Installation Instructions

Dimmer Power Module - SYPMB 6DB1 through 5

READ AND FOLLOW ALL SAFETY INSTRUCTIONS!
SAVE THESE INSTRUCTIONS AND DELIVER TO OWNER AFTER INSTALLATION

IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING
To reduce the risk of death, injury or property damage from fire, electric shock, cuts, abrasions, falling parts, and other hazards:

- Service of the equipment must be performed by qualified service personnel.
- Installation and maintenance must be performed by a person familiar with the construction and operation of this product and any hazards involved. All applicable codes and ordinances must be followed.
- Read this document before installing, servicing, or maintaining this equipment. These instructions do not cover all installation, service, and maintenance situations. If your situation is not covered, or if you do not understand these instructions or additional information is required, contact *Synergy Lighting Controls.*

⚠ WARNING
Before installing, servicing, or maintaining this equipment, follow these general precautions.

To reduce the risk of electrocution:

- Make sure the equipment is properly grounded.
- Always de-energize any equipment before connecting to, disconnecting from, or servicing the equipment.

To reduce the risk of fire:

- Use supply conductors with a minimum installation temperature rating as specified.

To reduce the risk of personal injury from cuts, abrasions:

- Wear gloves to prevent cuts or abrasions from sharp edges when removing from carton, handling and maintaining this equipment.
- Do not install a damaged equipment.

Synergy Lighting Controls, a division of *Acuity Brands* Inc., assumes no responsibility for claims arising out of improper or careless installation or handling of this product.

SAVE THESE INSTRUCTIONS

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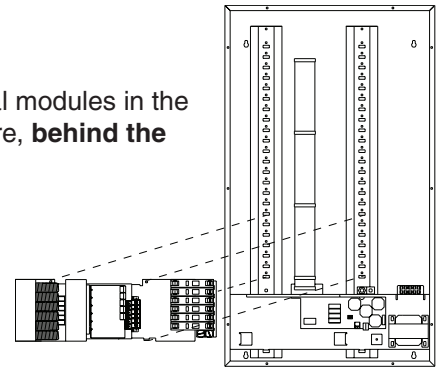
Dimmer Module Quick Setup Guide

Refer to the instructions on the following pages for complete details on the steps outlined below.

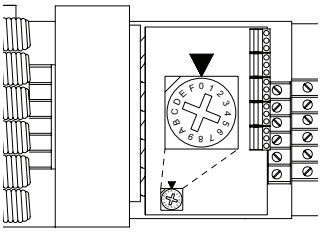


1 Install the dimmer modules in the enclosure.

Install the first module in the bottom position, as shown, then install additional modules in the positions above. Make sure the ribbon cable stays at the rear of the enclosure, **behind the installed modules.**

2 Set Each Module Address to a Unique Address

Rotate the address wheel to set the ID. Set the ID of the top module at "1" (as shown), the second at "2" and so on.



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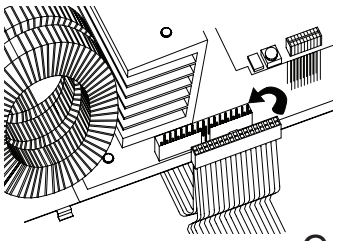

Connect the Ribbon Cable to Each Module

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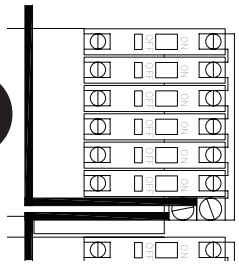
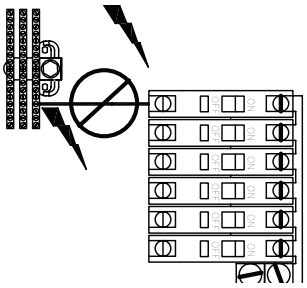


Connect the Power Feed Wiring to the Input Lugs

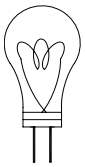
The lugs accept #14 - 2/0 AWG conductors. Use the second lug to tap feed additional modules



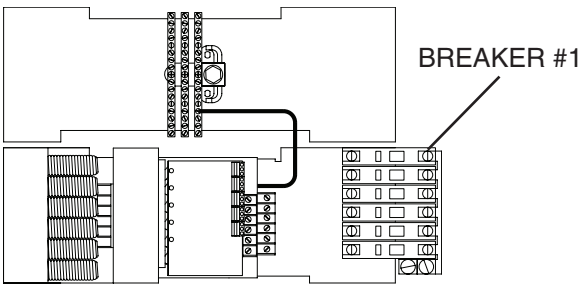
5 Test for Short Circuits in Load Wiring

Test for short circuits in load wiring **PRIOR** to connecting load to dimmer output

6



Connect Load Wiring as Shown in Figure 3



7 Connect Dimmer Module Neutral Wire

Connect the dimmer module white neutral pigtail to the neutral bar, which is also installed in the enclosure.

8 Test Dimmer Module Operation

Turn on the cabinet power supply. Energize the module by turning on module breaker #1, then turn on all remaining

module breakers. Use the ON/AUTO/OFF switch to test the module. All module outputs should turn ON when the switch is in the right-most (ON) position and OFF when the switch is in the left-most (OFF) position. When testing is complete return the switch to the AUTO (Center) postion.The ON/AUTO/OFF switch MUST be in the AUTO

9 Connect Any Low Voltage Wiring (If Required) as Shown in Figure 2

Installation Instructions

Dimmer Power Module - SYPMB 6DB1 through 5

Before You Start

1. Always disconnect all power.
2. Install in accordance with the National Electrical Code and any other codes which may apply.
3. Use only as intended.
4. Use only accessories recommended by Lithonia Control Systems.
5. Use 6DB1 and 6DB3 modules for 120 VAC circuits; 6DB2 and 6DB4 modules for 230 or 277 VAC circuits.

Important Module Installation Notes

1. Dimmer modules must be installed in the cabinet starting at the bottom. **Plug the ribbon cable into each module before installing the next module**. **RIBBON CABLE INSTALLS BEHIND MODULE.**
2. Verify that the load type being connected is compatible with the dimmer module type and capacity as listed on module label.
3. Each module **MUST** be fed with a **single phase.**
3. Test all branch circuits for short circuits **prior** to energizing module.
4. Dimmer output terminal block specifications:
   (1) #10, #12, #14 AWG or (2) #12, #14 AWG conductors maximum.
   Input and feed-through lug specification:
   (1) #14 through #2/0 AWG conductor.
   Class 2 input terminal block specifications:
   (1) # 22 through # 18 AWG conductor.

Note:

Each circuit (dimmer) requires a minimum load of 50VA. (This does not apply to un-used dimmers)

Module Installation and Wiring

1. INSTALL NEUTRAL OR MAIN DISTRIBUTION MODULES
   Mount main lug, main breaker and/or neutral bar power modules starting at the top of the cabinet. See *Figures 4,5 and 6* for typical feed wiring configurations. If SYPMB ML and SYPMB MN distribution modules are being used, refer to the installation instructions furnished with those modules or the optional Synergy supplied As-Built drawings for job specific installation and wiring details.
2. MOUNT FIRST DIMMER MODULE
   Begin at the **BOTTOM** module position of the cabinet and mount the module by setting the bottom tabs in the slots at the back of the cabinet, and securing the top with the screws provided.
3. SET MODULE ID AND CONNECT RIBBON CABLE
   Rotate the dimmer card ID switch to the position indicated on the label on the side of the cabinet or as shown in Synergy supplied As-Built drawings. (See *Figure 1)* Plug the male connector on the ribbon cable into the female socket on the relay module. **Ribbon cable installs behind the modules.**
4. Repeat steps 2 & 3 for additional modules, incrementing the dimmer card ID switches by 1 from the top of the cabinet down.
5. PROVIDE PRIMARY POWER WIRING TO MODULE INPUT LUG AND CONNECT LOADS
   Each module MUST be fed with a single phase input circuit. Each input circuit should be connected to each module using an appropriately sized conductor. Use the module's feed through lug to connect additional modules to the same phase input circuit. See *Figures 4, 5 and 6* for typical feed wiring configurations. Make load wiring connections for the appropriate module type as shown in *Figure 3*. Refer to the optional Synergy supplied As-Built drawings for job-specific details. **Test for short circuits prior to energizing module.** Torque terminal block screws to 7 inch-lbs.
6. CONNECT DIMMER MODULE NEUTRAL
   Trim, strip and connect the factory attached white neutral wire on the module to the neutral bar.
   Note: This neutral wire and the #1 circuit breaker provide control power to the module.

Module Installation and Wiring Cont.

7. CONNECT LOW VOLTAGE INPUT WIRING
   Terminate wiring from dry contact closure and analog input devices on the class 2 terminal blocks shown in *Figure 2*. Refer to the accessory instructions, project specifications, or optional Synergy supplied As Built drawings for additional wiring details.
8. START-UP POWER MODULES TO ALLOW MANUAL LIGHTING CONTROL
   Following this procedure step by step will reduce the chance of equipment damage resulting from the dimmer closing on a short circuit.
   The dimmer module warranty is void if a dimmer is energized while connected to a short circuit.

   1. Turn off power to the main feed.
   2. Verify the module "manual override switch" is in the ON position. (See *Figure 1)*
   3. Turn on the circuit breaker for the cabinet power supply.
   4. Energize the main feed. If a circuit breaker trips when the main feed in energized, turn off all power and remove the short circuit.

   Use the manual override switch for convenient ON/OFF overide of the connected loads until the system has been programmed. The manual override switch MUST be in the AUTO position for normal system operation and control from the system controller and low voltage inputs.
9. DIMMER MODULE CONFIGURATION
   The dimmer modules are fully programmable with the addition of the system controller. The controller must be used to set dimmer curves for loads other than incandescent. Refer to the system controller installation instructions and Synergy Operation Manual for more information.

Troubleshooting Procedures

If the dimmer outputs do not come on follow these steps:

1. Verify the correct voltage is present between the INPUT LUG and the NEUTRAL BUSS.
2. Verify the dimmer module neutral (white) lead is connected to the NEUTRAL BUSS.
3. Verify the cabinet power supply LEDs are on and the RIBBON CABLE is properly connected to the power supply and the module.
4. Verify the module CIRCUIT BREAKERS are in the ON position. **Breaker number one MUST be ON to energize the dimmer module electronics.**
5. Verify voltage is present on the output of the CIRCUIT BREAKERS.
6. Verify the Zero Cross LED (ZX) on the dimmer module is on and blinking rapidly. (See *Figure 1)*
7. Switch the MANUAL OVERRIDE SWITCH on the dimmer module to “ON”. All loads and DIMMER STATUS LEDs should turn on.
8. Check for voltage on the appropriate OUTPUT TERMINAL BLOCK connections.
   NOTE: Perform this test with a load connected to the output terminal block. False voltage readings may be present without a load connected.

   If after performing the above tests one or more circuits still do not turn on, contact Synergy Lighting Controls Service department between the hours of 8 AM and 5 PM EST, Monday - Friday, at 800-533-2719. If the dimmer is found to be defective, replace the electronic control assembly with Synergy part number **SYRP 6D 120** (120 VAC) or **SYRP 6D 277** (277 VAC).

Visit Synergy Lighting Controls on the internet at **http://www.synergylightingcontrols.com** for further information on products, technical data or installation instructions.

Warranty

Synergy Lighting Controls warrants all equipment to be free from defect in manufacturing under normal and proper storage, installation, and operation for a period of one (1) year. Our guarantee liability extends only to the repair or replacement of the defective part and no labor charges for correction of the defect by repair or replacement will be honored by Synergy Lighting Controls unless prior written authorization has been granted by our Customer Service Department.

Electronic Control Module Assembly Removal

1. Turn off power to the Synergy cabinet.
2. Remove the dimmer cabinet door.
3. Identify the bad dimmer module (see Troubleshooting Procedure).
4. Record the setting of the DIMMER CARD ID SWITCH from the dimmer module to be replaced.
5. Disconnect the ribbon cable from dimmer module.
6. Remove the 6 INPUT LEADS (BLACK) from the CIRCUIT BREAKERS. Each wire installs in a specific location and is numbered to identify its location, 1 - 6. However, the numbers are small and you may wish to add additional numbering to the wires **before** removal as an aid when reinstalling.
7. Remove the LOW VOLTAGE INPUT TERMINAL BLOCK (if installed) by grasping the terminal block and pulling it up and away from the circuit board.
8. Remove the REMOTE OVERRIDE (RO) TERMINAL BLOCK (if installed) by grasping the terminal block and pulling it up and away from the circuit board.
9. Completely loosen the 6 screws on the TOROID FILTER TERMINAL BLOCK located between the heat sink and the toroids. (See *Figure 1)*
10. Remove the dimmer module neutral (WHITE) lead from NEUTRAL BUSS.
11. Disconnect the RIBBON CABLE from the module.
12. Unscrew the 2 captive mounting screws located on each side of the DIMMED OUTPUT TERMINAL BLOCK. (See *Figure 1)*
13. After the 2 captive mounting screws have been loosened, the electronic control module assembly can be moved toward the circuit breakers. Slide it toward the breakers, then lift up on the heat sink and remove the assembly from the module.

Electronic Control Module Assembly Installation

1. On the new module control assembly, completely loosen the 6 screws on the TOROID FILTER TERMINAL BLOCK located next to the heat sink.
2. Make sure the existing WIRE LEADS from the toroids are straight and have not been bent during disassembly.
3. Orient the electronic control module assembly so the heat sink is facing the toroids.
4. Place the assembly over the two chassis rails, then slide the assembly towards the toroids. **The protruding wire leads from the toroids MUST properly align and insert into the toroid filter terminal block.**
5. Tighten the 2 captive mounting screws located on each side of the DIMMED OUTPUT TERMINAL BLOCK.
6. Tighten the 6 screws on the TOROID FILTER TERMINAL BLOCK located between the heat sink and the toroids.
7. Reconnect the 6 INPUT LEADS (BLACK) to the CIRCUIT BREAKERS. The leads are marked 1 to 6 and **MUST** be connect to the correct CIRCUIT BREAKERS. The Breakers are numbered 1 to 6 from top to bottom. Torque the breaker screws per the specifications printed on the breaker labels. **Failure to install each input lead into the correct breaker will result in faulty system operation.**
8. Install the LOW VOLTAGE INPUT TERMINAL BLOCK (if required) by aligning the block over the header pins and pushing down.
9. Install the REMOTE OVERRIDE (RO) TERMINAL BLOCK (if required) by aligning the block over the header pins and pushing down.
10. Cut the dimmer module neutral (WHITE) lead wire to the appropriate length, strip 1/4", and connect it to the NEUTRAL BUSS.
11. Set the address on the new module by matching the DIMMER CARD ID SWITCH setting to the setting from the old dimmer module. **Failure to set the correct address will result in faulty system operation.**
12. Reconnect ribbon cable to dimmer module.
13. Perform module start-up. See the START-UP POWER MODULES TO ALLOW MANUAL LIGHTING CONTROL section for details.
14. Replace the cabinet door.

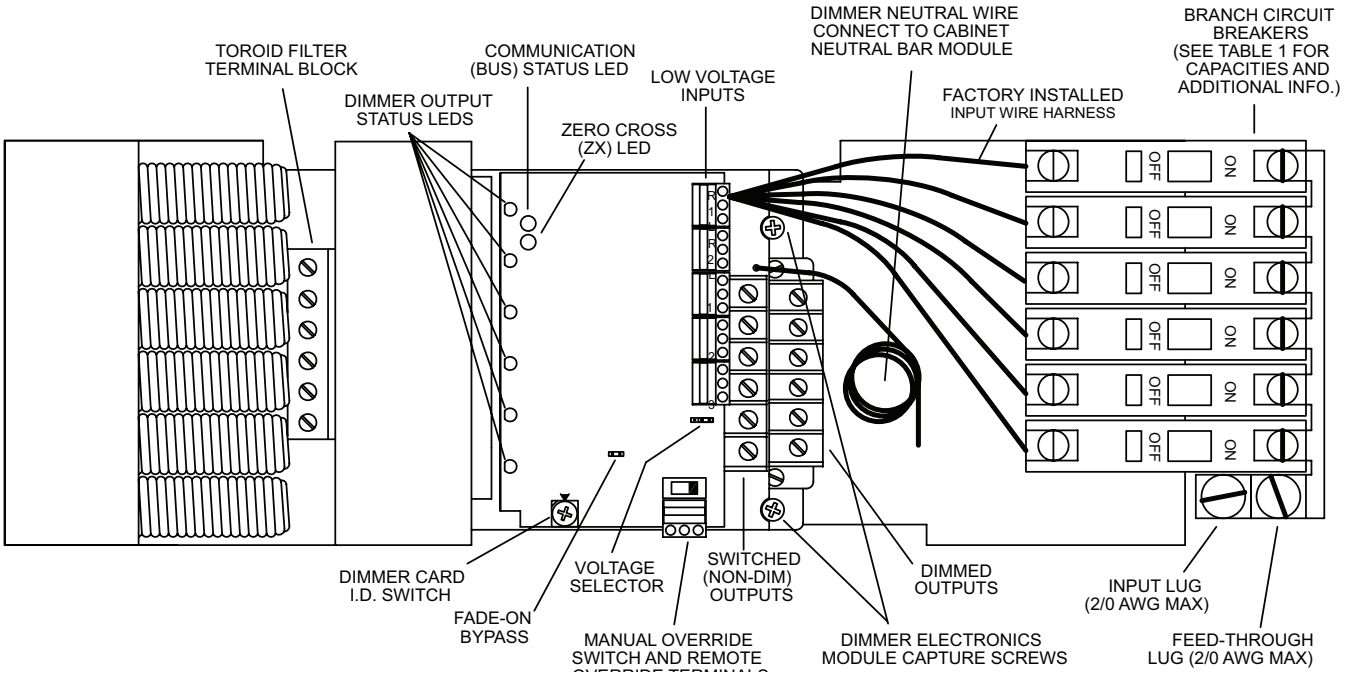


Figure 1 - Dimmer Module Layout

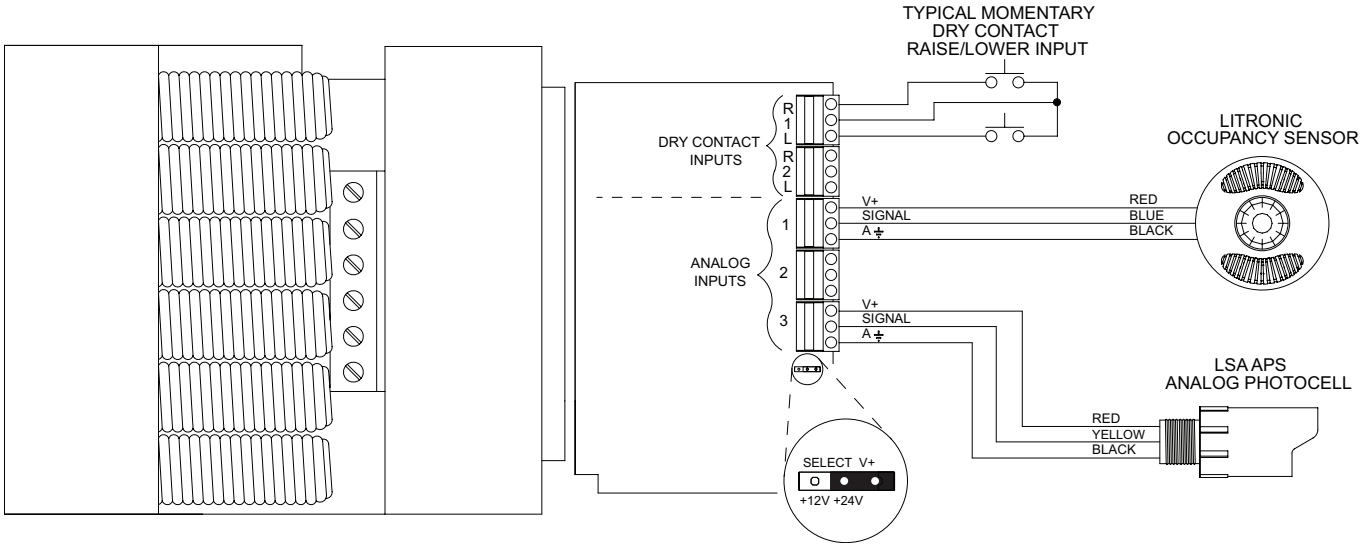


Figure 2 - Low Voltage Class 2 Inputs - Wiring Details

SYPMB 6DB1

Six 120V, 20A, 10,000 AIC Breakers		
Module Capacity = 10,000 VA		
Breaker	Feeds Dimmer(s)	Capacity
1 (Top)	1	16A
2	2	16A
3	3	16A
4	4	16A
5	5	16A
6	6	16A

SYPMB 6DB3

Six 120V, 15A, 10,000 AIC Breakers		
Module Capacity = 8,640 VA		
Breaker	Feeds Dimmer(s)	Capacity
1 (Top)	1	12A
2	2	12A
3	3	12A
4	4	12A
5	5	12A
6	6	12A

SYPMB 6DB5

Four 120V, 20A, 64,000 AIC Breakers		
Module Capacity = 7,680 VA		
Breaker	Feeds Dimmer(s)	Capacity
1 (Top)	1	16A
2	2	16A
3	3	16A
	4	Total
4	5	16A
	6	Total

SYPMB 6DB2

Four 277V, 20A, 14,000 AIC Breakers		
Module Capacity = 17,500 VA		
Breaker	Feeds Dimmer(s)	Capacity
1 (Top)	1	12.5 Amps
2	2	12.5 Amps
3	3	12.5 A ea.
	4	16 A Total
4	5	12.5 A ea.
	6	16 A Total

SYPMB 6DB4

Four 277V, 15A, 14,000 AIC Breakers		
Module Capacity = 13,300 VA		
Breaker	Feeds Dimmer(s)	Capacity
1 (Top)	1	12 Amps
2	2	12 Amps
3	3	12 A ea.
	4	12 A Total
4	5	12 A ea.
	6	12 A Total

Table 1 - Available Dimmer Module Configurations and Capacities

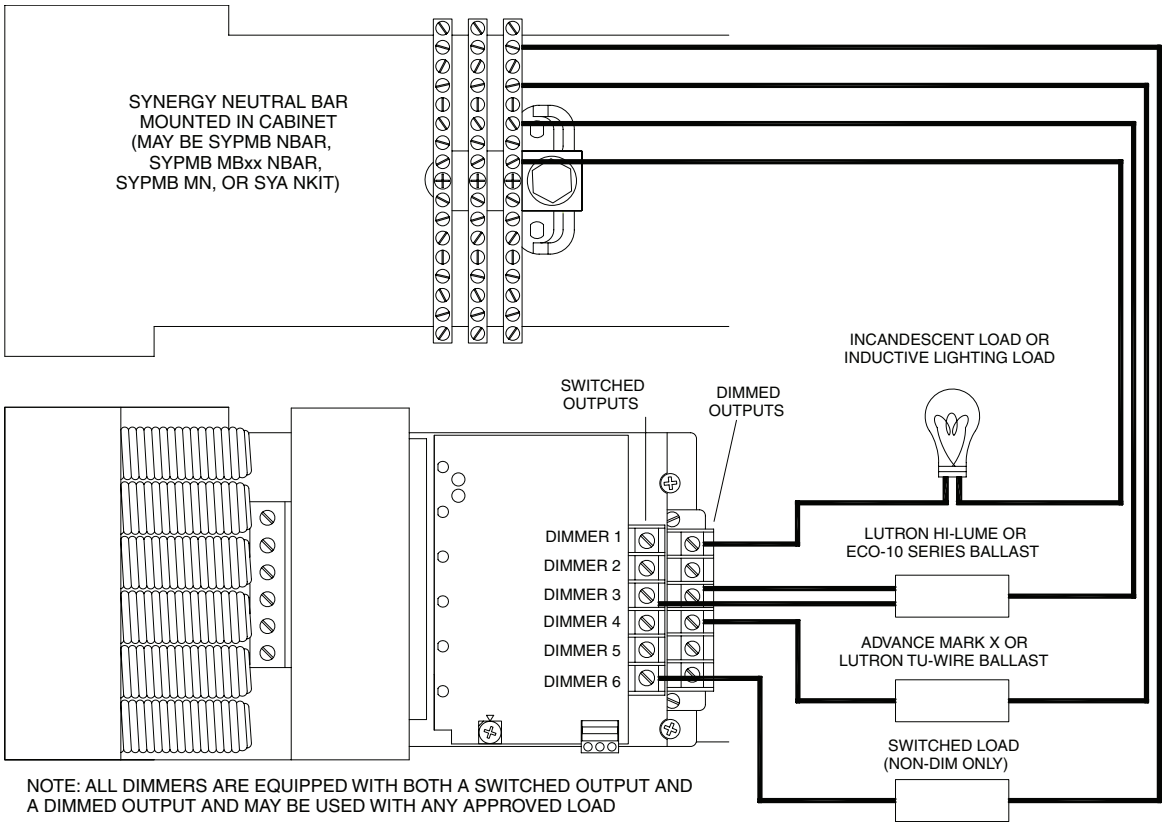


Figure 3 - Approved Load Wiring Details- Valid For All Dimmer Module Configurations

Three Phase Four Wire Main Feed Details

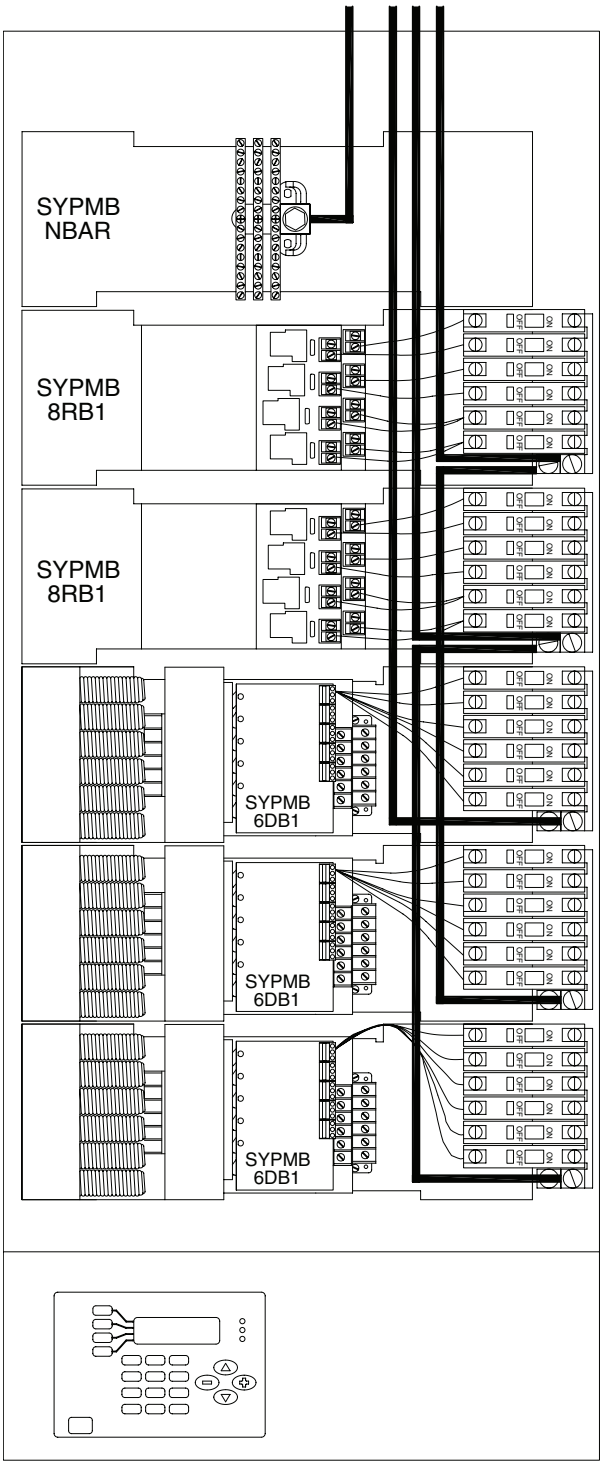


Figure 4 - Example Large Enclosure Module Population with Neutral Bar

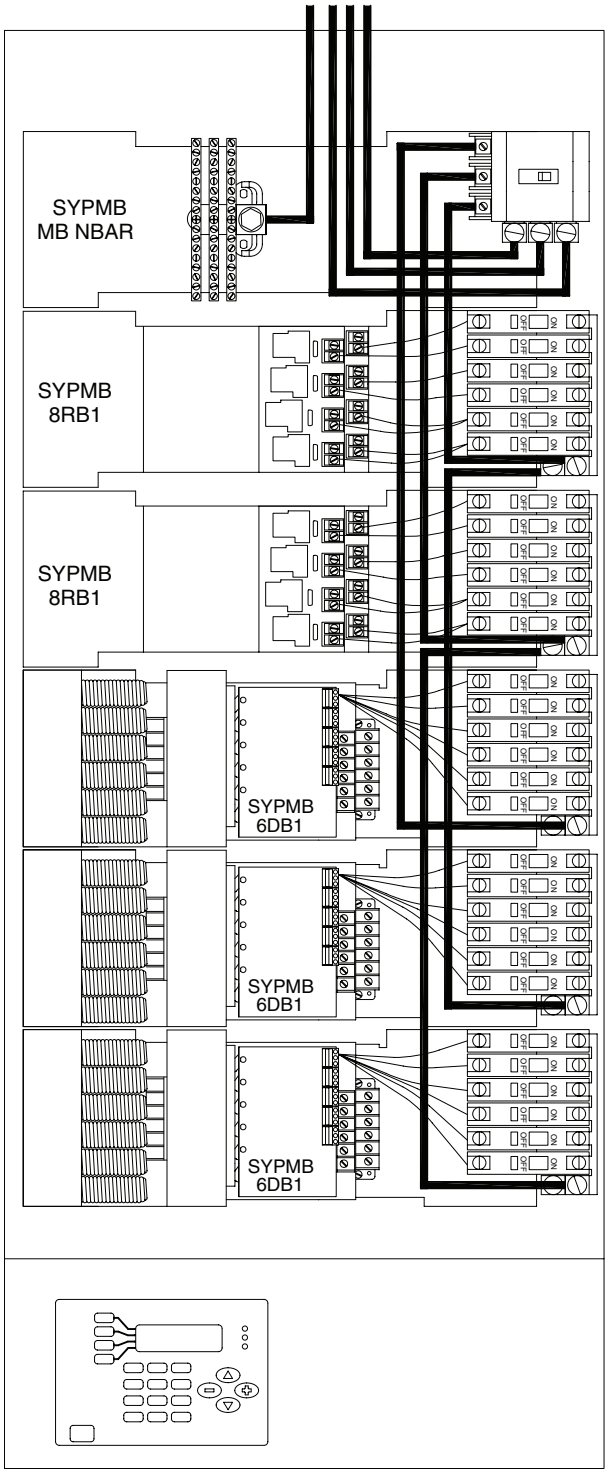


Figure 5 - Example Large Enclosure Module Population with Main Breaker and Neutral

Synergy Lighting Controls Conyers Ga, 30012
TEL : (800)-533-2719 www.Synergylightingcontrols.com

Synergy® LIGHTING CONTROLS
An AcuityBrands Company

Three Phase Four Wire Main Feed Details

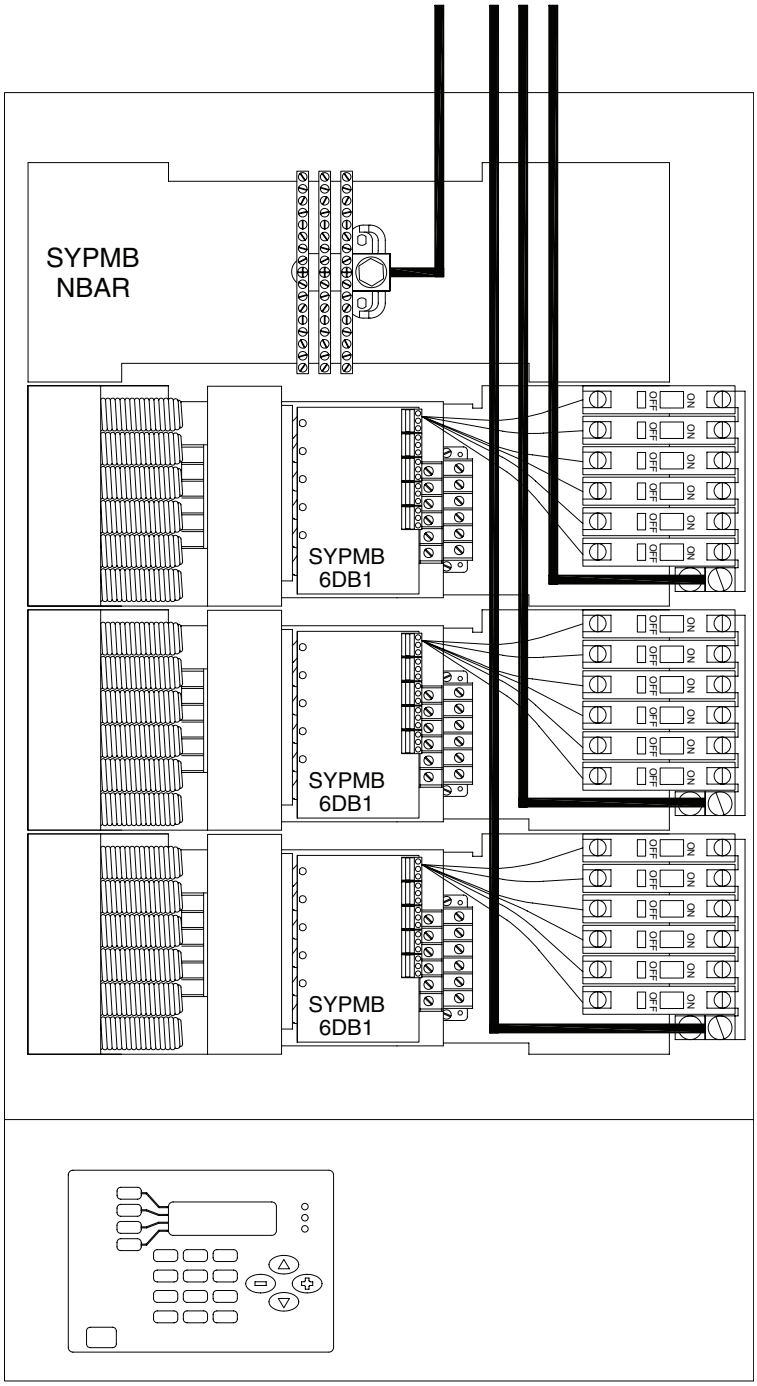


Figure 6 - Example Medium Enclosure
Module Population with Neutral Bar