												

This Side Up
↑

	Columns																									
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Rows	1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
3	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
5	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
6	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
7	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
8	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
9	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
10																										

Model Designation

