

PHILIPS

Strand Lighting

S21™ IGBT Dimmer Box



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Document Number: 2-450184-020

Version as of: May 11, 2009

S21™ IGBT Dimmer Box Up & Running Guide

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Important Safeguards

When using electrical equipment, basic safety precautions should always be followed including the following:



- a. **READ AND FOLLOW ALL SAFETY INSTRUCTIONS.**
- b. Do not use outdoors.
- c. Do not mount near gas or electric heaters.
- d. Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- e. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- f. Do not use this equipment for other than intended use.
- g. Refer service to qualified personnel.

SAVE THESE INSTRUCTIONS.



WARNING: You must have access to a main circuit breaker or other power disconnect device before installing any wiring. Be sure that power is disconnected by removing fuses or turning the main circuit breaker off before installation. Installing the device with power on may expose you to dangerous voltage and damage the device. A qualified electrician must perform this installation.

WARNING: Refer to National Electrical Code® and local codes for cable specifications. Failure to use proper cable can result in damage to equipment or danger to persons.

CAUTION: Wire openings **MUST** have fittings or lining to protect wires/cables from damage. Use 75° C copper wire only! Aluminum wire may not be used.

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PREFACE

About this Guide

The document provides installation instructions for the following S21™ products:

- 71420 6 x 1200W, 450μs Dimmer Plug Box with GP connectors
- 71421 6 x 1200W, 450μs Dimmer Plug Box with GTL connectors
- 71422 6 x 1200W, 450μs Dimmer Plug Box with GR connectors
- 71423 3 x 2400W, 800μs Dimmer Plug Box with GP connectors
- 71424 3 x 2400W, 800μs Dimmer Plug Box with GTL connectors
- 71425 3 x 2400W, 800μs Dimmer Plug Box with GR connectors

Load Connector Types:

- GP – Grounded Stage Pin
- GTL – Twistlock
- GR – Edison NEMA 5-20R

Please read all instructions before installing or using this product. *Retain this guide for future reference.*



IMPORTANT INFORMATION. PLEASE READ!

This unit is intended for installation in accordance with the National Electric Code® and local regulations. It is also intended for indoor applications only. Before any electrical work is performed, disconnect power at the circuit breaker or remove the fuse to avoid shock or damage to the control. It is recommended that a qualified electrician perform this installation.

What You Should Have

The following items and materials are required in order to successfully install and operate this equipment.

- S21 Dimmer Box Operating Instructions & Installation Guide.
- 71420, 71421, 71422, 71423, 71424, or 71425 Dimmer Box.
- DMX512 data cable.

If you are missing any of these items, contact your dealer, or the person who provided your system.

PHYSICAL INSTALLATION

S21™ IGBT Dimmer Boxes may be mounted in any orientation, provided that the front and back panels are kept open to allow airflow. These units are fan cooled, and all air inlet and exhaust ports must be kept open and free of obstruction at all times. The handle of the IGBT Dimmer Box enclosure is drilled to accept two standard "C" clamps to allow the unit to be hung from a pipe.

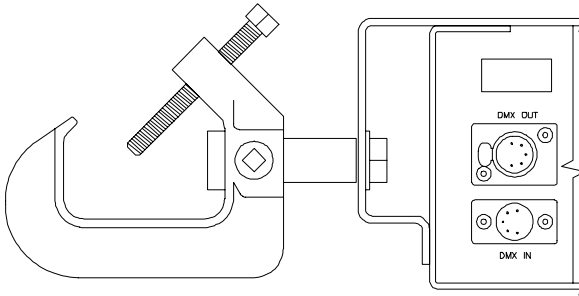


Figure 1: Cross-Section of S21 Dimmer Box Enclosure



WARNING: In all cases where an S21 Dimmer Box is hung above personnel, it must be equipped with safety cables or chains to prevent it from falling should the mounting means fail!

CONNECTING POWER

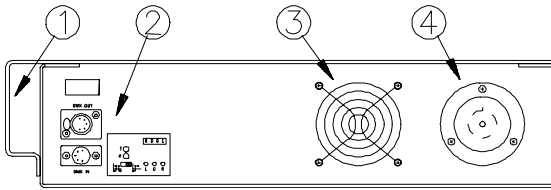


Figure 2: S21 Dimmer Box Components

- ① Carry Handle
- ② Head-End Processor & DMX512 Connectors
- ③ Fan (Air Inlet)
- ④ Power Inlet Connector

Strand Lighting Portable IGBT Dimmer Box

Power is connected to these models simply by plugging an extension cable into the power inlet connector. Use cables provided by Strand Lighting, or construct your own using 10/5 Type SO cable and NEMA L21-20 connectors. Follow the connection chart shown below.

Conductor	Wire	Connector
Phase A	Black	X or A
Phase B	Red	Y or B
Phase C	Blue or Orange	Z or C
Neutral	White	W or N
Ground	Green	G

CONNECTING DMX512

Make DMX512 connections via the 5-pin XLR connectors on the Head-End Processor panel. Use commercially manufactured DMX512 cables, or build your own using Belden type 9829 cable. Cable must be listed for RS-485 applications. Do not substitute other cable types.

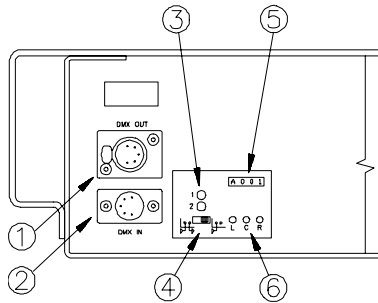


Figure 3: Head-End Processor for S21 Dimmer Box

- ① DMX512 Pass-Through Connector. Connect the DMX cable that is carrying data on to other dimmers here.
- ② DMX512 Input Connector. Connect the DMX cable that is bringing data from your control console here.
- ③ Red LED Error indicators.
- ④ DMX512 Termination Switch. Set to left hand position if unit is in the middle of the DMX cable run. Set to right hand position if unit is at the end of the DMX cable run.
- ⑤ Four-digit LED Display. Used for setting DMX512 address and other configuration options.
- ⑥ Function Select Push Buttons. Used for setting DMX512 address and other configuration options (see next page).

DMX512 Connector Pin-out:

Pin	Signal Name
1	Common (Shield)
2	Dimmer Drive -
3	Dimmer Drive +
4	Talkback -
5	Talkback +

SETTING THE DMX512 ADDRESS

Each S21™ IGBT Dimmer Box must have a unique DMX512 address. Addresses may be set in increments of three. The first valid address is 001. The second is 004. The third is 007, etc.

Addresses must be set so that dimmer numbers do not overlap. If the unit at address 001 has six dimmers, then the next unit must be set to address 007. If the unit at address 007 has only three dimmers, then the next unit after it should be set to address 010.

Unit addresses do not have to follow the order in which units are connected to the DMX cable. They simply need to be unique, and non-overlapping.

The DMX512 address is set with the 'L', 'C', and 'R' buttons and the display on the Head-End Processor.

Step 1. Press the 'L' button once. This places the display in the "Display/Set Address" mode (indicated by "A" in the left-most digit). The right three digits show the current address setting.

A 0 0 1

Step 2. Press the 'C' button to increase the address by three. Press the 'R' button to decrease the address by three.

Step 3. When the display shows the correct address, press the 'L' button again. The address is now set.

The display will blank after about one minute.

The address is retained even when the power is off. The address may be changed at any time simply by following the above steps.

DIMMER BOXES AND ACCESSORIES

S21 Dimmer Plug Box, 120 Volt:

- 71420 6 x 1200W, 450µs Dimmer Plug Box with GP connectors
- 71421 6 x 1200W, 450µs Dimmer Plug Box with GTL connectors
- 71422 6 x 1200W, 450µs Dimmer Plug Box with GR connectors
- 71423 3 x 2400W, 800µs Dimmer Plug Box with GP connectors
- 71424 3 x 2400W, 800µs Dimmer Plug Box with GTL connectors
- 71425 3 x 2400W, 800µs Dimmer Plug Box with GR connectors

Accessories:

- 71430 2 ft. AWG #10/5 power input cable with L21-20P plug
- 71431 4 ft. AWG #10/5 power input cable with L21-20P plug
- 71432 6 ft. AWG #10/5 power input cable with L21-20P plug
- 71433 8 ft. AWG #10/5 power input cable with L21-20P plug
- 71434 12 ft. AWG #10/5 power input cable with L21-20P plug
- 71435 4 ft. AWG #10/5 power extension cable with L21-20P GTL plugs
- 71436 6 ft. AWG #10/5 power extension cable with L21-20P GTL plugs
- 71437 8 ft. AWG #10/5 power extension cable with L21-20P GTL plugs
- 71438 12 ft. AWG #10/5 power extension cable with L21-20P GTL plugs

Mounting Hardware:

- 82019 Pipe C-Clamp
- 71442 Wall Mount Strip Hanger (2 required per box)

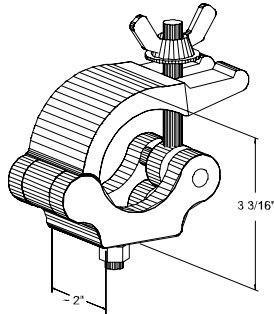
TECHNICAL INFORMATION

Number of dimmers:	6 -1.2kW or 3 – 2.4kW dimmers
Max output voltage:	115./120 volts
Minimum load:	1 watt
Maximum load per dimmer:	1.2kW or 2.4kW
Insert loss:	Max 2.5 volts
Power feed:	3-phase 4 wire 120/208 volts 20 amps; Terminal block or optional cord kits available
Frequency:	50/60Hz
Ambient temperature:	0-40 degrees C
Humidity:	5%-95% Non condensing
Cooling:	Low-noise fan
Dimensions:	4.625" (H) x 13" (D) x 19.75 (W)
Weight:	6 dimmer:22 lbs (10 kg) 3 dimmer: 18 lbs (8.2 kg)
Load Connector Types:	GP – Grounded Stage Pin GTL – Twistlock GR – Edison NEMA 5-20R
Compliance:	UL, cUL listed

MOUNTING HARDWARE

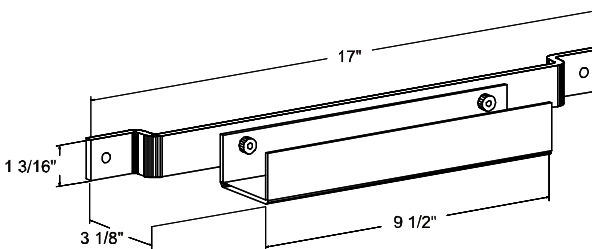
Cheesbro Style Clamp: 71351

The 71351 Cheesbro Style Mounting Clamp is used to mount an S21 Dimmer Plug Box above either a 1½" schedule 40 pipe or a 2" aluminum tube (truss). The Cheesbro Clamp allows Dimmer Plug Boxes to be quickly relocated. (Two Cheesbro Style Mounting Clamps are required for each Dimmer Plug Box.)



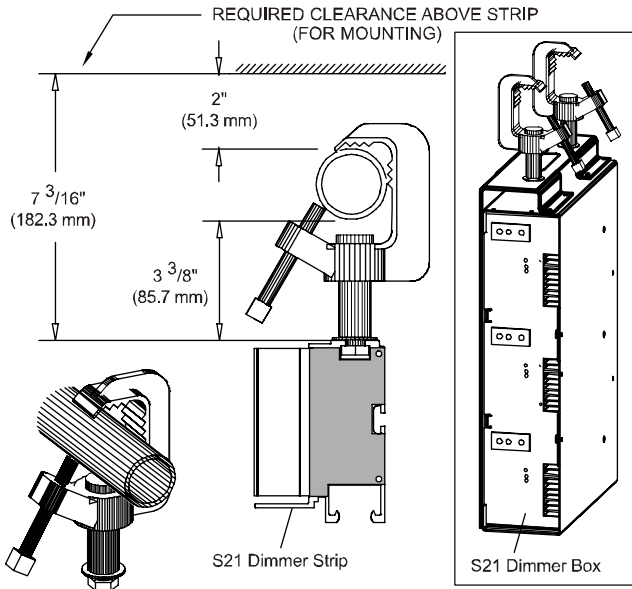
Wall Mount Hanger: 71344

The 71344 Wall Mount Hanger is used to permanently mount an S21 Dimmer Plug Box to a wall.



"C" Style Clamp: 82019

The 82019 "C" Style Mounting Clamp is used to mount S21 Dimmer Strips or Boxes beneath a 1½" schedule 40 pipe or a 2" aluminum tube (truss). This clamp style leaves the bottom unistrut mounting channel free to attach fixtures to the dimmer strip. The "C" Style Clamp allows Dimmer Strips to be quickly relocated. (Two "C" Style Clamps are required to mount an S21 Dimmer Strip or Box.)



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Part No. 2-450184-020