

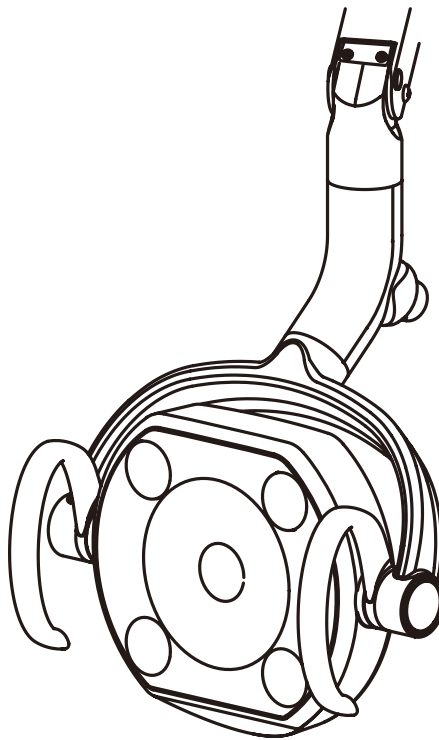
DENTAL LIGHT

300LED DENTAL LIGHT

INSTALLATION INSTRUCTIONS

TYPE

- 301 POLE MOUNT
- 302 CEILING MOUNT
- 305 TRACK MOUNT
- 320S UNIT MOUNT



 **Belmont**

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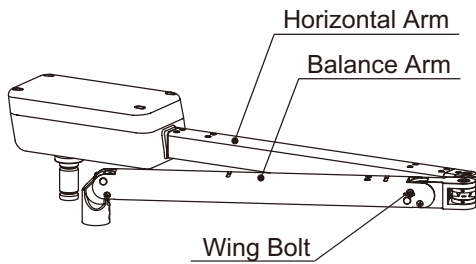
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1. Precautions for Installation

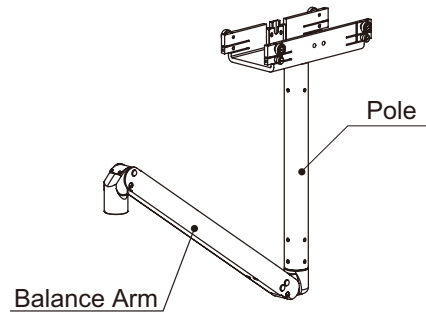
1. During lifting of the dental light, make sure to hold the balance arm and swing arm described as follows. If not, it may lead to physical injury or property damage.

TYPE 301 / 302

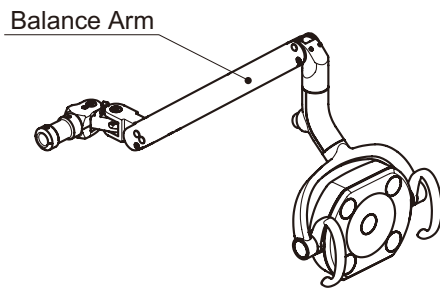


*This drawing shows the TYPE 301.
For TYPE 302, the power supply BOX part becomes upside down.

TYPE 305



TYPE 320S



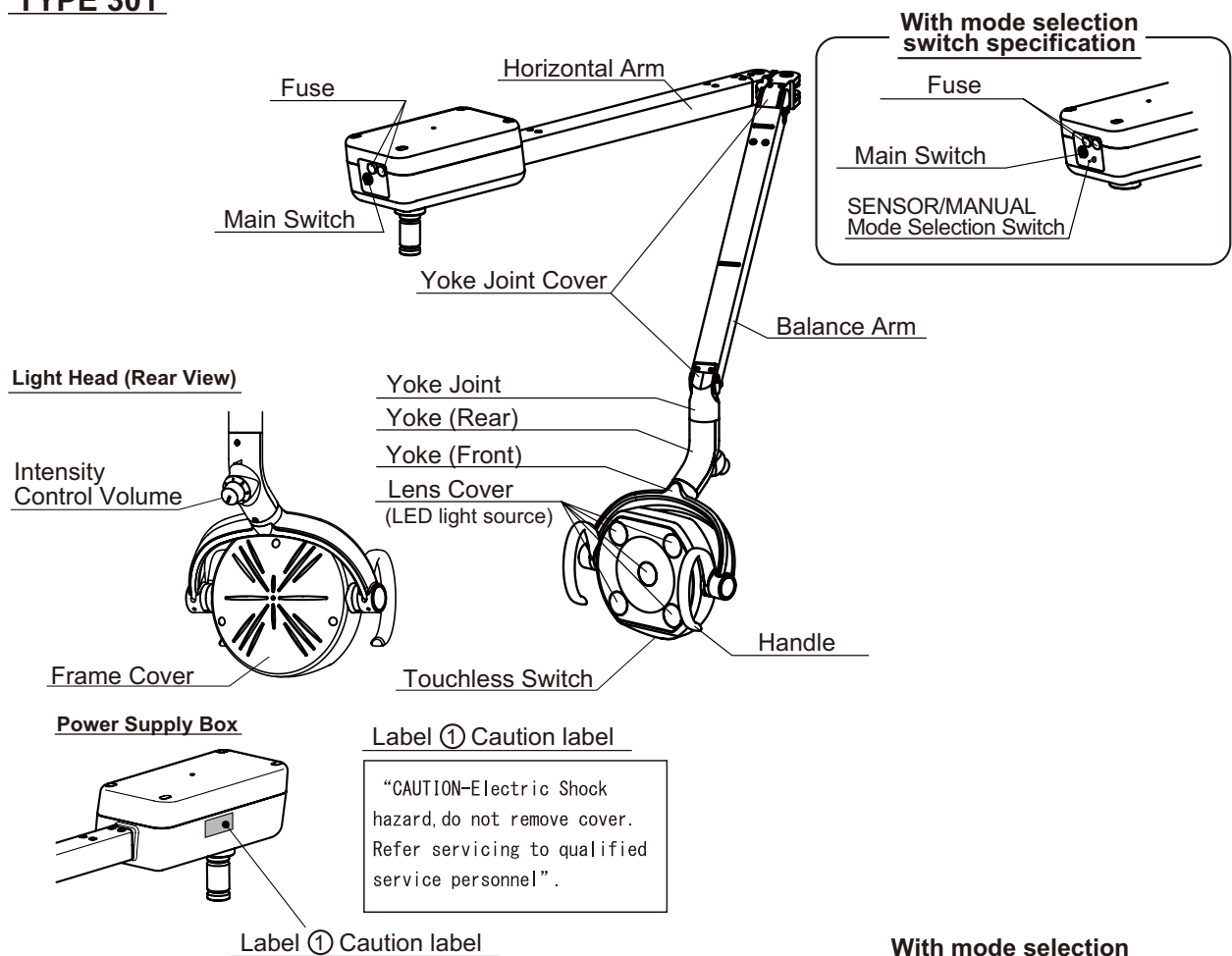
2. Do not remove the wing bolt for TYPE 301/302 dental light (stopper for balance arm) until attach the light head. The balance arm can be jump up and it may cause to physical injury or damage to the equipment.
3. Do not drop or hit the product.
4. Do not connect the power supply other than rated voltage.
5. Properly connect ground wires.
6. Be sure to adjust the leveling of the unit and chair to prevent from drifting of the TYPE 301, TYPE 320S and TYPE 320PAS dental light.
7. When the installation process has been completed, Check that all the mechanical and electrical functions are working properly.

WARNING

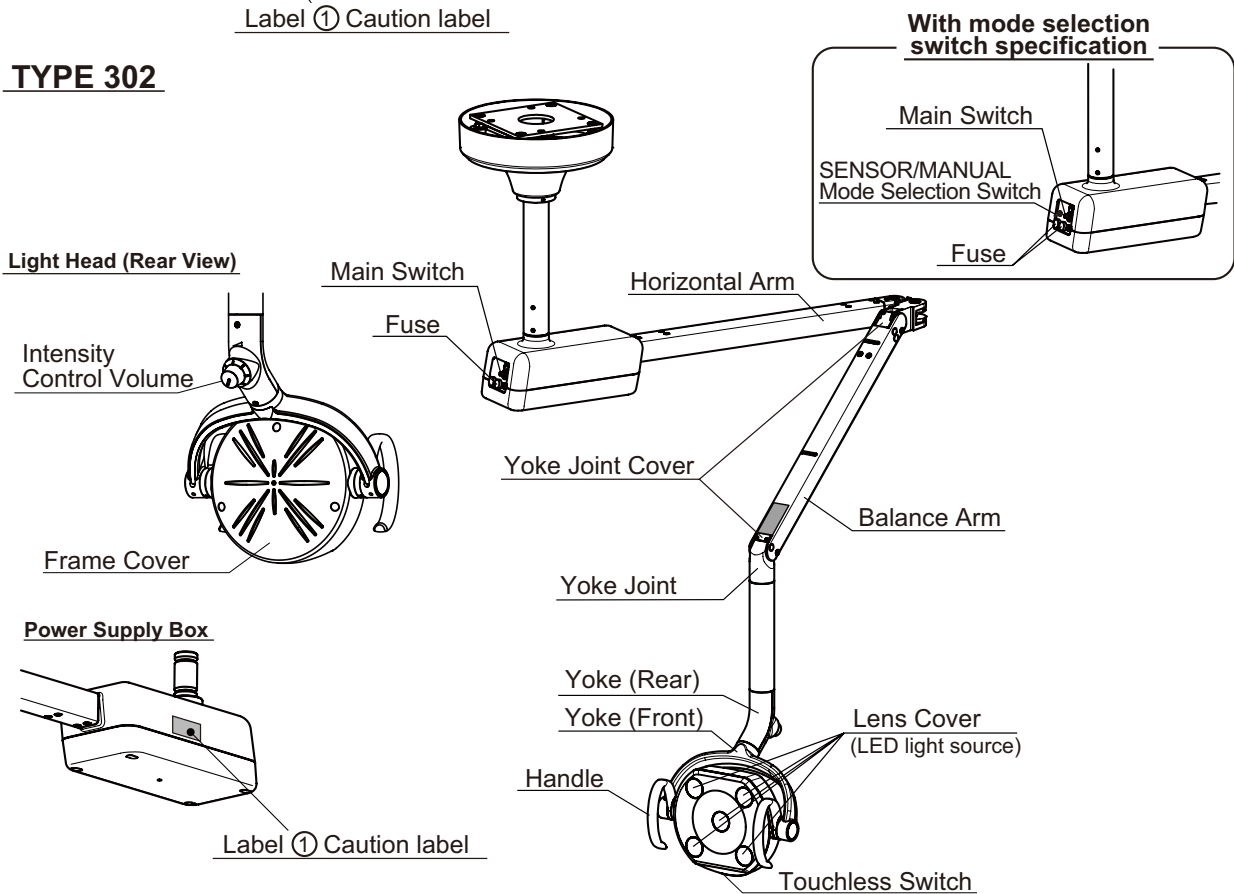
The LED is very bright. Do not direct the LED beam into the patient's or user's eyes.

2. Overview and Major Components

TYPE 301



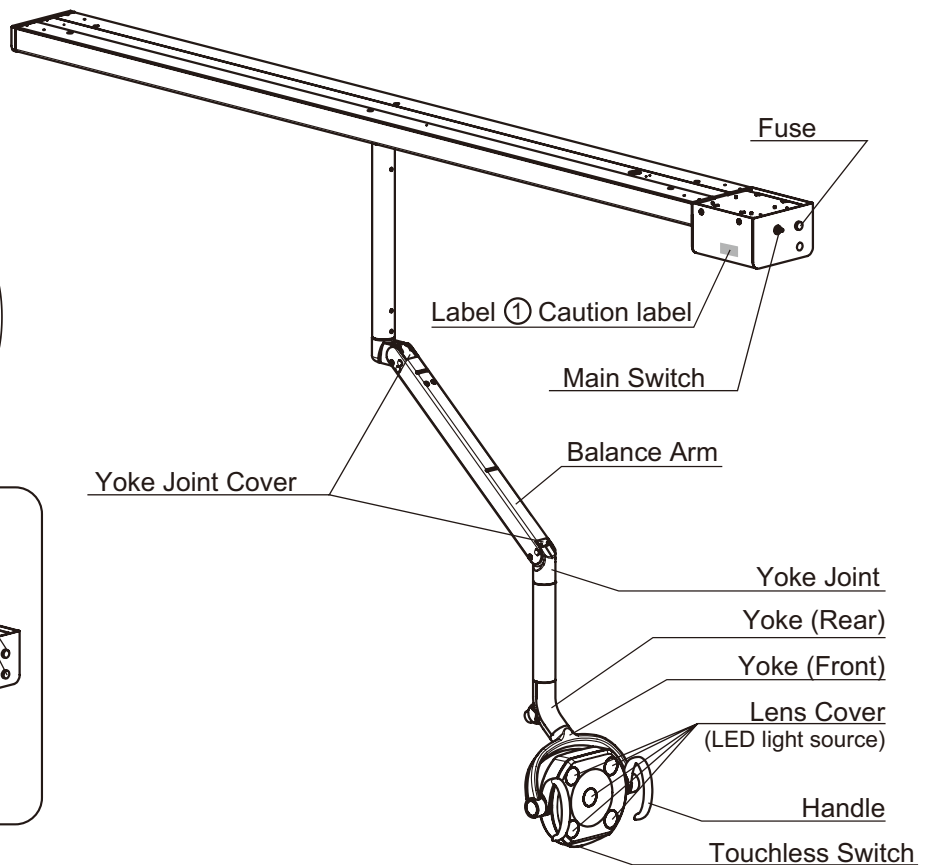
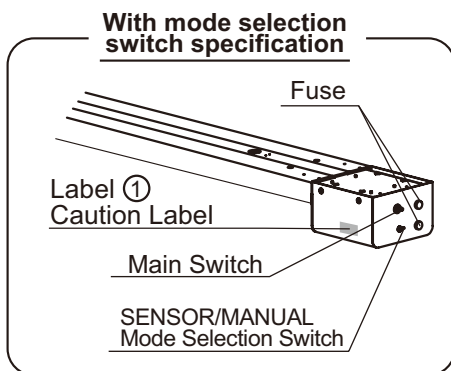
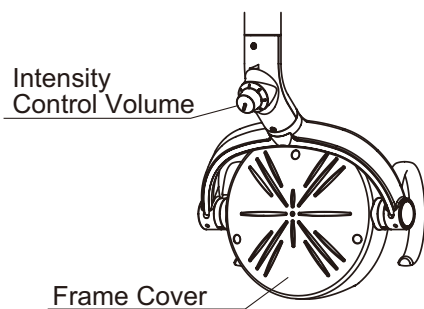
TYPE 302



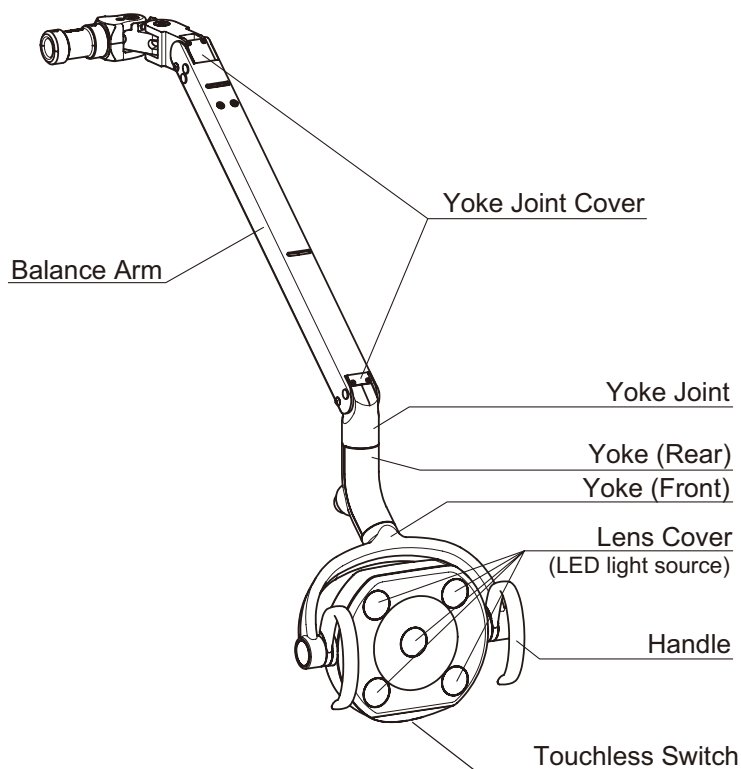
2. Overview and Major Components

TYPE 305

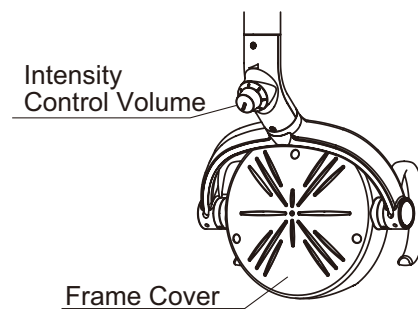
Light Head (Rear View)



TYPE 320S



Light Head (Rear View)



※ See page 2 for detail of label ①

3. Specifications

● Rated Voltage

TYPE 301 • 302 • 305	: AC100 - 240V 50/60Hz (EU. AC230V 50/60Hz)
TYPE 320S	: DC 19V

● Rated Input

TYPE 301 • 302 • 305	: 0.15 - 0.29A (EU. 0.16A)
TYPE 320S	: 0.72A

● Fuse

TYPE 301 • 302 • 305	: 250V 0.8A(T) Size of fuse 5.0 x 20mm
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● Weight

TYPE 301	: 6.5kg
TYPE 302	: 11.0kg
TYPE 305	: 15.0kg
TYPE 320S	: 3.5kg

● Light Source

: LED (5 LEDs)

● Optical Performance

: Focal Distance	650mm
: Light Intensity (Normal treatment mode)	3100 ~ 28000 Lux
: Light Intensity (Composite mode)	4300 Lux
: Correlated Color Temperature	5000K

● Light Pattern

: 85mm x 155mm

● Protection class against electric shock

: Class I Equipment.

● Usage environment

: Temperature	10 ~ 40°C
Humidity	30 ~ 75%
Air pressure	700 ~ 1060 hPa

● Transportation / Storage environment

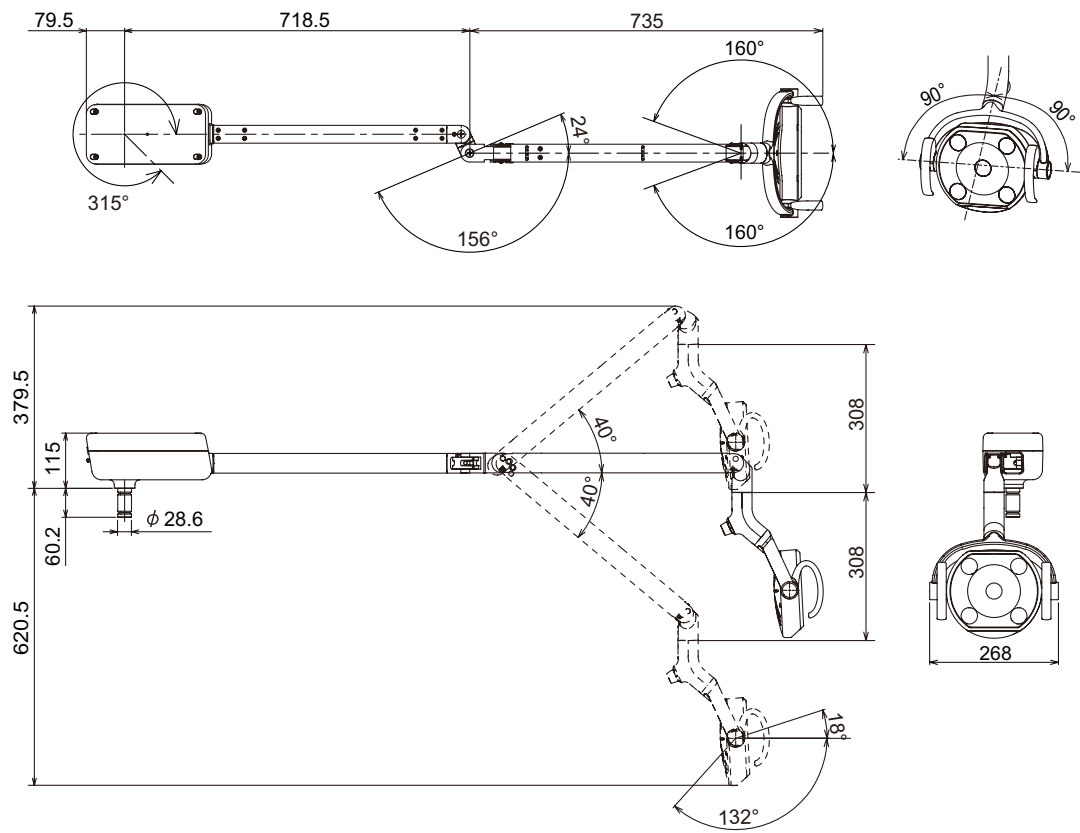
: Temperature	-20 ~ 70°C
Humidity	10 ~ 95%
Air pressure	700 ~ 1060 hPa

3. Specifications

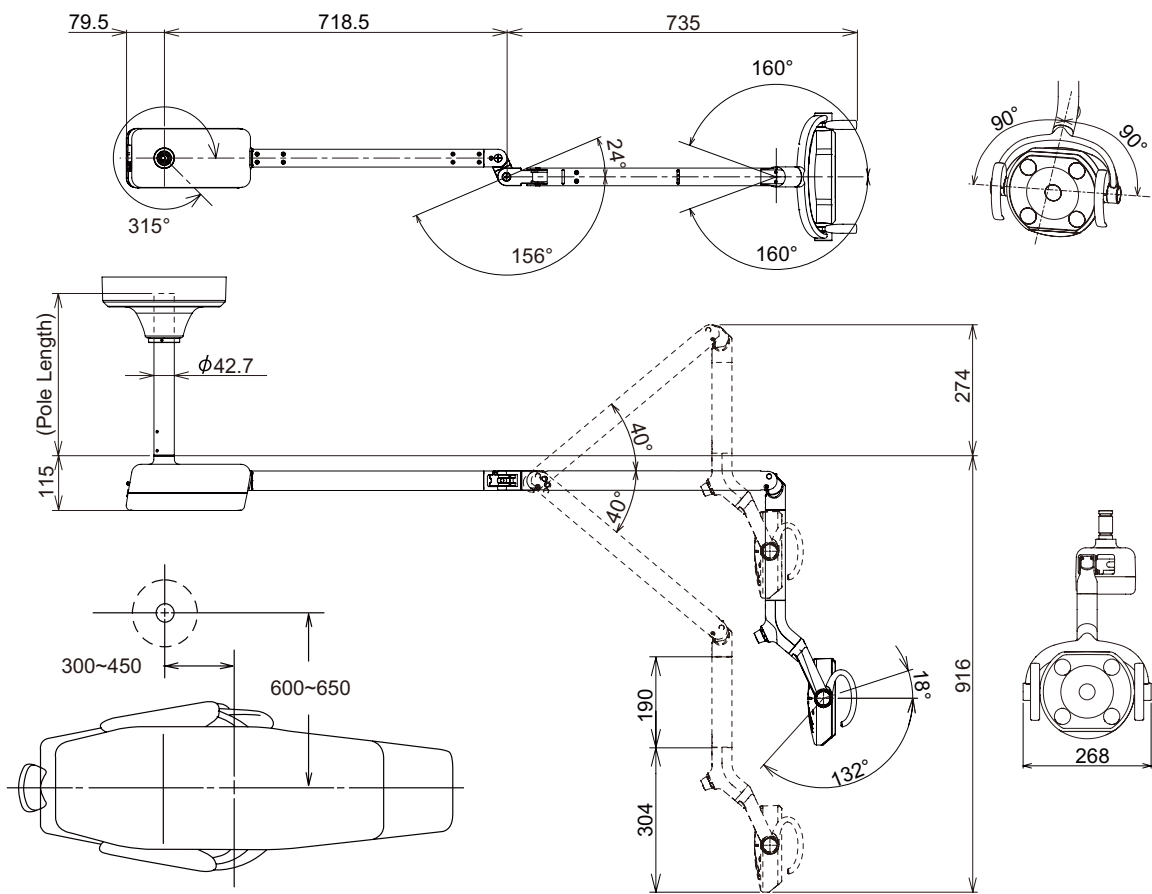
● Dimensions

*Values are the standard values. (Unit: mm)
Dimensional tolerance: ±10%

TYPE 301



TYPE 302



● Dimensions

Dimensional tolerance: $\pm 10\%$

[illegible]

4. Installation Instructions

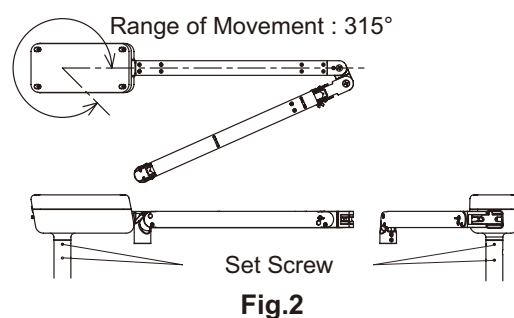
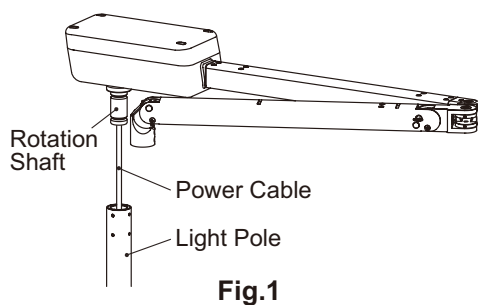
TYPE 301 Pole Mount

■ Necessary Tools

Phillips screw drivers (#1, #2), Hex key wrenches (Metric, 4mm, 2mm, 2.5mm).

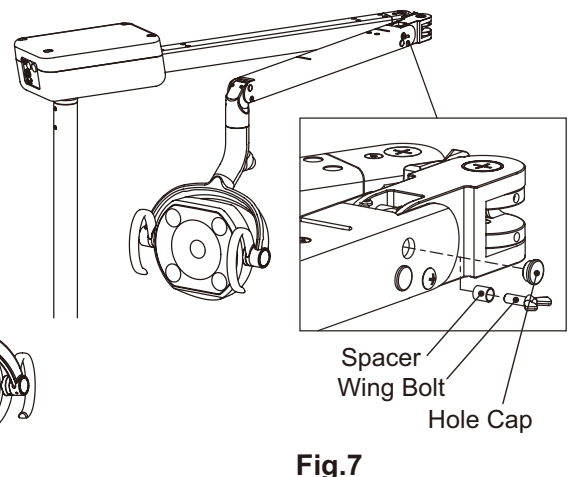
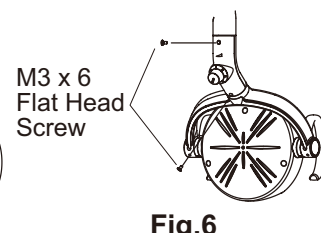
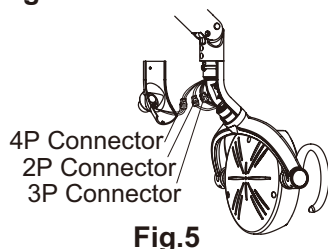
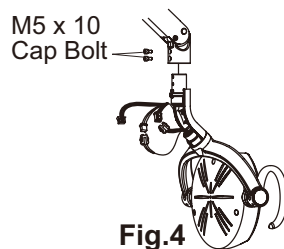
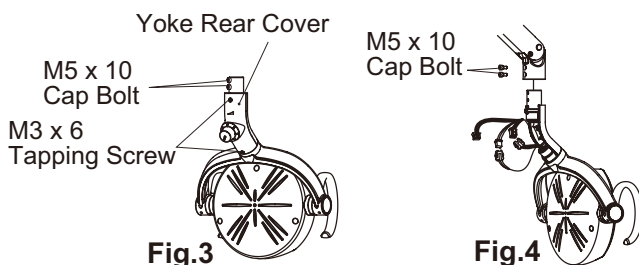
■ Attach the arm assembly to the light pole

- (1) Pass the power cable through the light pole. Insert the rotation shaft to the light pole and fix with four M5 set screws. **(Fig.1)**
 - * The light pole is included with the dental unit section.
 - * Rotate the rotation shaft to the right end and fix it so that the set screw position is in the below figure. **(Fig.2)** See fig.2 for range of movement of the rotation shaft.
- (2) Fix the light pole to the dental unit.
- (3) Connect the power cable into suitable power supply.



■ Attach the Light Head

- (1) Unscrew the two M3 x 6 flat screws and remove the yoke cover from light head. Remove the two M5 x 10 cap bolt from head shaft. **(Fig.3)**
- (2) Fix the light head to balance arm with two M5 x 10 cap bolts.
 - *Fix the screw securely from bottom side first and upper side next. **(Fig.4)**
- (3) Connect the 2P & 3P connectors. Same size of connectors met at each side of connectors. Connect the 4P connector from balance arm to 4P connector from yoke cover. **(Fig.5)**
- (4) Attach the yoke cover with two M3 x 6 flat screws. **(Fig.6)**
- (5) Remove the wing bolt and spacer, then attach the hole cap. **(Fig.7)**



4. Installation Instructions

TYPE 302 Ceiling Mount

■ Necessary Tools

Phillips screw drivers (#1, #2), Hex key wrenches (Metric, 4mm, 2mm, 2.5mm), Spanner wrench (13mm), Hammer.

■ Attach to the Ceiling

- (1) Secure flange base to the ceiling. Route the power supply through the center of the flange base.
Size of flange base, refer to **Fig.10** for flange base template.
- (2) Install the leveling nuts (M8) between the flange base and the ceiling flange. Install the ceiling flange to the flange base with washers (M8) and nuts (M8) supplied.
- (3) Insert the ceiling pole into the ceiling flange and secure it with roll pin and set screws (M6 x 8) supplied.
- (4) Be sure the ceiling pole is plumb. Adjust vertical level of the ceiling pole with leveling nuts(M8).
- (5) Slide the flange cover and flange cover ring (flat side up) over the ceiling pole and secure them about half way up the pole. Use only one set screw as you will be moving this on final installation.
- (6) Install the light assembly to the ceiling pole running the 3 wire cord up through the pole to the ceiling flange. Secure it with 4 Allen set screws.
- (7) Connect the incoming power to the 3 wire cord from the light assembly. Be sure to follow the local electrical codes.
- (8) Reposition the flange cover and secure it with the flange cover ring - Secure all set screws.

* Refer to **Fig.8** for each components.

■ Attach the Light Head

- (1) Pass the light cables through the extension. Fix the extension to the balance arm with M5 x 10 cap bolts.
(Refer to **Fig.9**)
- (2) Attach the light head to the extension. Refer to the **P7 [Attach the Light Head]** section.

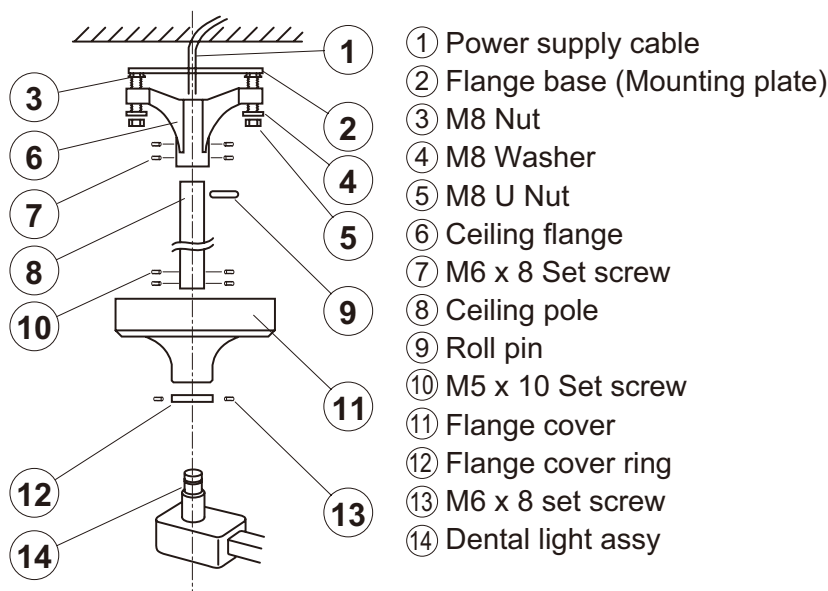


Fig.8

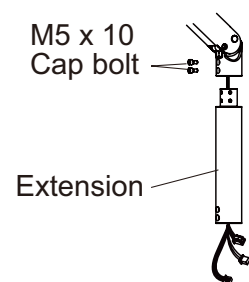


Fig.9

4. Installation Instructions

■ Flange Base Template

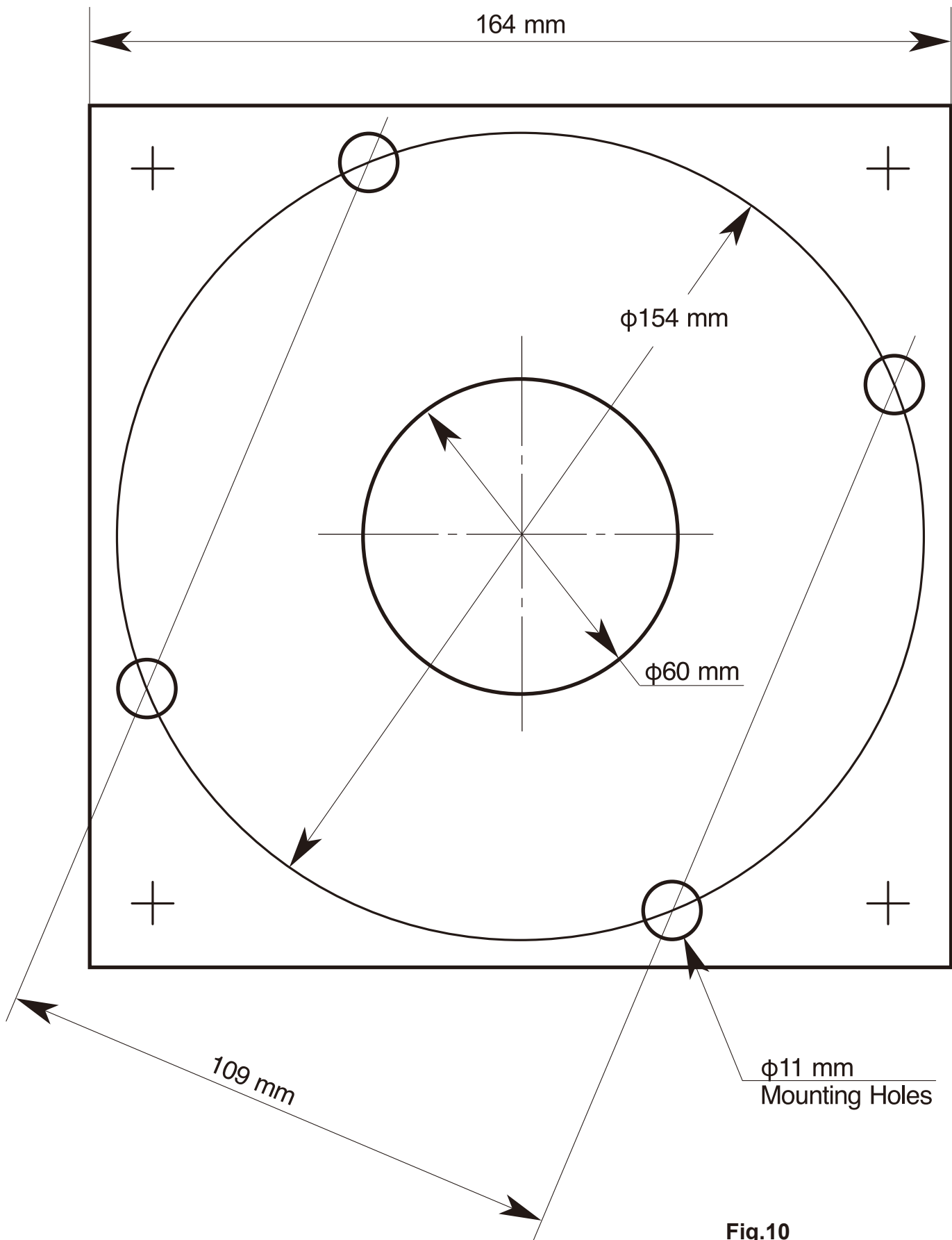


Fig.10

4. Installation Instructions

TYPE 305 Track Mount

■ Ceiling Preparation

For safety in operation as well as stability of the light source, the importance of proper ceiling structure cannot be overemphasized. In general, a ceiling structure capable of supporting 90kg (200 lbs) dead weight is required.

■ About construction of the ceiling

A) In conventional ceilings with joists perpendicular to the center line of the light, attach the pallet by at least 6 (M8 x 76mm) lag screws. Suitable holes are provided in pallet for most installations, utilizing 16" (406 mm) or 24" (610 mm) center to ceiling joists. For other spacings or locations, additional holes can be cut in pallet. (See Fig.11)

IMPORTANT: Locate transformer end of track at headrest end of chair. - Not legrest.

B) For conventional ceilings with joists parallel to the center line of the light, cross blocks must be installed in 3 places to allow mounting with at least 6 (M8 x 76 mm) lag screws. (See Fig.12)

C) For suspended ceilings, appropriate rigid structure must be attached to the ceiling framework to provide 90kg (200 lbs) dead weight capacity. (See Fig.13)

(A) In conventional ceilings with joists perpendicular to the center line of the light

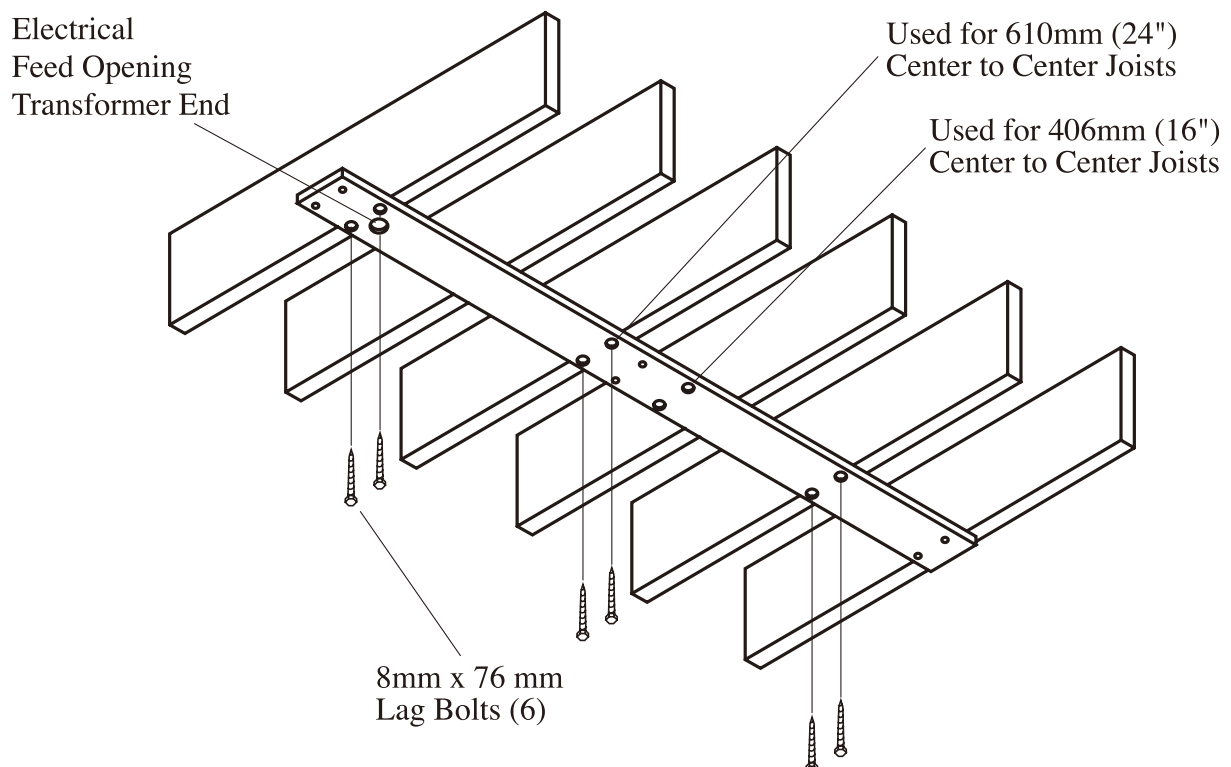


Fig.11

4. Installation Instructions

(B) In conventional ceilings with joists parallel to the center line of the light

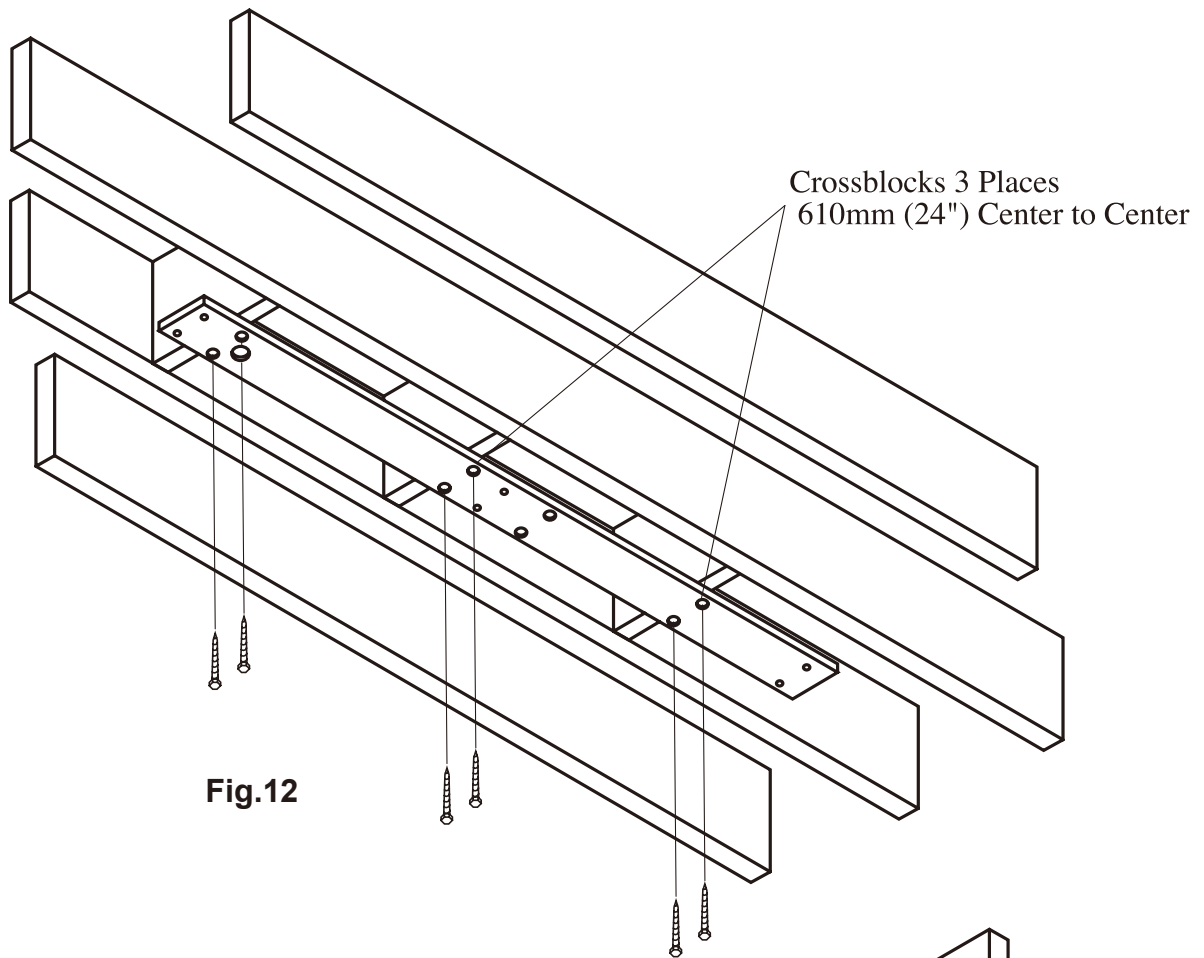


Fig.12

(C) In suspended ceilings

Attached to the ceiling framework to provide 90kg (200 lbs) dead weight capacity

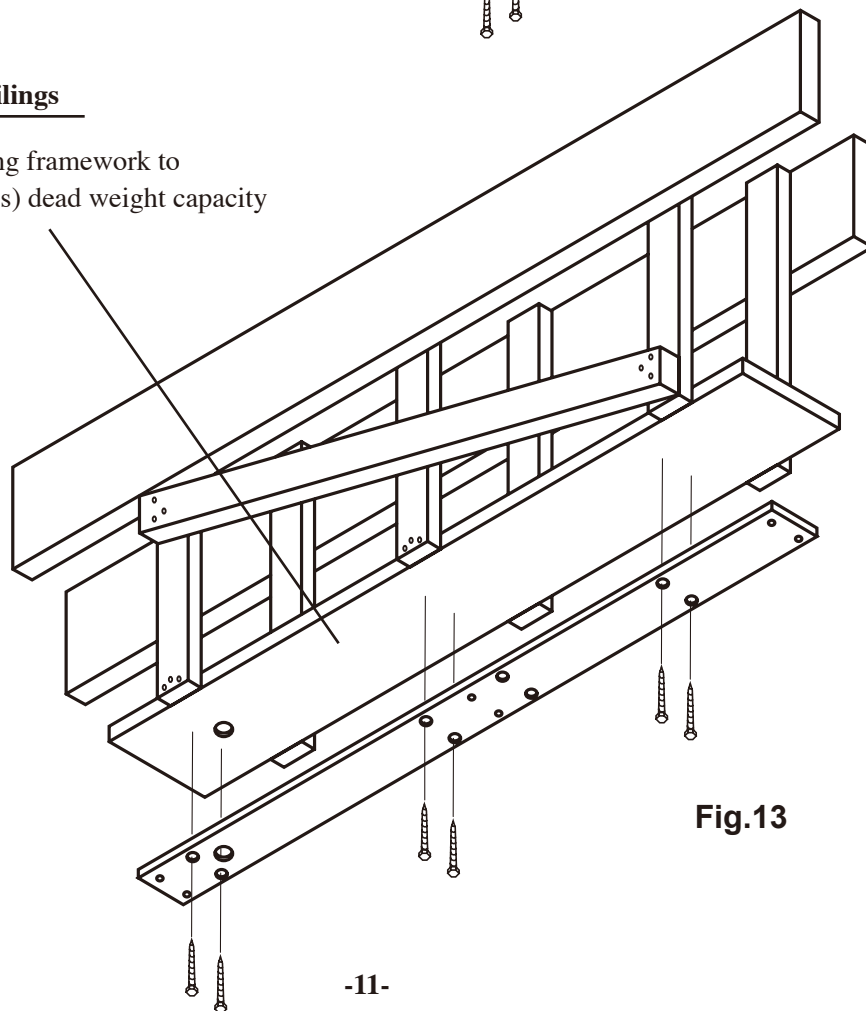


Fig.13

4. Installation Instructions

■ Electrical Preparation

Refer to **Fig.14** for the location of electrical feed opening in pallet, provide 3 wire, circuit (fuse or breaker) through flexible conduit with enough slack to protrude at least 50mm below the pallet when installed.

A readily accessible shut-off switch for this circuit is recommended. Use wiring suitable for 90°C service.

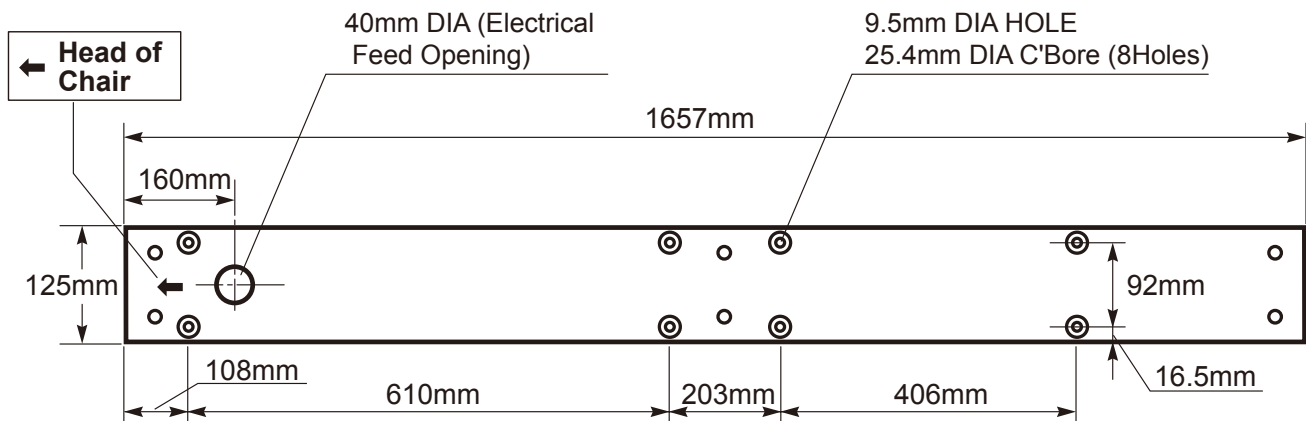


Fig.14

■ Installation Instructions

- (1) Lead out the power supply cable from the ceiling where the track light is mounted.
- (2) Run the power supply cable through the pallet and mount the pallet.
- (3) Place track against the pallet and slightly engage two mounting bolts at the end opposite to the electrical opening.
- (4) Allowing the free end to hang down slightly for access, install the conduit box connector to the track.
- (5) Finish bolting the track securely to the pallet.
- (6) Connect the wires from the feed to the terminal block.
- (7) Slide the trolley onto the track (end near electrical opening) with the arrow on the trolley oriented toward the pulley on the track.
- (8) Carefully guide the wire from the trolley, around the spring-loaded pulley and back toward the end of track.
- (9) Attach retainer clamp to small screw in track. Clip the free end of the trolley wire into the plastic clip near end.
- (10) Install rubber bumpers at the end of the track in the holes provided.

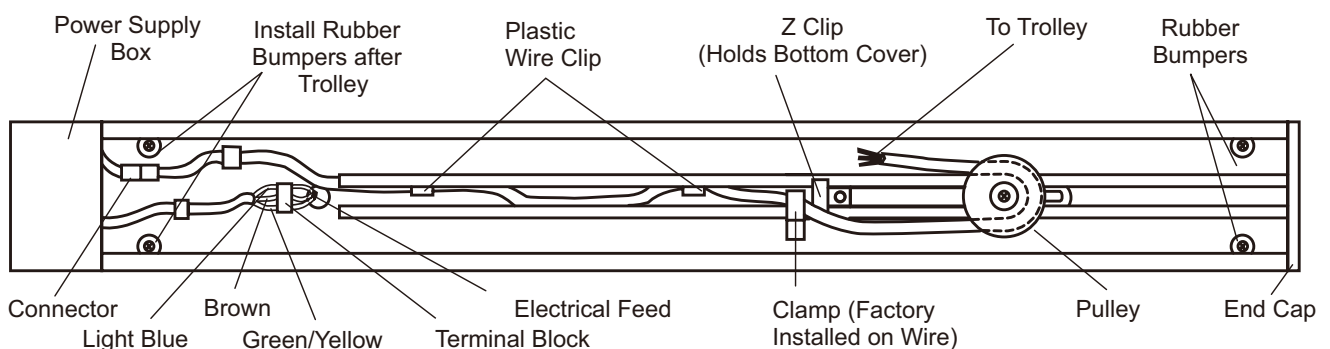


Fig.15

4. Installation Instructions

- (11) Check operation of the trolley. It is factory adjusted to provide smooth effortless travel, without play, however rollers can be readjusted if necessary. Loosen the set screw and adjust the socket cap screw to vary roller clearance.

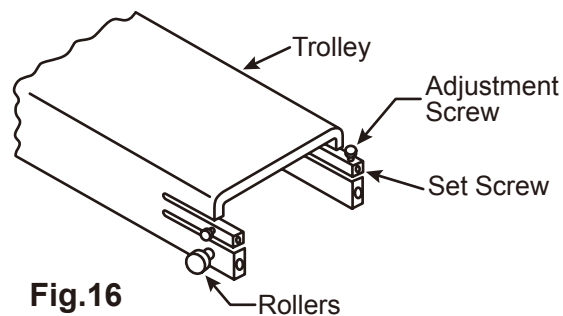


Fig.16

- (12) Unpack the power supply box / housing assembly and mount it to the track with screws provided.
 (13) Attach the pigtail leads to the corresponding power line wires at the terminal block. Retain the wires under the plastic clip.
 (14) Connect the plug-in connector to the trolley wire.
 (15) Carefully slide bottom cover onto the track from free end. Be sure to engage lip onto Z bracket.
 (16) Install the end-cap with the screws provided.
 (17) Slide the trolley back and forth, checking for binding or rubbing.
 (18) Confirm that the swing arm is properly adjusted to stay where it is placed. If necessary, move the head up or down to expose the appropriate cross drilled nut and adjust with the tool provided.
 (19) Turn on power and check electrical operation of the light.

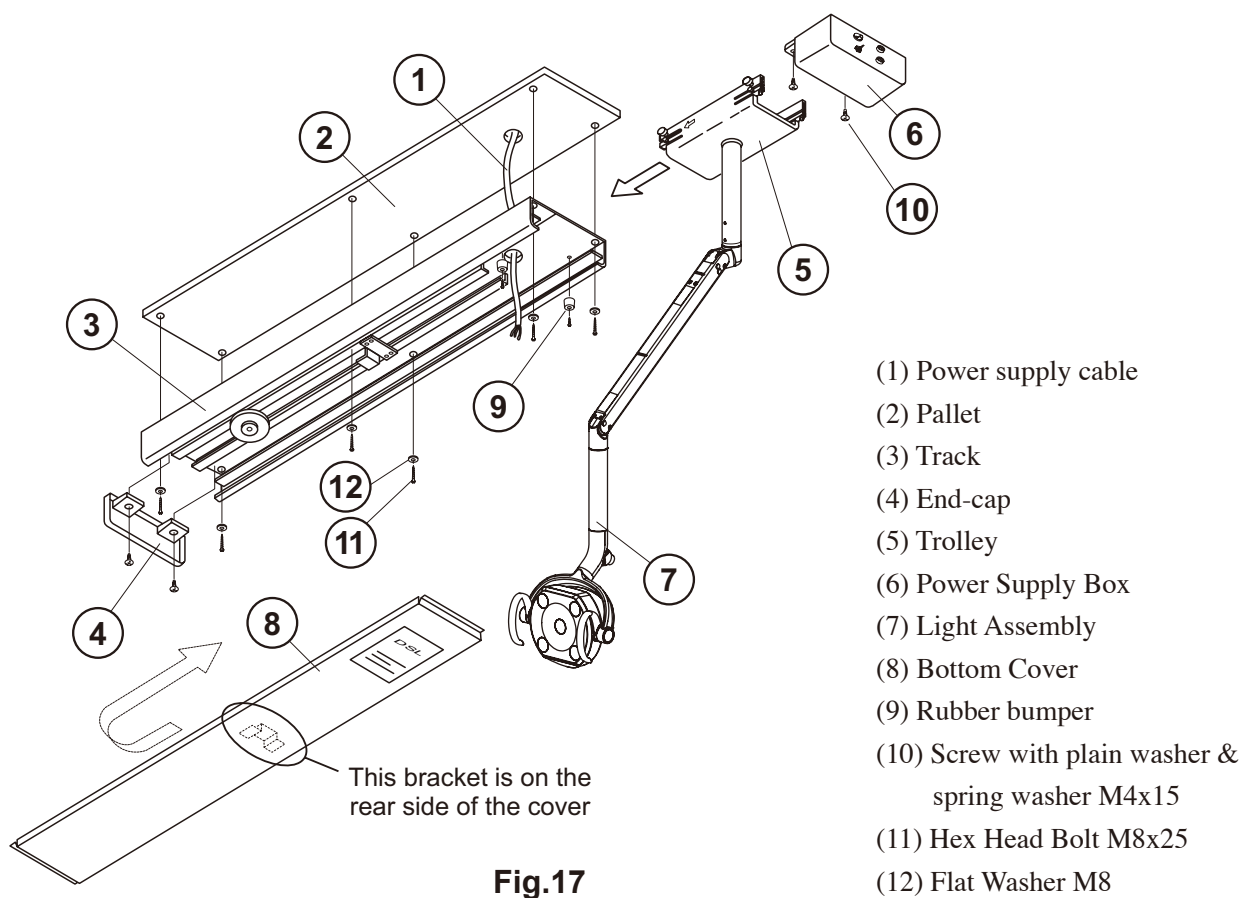


Fig.17

4. Installation Instructions

■ Check Operation of the Dental Light

When the installation process has been completed, Check that all the mechanical and electrical functions are working properly.

Item	Inspection method	Method of confirmation
Touch-less Sensor	Confirms the light ON and OFF when shake hand within approximately 65mm from the touch-less switch.	Operation Check
	Confirms switching the composite mode when hold hand within approximately 65mm from the touch-less switch for certain time.	Operation Check
Intensity control volume	During normal treatment mode, make sure the light intensity changes when turning the intensity control volume.	Operation Check
Movement of the Light	Make sure the light head stops and hold any positions. Make sure that no abnormal noise occurs when the product is operated. * At the beginning, light head movement (up/down, rotation) could be tight. This is a normal symptom. As you move light head for three four times, light movement becomes smooth.	Operation Check

! WARNING

The LED is very bright. Do not direct the LED beam into the patient's or user's eyes.

5. Adjustment

After checked operation of the dental light, adjust the dental light if you have following cases

Balance arm doesn't stay at the desired position ⇒ Adjust the tension of the balance arm. Follow instructions
[Adjustment of the tension of the balance arm]

Light head section not vertical position ⇒ Adjust the angle of the light head section. Follow instruction
[Adjustment of the angle of the light head section]

■ Adjustment of the tension of the balance arm

Position the angle of the balance arm so the tension adjustment nut becomes visible just under slot A.

Turn the nut and adjust the tension with the adjustment bar supplied with the light.(Fig.18)

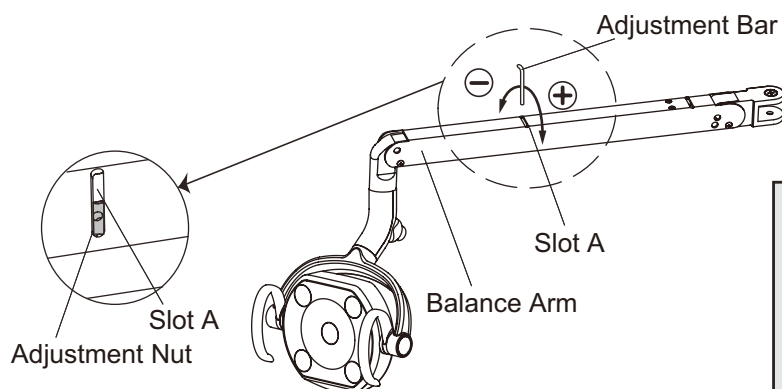


Fig.18

When the light head tends to go up,
→ Turn the nut to ⊕ direction.

When the light head tends to go down,
→ Turn the nut to ⊖ direction.

5. Adjustment

■ Adjustment of the angle of the light head section

Remove the yoke joint cover by removing the two M3 x 6 tapping screws. Move down the balance arm and loosen the set screw on the joint shaft by use of 2mm hex key wrench before adjust the angle of the light head section. (Fig.19)

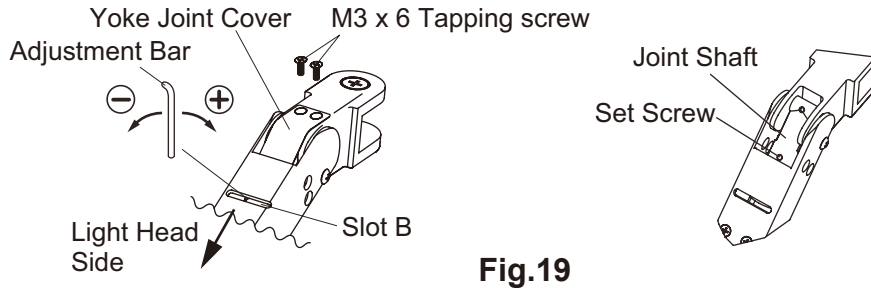


Fig.19

! CAUTION

Turning the arm nut without loosen the set screw, it may cause damage to the shaft. Make sure loose the set screw before turning the arm nut.

Position the angle of the balance arm so the head angle arm nut becomes visible just under the slot B. Turn the arm nut and adjust the tension with the adjustment bar supplied with the light. (Fig.20)

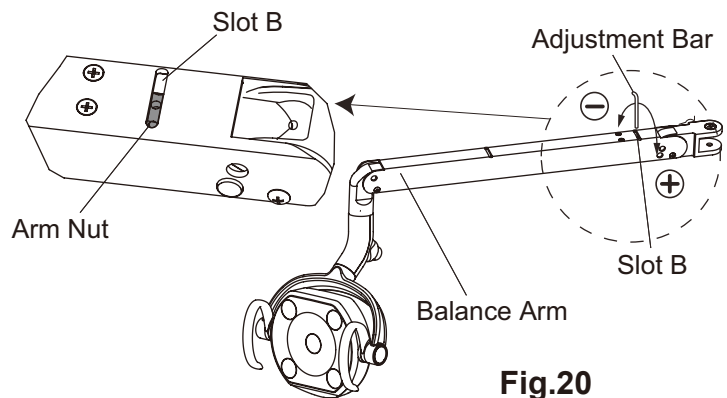
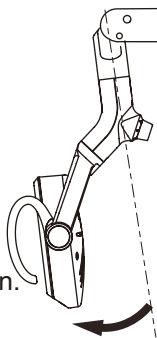


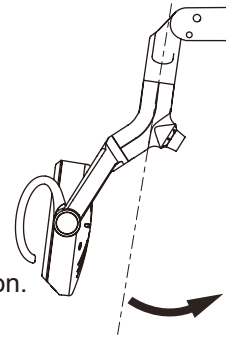
Fig.20

Adjustment of the angle of the light head section

When the light head section tends to go down,
→ Turn the nut to $\ominus$ direction.



When the light head section tends to go up,
→ Turn the nut to $\oplus$ direction.



After adjustment is done, re-tighten the set screw by use of 2mm hex wrench. Fix the joint cover with two M3 x 6 tapping screws and insert the joint cover into balance arm.

! CAUTION

Unless this socket screw is re-tightened, the angle of the head section will be changed during use.

TYPE 301 Pole Mount

TYPE 301 Pole Mount

	Setting condition	Default setting
1	Test mode (Always Off) Off: Normal operation, On: Test operation	OFF
2	Transition time to Composite mode (by a sensor) Off: 1 second, On: 2 seconds	ON
SW3	Wake-up brightness setting from light off condition. Off: 1. Composite Mode when a light is turned on by using a sensor. : 2. Keeps on getting on/off signal from dr table, light stays in composite mode. On: 1. Regular Mode when a light is turned on by using a sensor. : 2. Keeps on getting on/off signal from dr table, light goes into regular mode.	ON
	Combining dental unit Off: Clair unit, On: CP-One plus	OFF



6. Wiring Diagram

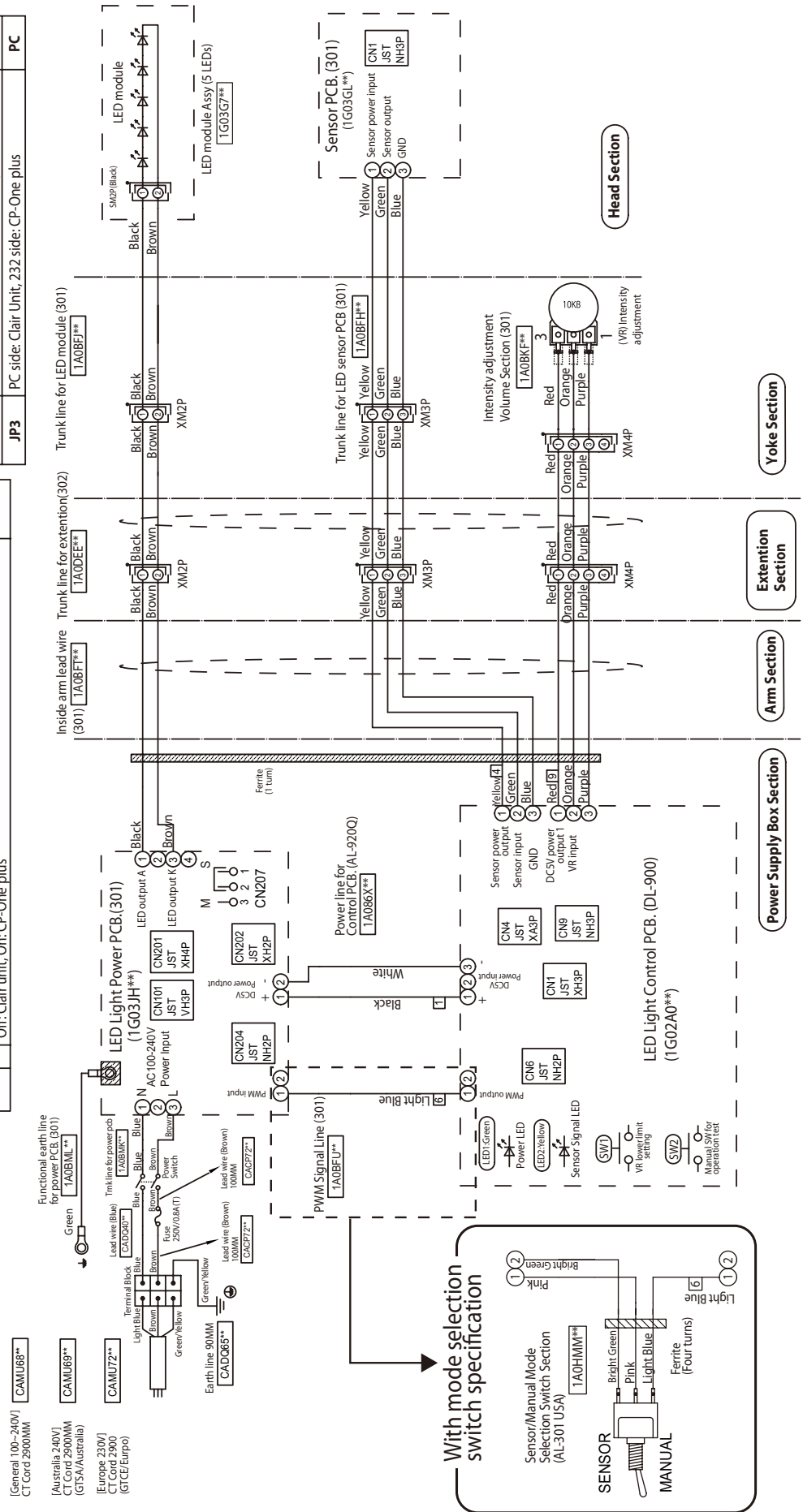
TYPE 302 Ceiling Mount

Settings of PCB dip switches (SW3,4) and jumper pin (JP3).

	Setting condition	Default setting
1	Test mode (Always OFF)	OFF
2	Off: Normal operation, On: Test operation	OFF
3	Transition time to Composite mode (by a sensor) Off: 1 second, On: 2 seconds	ON
SW3	Wake-up brightness setting from light off condition. Off: 1. Composite Mode when a light is turned on by using a sensor. On: 2. Keeps on getting on/off signal from dr table, light stays in composite mode. Off: 1. Regular Mode when a light is turned on by using a sensor. On: 2. Keeps on getting on/off signal from dr table, light goes into regular mode.	ON
4	Combining dental unit Off: Clair unit, On: CP-One plus	OFF
SW4	PC side: Clair Unit, 232 side: CP-One plus	PC
JP3	PC side: Clair Unit, 232 side: CP-One plus	PC

Remarks

Connector Symbol
SM ... SM Connector
XM ... XM Connector



6. Wiring Diagram

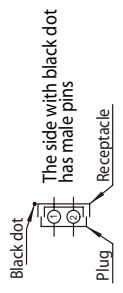
TYPE 305 Track Mount

Settings of PCB dip switches (SW3,4) and jumper pin (JP3).

	Setting condition	Default setting
1	Test mode (Always OFF) Off: Normal operation, On: Test operation	OFF
2	Transition time to Composite mode (by a sensor) Off: 1 second, On: 2 seconds	ON
3	Wake-up brightness setting from light off condition. Off : 1. Composite Mode when a light is turned on by using a sensor. On : 1. Regular Mode when a light is turned on by using a sensor. On : 1. Regular Mode when a light is turned on by using a sensor. On : 1. Regular Mode when a light is turned on by using a sensor.	ON
4	Combining dental unit. Off: Clair unit, On: CP-One plus	OFF

Remarks

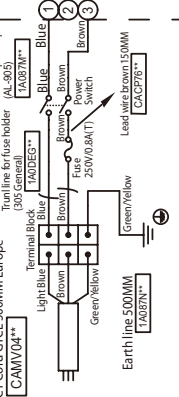
Connector Symbol
SM ... SM Connector
XM ... XM Connector



[General 100 ~ 240V]
CT Cord 500MM General
CAMV01**

[Australia 240V]
CT Cord GTS 500MM Australia
CAMV05**

[Europe 230V]
CT Cord GTS 500MM Europe
CAMV04**



Earth line 500MM
TA087N**

Lead wire brown 150MM
CACPR6**

Green/Yellow

Fuse
250V/0.8A/1

Power input
AC100-240V

Terminal Block
TA087N**

Trunk line for power PCB
TA087N**

Functional earth line
TA07X8**

Green

Blue

Brown

White

Black

Light Blue

Green/Yellow

Green

Blue

White

Black

Light Blue

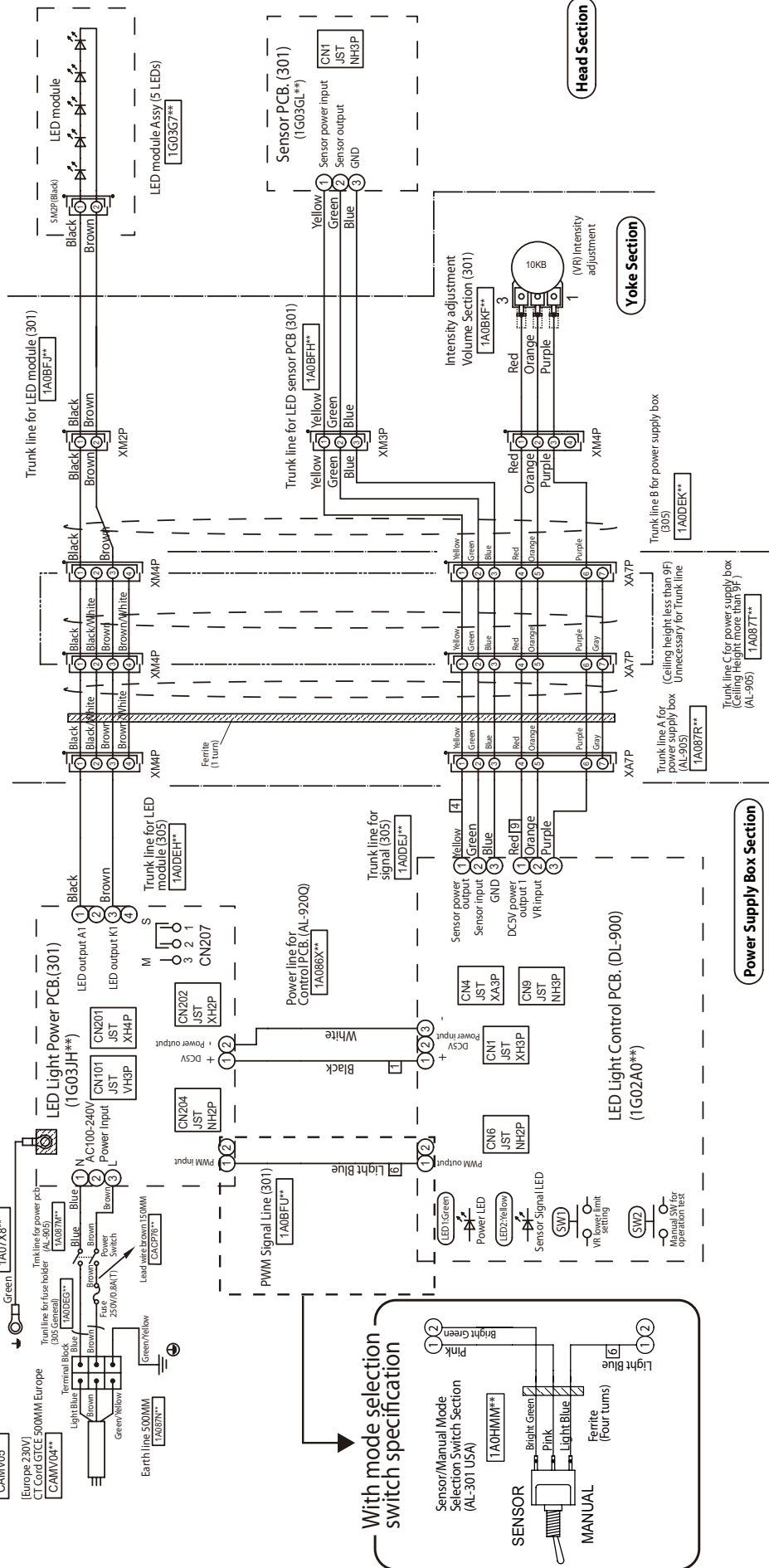
Green

Blue

White

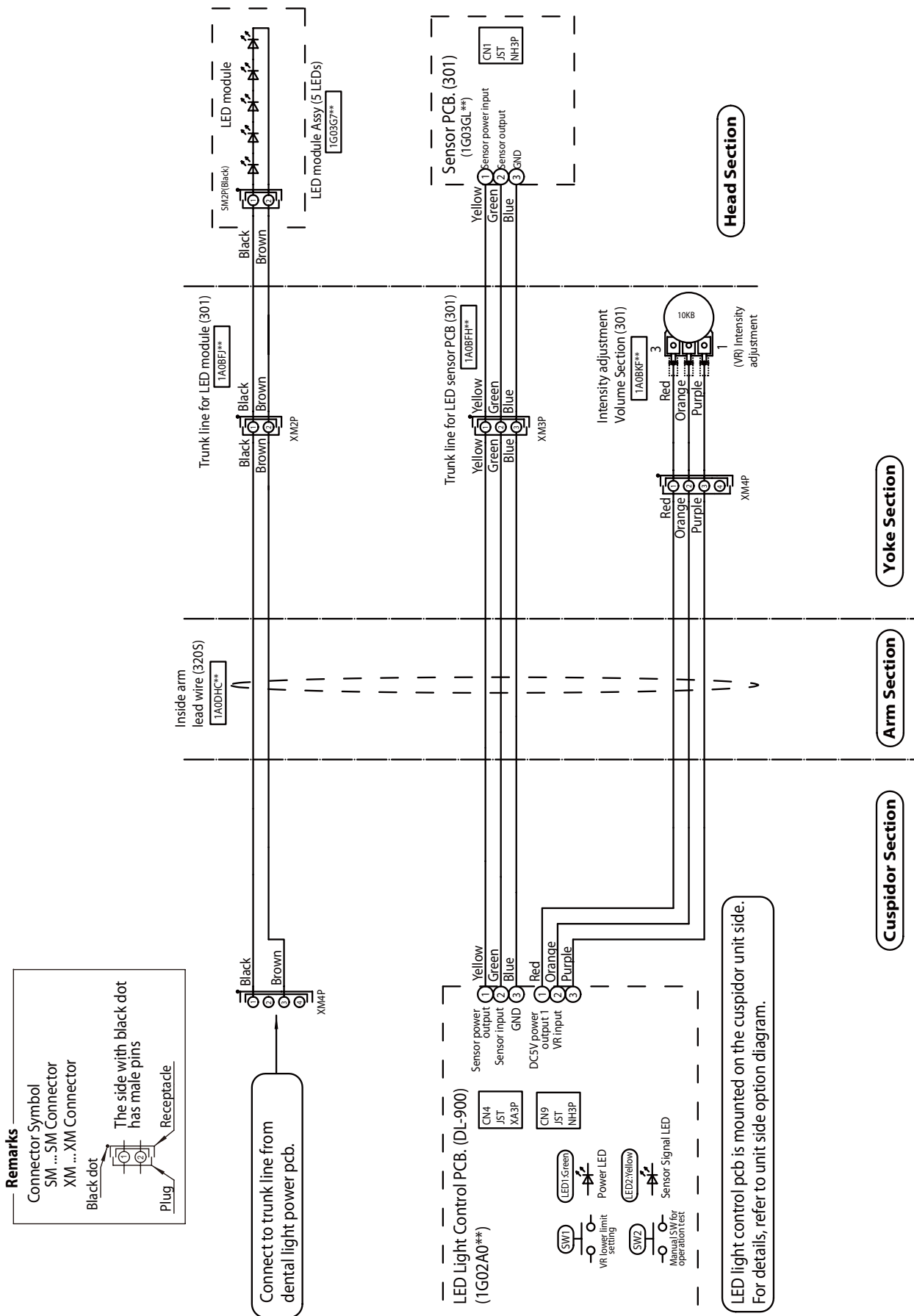
Black

Light Blue



6. Wiring Diagram

TYPE 320S Unit Mount



6. Wiring Diagram

TYPE 320PAS Unit Mount

Settings of PCB dip switches (SW3,4) and jumper pin (JP3).

	Setting condition	Default setting
1	Test mode (Always OFF) Off: Normal operation, On: Test operation	OFF
2	Transition time to Composite mode (by a sensor) Off: 1 second, On: 2 seconds	ON
3	Wake-up brightness setting from light off condition. Off: 1. Composite Mode when a light is turned on by using a sensor. :2. Keeps on getting on/off signal from dr table, light stays in composite mode. On: 1. Regular Mode when a light is turned on by using a sensor. :2. Keeps on getting on/off signal from dr table, light goes into regular mode.	ON
4	Combining dental unit Off: Clair unit, On: CP-One plus	OFF

	Setting condition	Default setting
5	Sensor activation setting Off: Activate when a hand goes away. On: Activate when a hand comes in.	OFF
6	Includes Composite Mode Off: Yes, On: No	OFF
7	Speed setting of communication line Off: 4800bps, On: 2400bps	OFF
8	LED blink setting of Composite Mode Off: Slow blinking, On: Rapid blinking	OFF

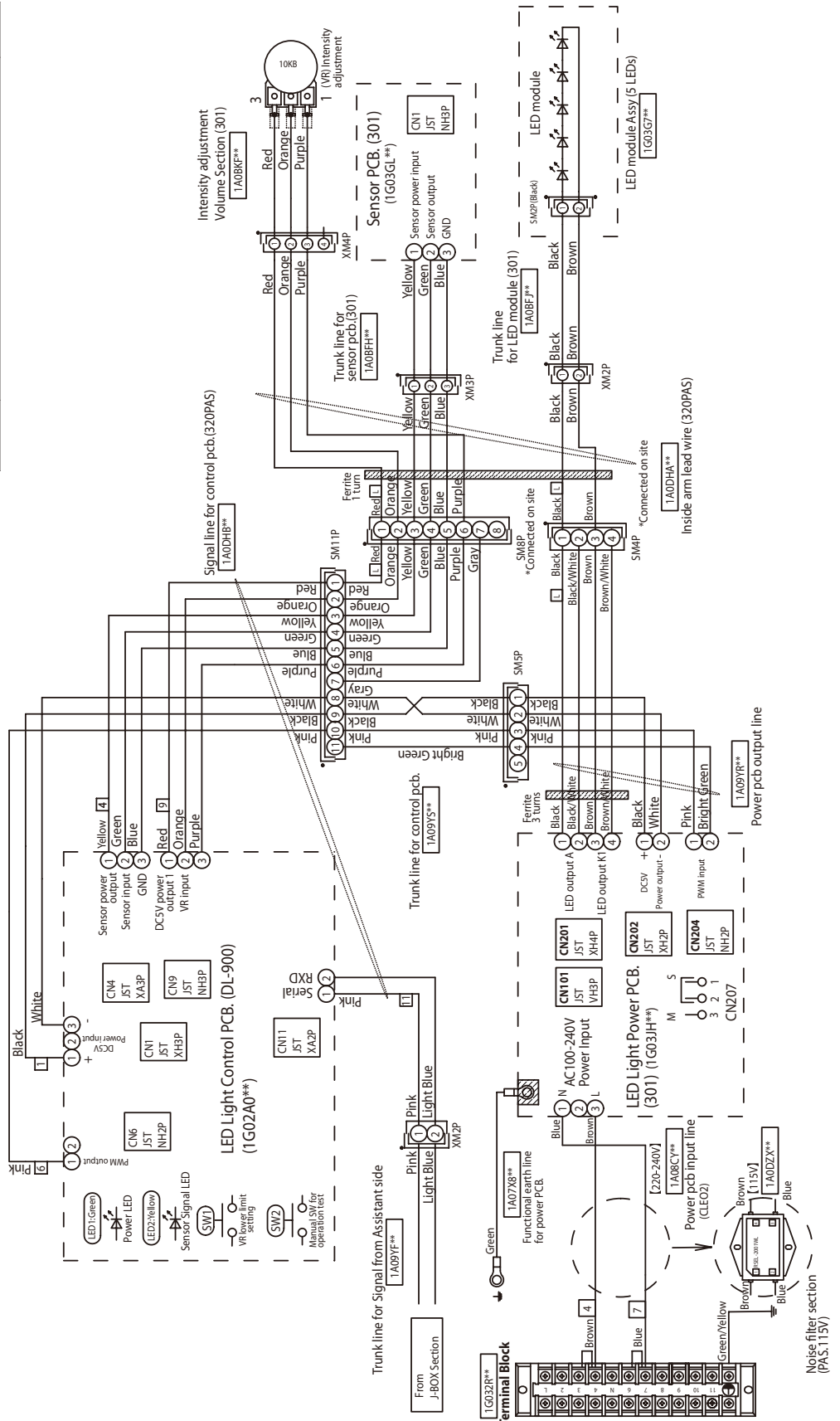
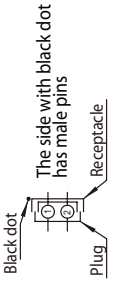
SW3

SW4

JP3

Remarks

Connector Symbol
SM ... SM Connector
XM ... XM Connector



NOTE



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